Preventing and Mitigating the Harmful Effects of Adverse Childhood Experiences Through School-Based Systems of Care

Jeremy Braithwaite, PhD | Stacy Calhoun, PhD | Kira Jeter, MPH

EvoluACT

Healthcare INTEGRATED SERVICES School Based Health Care

aces aware GRANTEE

Acknowledgements

Paper Prepared By

Primary Authors

Jeremy Braithwaite, PhD

Stacy Calhoun, PhD

Kira Jeter, MPH

Contributing Authors

Genesis Munguia Rodriguez

Alejandra Ruelas

Special Thanks To

Janine Crossman, PMP

Jennifer Gorospe

Justin Miller, MS

Aurrera Health Group

California Department of Health Care Services (DHCS)

Healthcare Integrated Services

Los Angeles County Office of Education

Office of the California Surgeon General

Funding Statement

This paper was produced with grant funding support from the California ACEs Aware initiative, a first-in-the-nation effort to screen children and adults for Adverse Childhood Experiences (ACEs) in primary care, and to treat the impacts of toxic stress with trauma-informed care. The bold goal of this initiative is to reduce ACEs and toxic stress by half in one generation. For more information, visit the ACEs Aware website.

Photo Credit

Images in this report are from Pixabay and Healthcare Integrated Services.

Table of Contents

Introduction

Over the past two decades, there has been a call for increased focus on how adverse childhood experiences affect health across the life course.

Adverse childhood experiences (ACEs) are potentially traumatic experiences that occur in childhood and may have an immediate and lifelong harmful effect on an individual's emotional and physical health.[1] ACEs were first described in the landmark study by Felitti et al.[1] on the link between child abuse and family instability and the leading causes of death in a large HMO adult patient sample. Patients completed a survey on early childhood experiences; the study identified 10 categories of adverse events in 3 domains that respondents experienced by age 18 that were associated with several poor mental and physical health conditions in adulthood. These ACEs included abuse (physical, emotional, or sexual), neglect (physical or emotional), and household challenges (an incarcerated parent, mental illness, substance misuse or dependence, absence due to separation or divorce, or intimate partner violence).

ACEs have since been shown to be strongly associated, in a dose-response fashion, with some of the most common and serious health and social conditions facing our society, including 9 of the 10 leading causes of death in the United States, and with earlier mortality.[1–8] The findings of this study had far-reaching relevance on how toxic stress in childhood adversity is understood in the context of health, and further supported what was already known about how our social and environmental conditions, such as poverty, get under the skin to influence our health and well-being.[9–12]

The process by which stressful or threatening situations and experiences enter the body to alter an individual's biology and development has been described as the biological embedding of childhood adversity and stress.[13–17] This occurs via the disruption of allostasis, or the body's ability to adapt and respond to stress. Prolonged or repeated activation of this stress response system can make the body more susceptible to a variety of diseases and premature death—a condition known as toxic stress.[18–22] The National Academies of Science, Engineering, and Medicine has defined toxic stress as the "prolonged activation of the stress response systems that can disrupt the development of brain architecture and other organ systems, and increase the risk for stress-related disease and cognitive impairment, well into the adult years."[18]

Toxic stress can have an impact on several body systems and psychosocial areas, including the cardiovascular system (myocardial infarction, hypertension, and stroke); the renal/endocrine system (kidney disease, diabetes, metabolic disorders, obesity); the respiratory system (asthma, chronic obstructive pulmonary disease); behavioral and neurological issues (memory disorders, sleep disorders, emotional disorders, smoking, alcohol, and substance use disorders); and problems with education and employment.[1,2,23–27]

Since the original ACEs study, research has shown that ACEs are common in U.S. adults and affect some people more than others. For example, Merrick and colleagues[3] used Behavioral Risk Factor Surveillance System (BRFSS) survey data to estimate the prevalence of ACEs among adults in the United States. They found that over 60% of the sample reported having experienced at least one adverse childhood event, and more than 15% reported experiencing four or more. Participants who self-identified as multiracial reported more ACEs than those in other racial or ethnic categories. Also, female participants were more likely to report ACEs than males, and younger adults reported more events than older adults.

In another study, Hughes et al.[2] conducted a systematic review and meta-analysis of cross-sectional, cohort, and case-control studies to examine the relationship between ACEs and health outcomes. The study reviewed the risks of alcohol and substance use, mental illness, high-risk sexual behavior, violence, obesity, diabetes, physical inactivity, and other conditions that have been found to be associated with ACEs. Their findings showed that people who reported having experienced at least four ACEs were at higher risk for poor health outcomes compared to those who reported no ACEs.

Overview of the ACEs Aware Initiative

The ACEs Aware Initiative is a statewide effort led by the Office of the California Surgeon General, to reduce ACEs and toxic stress by 50% within a single generation.[28] The Office of the California Surgeon General and the California Department of Health Care Services are working with health care organizations to provide training and other resources to providers to help them increase

their capacity to assess and treat ACEs as part of standard patient care.

The initiative provides a model for a public health approach to prevent ACEs and reduce toxic stress through cross-sector coordination in primary, secondary, and tertiary prevention.[28]

Primary Prevention Strategies

Focused on preventing initial exposures to adverse experiences, and can include:[28] policies and programs that support families by improving economic opportunities; policies and programs that strengthen family resilience and bonds; public awareness campaigns on toxic stress; and parent training programs. These strategies can help prevent stress and hardships by promoting safety and well-being in the social determinants of health, including economic stability, social/community context, neighborhood and built environment, health care access and quality, and education access and quality.

Secondary Prevention Strategies

Focused on helping people who have been exposed to an adverse event but may who may not yet be experiencing any severe problems because of it.[28] The main strategy used for secondary prevention is screening for ACEs using the Pediatric ACEs and Related Life-events Screener (PEARLS).[29] This screening instrument allows for the early detection and identification of adverse experiences. A person who screens positive on the PEARLS can be treated by offering evidence-based strategies[28,30–32] to help regulate the stress response. These strategies include supportive relationships, high-quality sufficient sleep, balanced nutrition, regular physical activity, mindfulness and meditation, experiencing nature, and mental health care when indicated. The final strategy is tertiary prevention, which focuses on treating people who are experiencing harmful effects of toxic stress in order to reduce the progression or severity of the effect.[28]

Tertiary Prevention Strategies

Evidence-based strategies for tertiary prevention also include supportive relationships, high-quality sufficient sleep, nutrition, physical activity, mindfulness and meditation, experiencing nature, and behavioral health care; but there is an additional focus on educational justice, social service, public health, and early childhood systems beyond the clinic setting to help mitigate the harmful effects of ACEs.[28,30–32] Detection can help provide a structured and supportive plan for people and families affected by ACEs.

School-Based Integrated Systems of Care

School-based health centers (SBHCs) have been implemented in K–12 schools throughout the United States to meet the physical and behavioral health needs of students. Because of their unique location, SBHCs have the potential to fully integrate primary, secondary, and tertiary prevention programs into clinical practice to address ACEs. SBHCs typically provide basic primary care services, mental health services, substance abuse treatment, and/or social services to students, their families, and the broader community. SBHCs often augment the health care services the student is already receiving. If a student does not have access to care in the community, SBHCs can serve as the medical "home" for that student.

Even though SBHCs can improve access to primary and behavioral health care, the different types of service providers at play within and outside the SBHCs often operate independently of one another, which can result in fragmented care for students and their families.[33] Thus, there is a growing recognition that more holistic services for students and families are needed to improve their patient experience, continuity of care, and outcomes through integrated coordination and delivery of care.

Integration has been conceptualized as belonging on a continuum that can vary based on the level and location of the integration within the system. For instance, partial integration might consist of SBHCs staffing primary care and mental health providers who work onsite at the SBHC but are employed by different agencies that have different policies regarding patient care, whereas full integration might consist of SBHC service providers employed by the same agency, working together to provide integrated collaborative care to the patient.

While different models and approaches to integrated systems of care have been widely applied and documented across a variety of settings, no single example is recognized as best practice. Comparatively little is known about integrative care models wherein the school serves as the entry point for receiving comprehensive services. A better understanding of different approaches to delivering integrated systems of care are needed in order to provide best guidance for creating comprehensive and integrated services in schools. In this paper, we present findings from interviews with school stakeholders that help to identify promising practices for school-based integrated systems of care as well as barriers and facilitators to implementing and sustaining school-based integrated models.

Healthcare Integrated Services (HCIS): Example of School-Based Integrated System

Schools/Districts Served: Various schools within Los Angeles County

Community Context: HCIS provides health services in schools located in medically underserved communities in Los Angeles County. Youth in these communities are exposed to high levels of community violence and ACEs.

Entry Point for Integrated System of Care: Clinic level.

Model Overview: HCIS was established over 22 years ago with the goal of providing behavioral health treatment for students throughout Southern California with referrals to community providers to address physical health issues. However, HCIS administration found that the previous process for providing behavioral and primary health care to students was disjointed, with many of the physical health-related needs of students remaining unmet despite the fact that they were referring students to other providers in the community. Thus, to eliminate the barriers students faced in accessing the multifaceted health care they needed, HCIS decided to start over from scratch to develop a more efficient and comprehensive system for addressing both the physical and behavioral health needs of K–12 students in an easily accessible school setting.

In 2019, HCIS implemented a universal integrated primary and behavioral health screening program into their clinic services. The screening includes the PEARLS, along with questions covering nine domains: access to health care, support systems, emotional health and safety, physical health, self-harm/suicide, sexual health, alcohol and substance abuse, trauma and victimization, delinquency, and nutrition wellness. The primary goal of the universal screening program is to identify students with health issues, behavioral issues, and ACEs exposure and refer them to needed services within the clinic and/or community.

HCIS applies a collaborative care approach by engaging with the students and their parents/caregivers as soon as a condition or concern is identified through the screening. A collaborative care approach is also established between the primary care, behavioral health, and social service teams as they work together to develop a treatment and service plan for the student and monitor their progress. Communication among team members is made through the utilization of electronic health records (EHR). Use of the EHR helps to make the monitoring of patient outcomes and the exchange of information among team members more efficient.

Method

Participants and Study Design

From August 13 to September 13, 2021, we conducted semi structured interviews via Zoom with 15 school stakeholders in California. The sample included school administrators (*n* = 6), direct service providers (*n* = 4), and district/school consultants (*n* = 5), representing the geographical regions of Southern, Central, and Northern California. Individuals were eligible to participate in the interview if they had experience overseeing and/or providing services to students in K–12 school settings. Individuals who worked with school districts and schools as consultants to provide training and technical assistance in improving services and student outcomes were also eligible.

Two methods of recruitment were employed in order to assemble the final sample of school stakeholders. First, we sent direct emails to school stakeholders in our network, inviting them to participate in the interview. We also utilized a snowball sampling approach whereby we asked participants to forward the recruitment email to other stakeholders in their network who they believed would be able to make a valuable contribution to this study.

Participants provided verbal informed consent after receiving an overview of the research purpose. As part of the interview, participants were asked to discuss current school-based approaches to addressing ACEs, with a particular emphasis on integrated systems of care in K–12 schools.

Interviews were conducted until we reached thematic saturation at 15 interviews, which was in line with what has been found in prior research.[27]

Each interview lasted approximately 45 minutes and took place via Zoom.

All interviews were recorded and transcribed verbatim.

Each stakeholder received a $50 gift card for taking part in the interview.

LifeLong Medical Care:
Example of School-Based Integrated System

Schools/Districts Served: Oakland Unified School District and Emeryville Unified School District.

Community Context: LifeLong Medical Care (LMC) serves youth and families in areas where ACEs and toxic stress impact daily life. Neighborhood violence, school lockdowns, COVID-19, and wildfires and related air quality issues are all major triggers at present. The communities served are home to a large number of immigrant youth from Guatemala, Honduras, El Salvador, Yemen, Algeria, Syria, Nigeria, and Ethiopia, many of whom experienced trauma as they made their way to the United States.

Entry Point for Integrated System of Care: Clinic level.

Model Overview: LifeLong Medical Care provides health, dental, and social services to underserved people of all ages; creates models of care for the elderly, people with disabilities, and families; and advocates for continuous improvements in the planning and delivery of health care. LMC currently operates three school-based health centers in Oakland and Emeryville that provide comprehensive health care, health education, and youth development services to K–12 students. Primary care services, dental services, and behavioral health care are all provided.

The organization uses use the Rapid Adolescent Prevention Screener tool (RAAPS)33—a web-based screener consisting of 21 yes/no questions focused on physical, emotional, and sexual abuse, neglect, bullying, nutrition, and safety—to mass-screen students (30–40 per day) at the start of the fall semester, collaborating with PE teachers and school administrators to facilitate the screening. Students also complete the Patient Health Questionnaire-9 (PHQ-9) if they are flagged for depression or anger. Students complete a CRAFFT 2.135 screener if they disclose substance abuse issues. The PEARLS screener is also used for yearly well visits/well child checks for youth and teenagers; for students younger than 12, the screener is completed by a parent or caregiver, while older students complete the screener themselves.

Positive RAAPS screenings result in warm handoffs to behavioral health clinicians. If additional support services are needed, a COST (Coordination of Services Team) referral takes place to determine what services can be assigned to students. Different support services are offered by a licensed clinical social worker, such as anger management groups, healthy habits/healthy lifestyles groups (e.g., mindfulness, sleep hygiene, mindful eating), grief groups, and youth-peer education groups. Team members can refer students to restorative justice circles and mediation/de-escalation groups facilitated by district employees, which keep youth from getting dismissed from the classroom and thus causing disruption.

Analyses

The interviews were analyzed using rapid thematic analysis, which has been found to be consistent with more traditional forms of qualitative analyses that include interrater reliability checks.[28,29] The first three authors met regularly throughout the data collection process to discuss the emerging themes. We organized the interview notes and transcriptions by seven key interview questions categorized into four substantive domains (i.e., experience addressing ACEs in schools; facilitators and barriers to implementing integrated systems of care; key components for integrated systems of care; and current gaps in school-based services) using a matrix in Excel. Following each interview, the facilitator inserted notes into the matrix regarding participant response to each of seven key interview questions along with representative quotes from the interviews. Each member of the analysis team reviewed the completed matrix and identified overarching themes from each domain, which were further refined until consensus as to the themes was reached.

Results

Key Components to Building School-Based Integrated Systems of Care

There is currently no national standard for school-based integrated systems of care which prescribes the basic operational characteristics that all such models should share as benchmarks for performance. As interview participants discussed the issues, challenges, and opportunities they have faced in the planning, design, and operation of school-based integrated systems of care, several core characteristics emerged that may inform the development of such models moving forward.

Building Appropriate Infrastructure

The planning of school-based integrated systems of care should consider the broader needs and context of the wider community. Interview participants stressed the importance of ensuring that schools are creating something that meets the needs of their communities.

Participant Quote

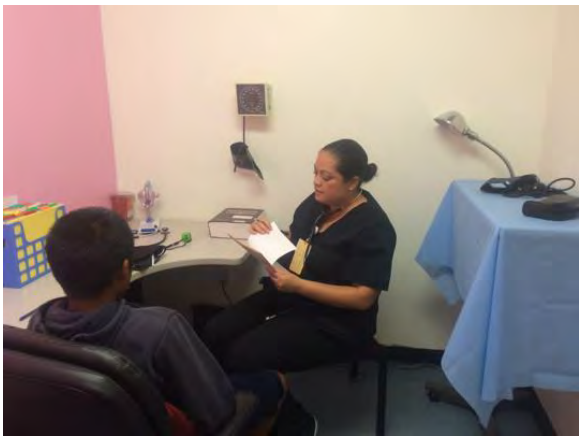
"Don't just open a wellness center and provide a service because, like, 'Wow, this looks amazing!' Identify what the lacking areas are in your community, and then provide it."

Onsite school presence and full integration into the school system are important for removing service silos. One interviewee stressed, "Being able to just pull all of us together and . . .look at the student as a whole and see what services they need, and who's qualified to provide it. . . . that was a huge turning point for us."

Training all school staff on ACEs and toxic stress and the linkage to student behaviors in school is critical. One interviewee stated that he believed the majority of teachers and administrators he had worked with over the course of his career are still largely unaware of the science of ACEs and toxic stress and closing this knowledge gap is integral to the success of building school-based integrated models of care. Another interviewee remarked, "We have trained our staff . . . on ACES and have reviewed the ACEs study and findings with them to help paint the picture because a lot of our staff don't necessarily come from this part of town—or if they do, it was much different when they lived here."

Comprehensive Screening

Universal screening at the beginning of the school year helps establish a baseline among the student population. Multiple modalities of screening capture a broader range of risk, protective, and resiliency factors. Some interviewees commented on the fact that screening solely for ACEs provides a narrow and limited understanding of the full scope of trauma affecting students, especially in the context of a global pandemic. The PEARLS screener provides an inroad for discussing ACEs and trauma with students.



Individualized and Holistic Approaches to Care

Whole-person care (WPC) coordinates physical health, behavioral health, and social services, and is the standard of care for school-based integrated models. One interviewee observed, "There are some high school districts . . . that have been building systems to look at the whole child and looking at bringing in mental health therapists and social workers and more counselors and those pieces and having them as part of their system within their structure."

Some schools employ a multitiered system of supports (MTSS) framework to address the needs of students experiencing academic and behavioral challenges. MTSS teams may include the school principal, school psychologist/behavioral interventionist, academic support services staff, and teachers meeting together on a weekly basis to create individualized service plans for youth.

School-based health providers emphasized the importance of youth empowerment in addressing and treating the impact of ACEs and trauma. In particular, it is critical that providers do not "force" a specific service on a child but rather provide them with the appropriate information about their options and let them make an informed and empowered choice.

Participant Quote

"I'm not going to push counseling on anyone who is not ready. So, just because you told me that you have a trauma history, I don't assume that you are ready to take the next step into counseling, so generally . . . I'll talk to them about what are their coping skills, what are their support systems, and then giving them options."

Streamlined Communication Protocols

Hiring providers under a single entity helps to remove communication barriers. One interviewee observed that this practice has helped ensure everyone is on the same page with regard to student health: "Those nurse practitioners and social workers—those are our employees . . . those providers and the support staff being our employees allow that communication to flow between the wellness centers and the schools."

Create Opportunities for Equal Access

Schools employ creative means to ensure students schoolwide have opportunities for equal access to screening and referral to services. One interviewee commented that their school can complete many screenings in a day. The provider begins screening the higher grades and works backward to younger students. This strategy provides the school an opportunity to "catch those students who are transitioning to another

school sooner." Lowering barriers to care is crucial to ensuring health equity.

Participant Quote

"All students are screened and if a student is positive for ACEs, they will connect the student to a clinician who will do further assessment. If the needs of the student are beyond the scope of the clinician, the student will be referred to the service coordination team that is co-located in the school. The coordinator will decide what additional services the student needs. However, not all schools reported having an infrastructure that supports students have the opportunity to receive screening and be referred to supportive services."

Ensuring Continuity of Care

In addition to providing services directly, schools-based integrated systems of care employ a case management approach to ensure follow-through on a student's entire treatment program. One interviewee explained that when making referrals out to community resources, the licensed clinical social worker stays involved with those cases to ensure the child is going to appointments and receiving services: "We don't just link out to the community and wash our hands of it. It's more of a case management approach versus a direct service approach. Consistency in students' team of providers throughout the course of their school career is the gold standard for school-based integrated systems of care. Interviewees stressed the importance of starting interventions early in elementary school and having the same team of providers with youth throughout their whole K–12 career. For instance, one interviewee explained that schools in their district are grouped in particular feeder patterns from elementary to junior high school, such that service providers maintain their care relationships with youth.

Program Evaluation

Process and performance measurement, continuous quality improvement, and impact evaluation are important tools used to track and monitor student progress and outcomes, provide information to school administration, and identify needed improvements to school-based integrated systems of care. Overall, there are research gaps with regard to what works in terms of how to implement a program as well as how to use continuous quality improvement to demonstrate what works. Interviewees cited a lack of information on "real-world" implementation best practices and how "different sectors and systems interact," as well as the need to figure out how "to strengthen that at the policy level."

Facilitators to School-based Integrated Systems of Care

Centering social justice. Several interviewees emphasized that creating systems that ensure health and racial equity in schools requires a firm commitment to social justice and advocating for the health and wellness of children. One interviewee stated, "Many school-based health centers are rooted in social justice and they will do whatever it takes to get the kids connected to services." Another interviewee observed that heightened attention to the Black Lives Matter movement and other social movements in the United States has brought attention to the pervasive trauma that exists in medically underserved communities.

Utilizing interns and other professionals to overcome shortage of licensed and credentialed service providers. Several interviewees have noted that in order to ensure they can provide needed services to students in a timely manner, they have utilized interns and/or other service providers in place of licensed professionals. One participant noted that she was able to get "three interns for a semester for the price of one licensed provider." Utilizing interns or other types of professionals to fill certain roles within the system of care helped respondents to address workforce challenges rising from shortages of licensed or credentialed professionals in their community and/or funding constraints.

Commitment to learning about ACEs and trauma. Establishing a school-based integrated system of care requires a commitment to ongoing learning and training on ACEs and trauma by school staff (e.g., teachers, administrators, and support staff). This may include training and/or professional development workshops focused on methods for recognizing ACEs and trauma, strategies for engaging students in conversations about trauma, or evidence-based practices for treating and undoing the long-term impacts of toxic stress. One interviewee stressed that building the capacity of school staff to understand complex needs of students experiencing ACEs is germane to the success of building these models; if school staff are ACEs-aware, they will be more likely to cooperate and collaborate with school-based health care providers in developing responsive solutions to students in need.

Strengths- and assets-based approaches to addressing ACEs, trauma, and toxic stress.

While screening for ACEs is crucial for identifying who is at risk for toxic stress and initiating the appropriate steps for responsive interventions, this is only half the equation to building healthier futures and life outcomes for affected youth. Several interviewees emphasized the importance of also prioritizing protective factors and resiliency, including quality of relationships with parents/caregivers, problem-solving skills, self-regulation, and broader community support. As one interviewee put it, "We need to focus not just on risk factors for trauma, but also resiliency factors. Students have different resiliency thresholds; we don't know the impact on trauma for every student." Incorporating conversations about protective factors and resilience in promoting healthier futures for youth is a key facilitator to creating school-based integrated systems of care as it lends to the creation of more holistic approaches to care. For example, one interviewee explained that stronger therapeutic relationships are possible when the provider-client relationship is not entirely centered on the deficits or shortcomings of the client.

Increased emphasis on social and emotional learning.

The Collaborative for Academic, Social, and Emotional Social and Emotional Learning (CASEL) defines social and emotional learning (SEL) as "how children and adults learn to understand and manage emotions, set goals, show empathy for others, establish positive relationships, and make responsible decisions."[30] Some interviewees described an important shift in the schools where they work toward prioritizing the restoration of relationship skills and feelings of safety in school settings, especially in the context of a global pandemic.

Participant Quote

"A commitment to SEL in the classroom is an important precursor to building school-based integrated systems of care because it allows school staff and teachers to better see the connection between ACEs, childhood trauma and academic outcomes in impacted students."

Bakersfield City School District: Example of School-Based Integrated System

Schools/Districts Served: Bakersfield City School District.

Community Context: The surrounding community has a very high poverty rate and exposure to gun violence. A significant number of students in this school district have experienced four or more ACEs. There is a lack of appropriately credentialed and licensed professionals in the community who can provide certain types of mental health services.

Entry Point for Integrated System of Care: School level.

Model Overview: The Bakersfield City School District has built a multitiered system of support with a heavy focus on building relationships with students, families, and staff. All of their schools have a team of school personnel (i.e., principals, psychologists, behavioral health intervention specialists) who meet on a weekly basis to identify students who need services and discuss progress of students already receiving services, making adjustments to the service plan as needed. If this team determines that a student needs a higher level of support they will refer that student to the District's Wellness Center, where a social worker will conduct the intake process, which includes administering the PEARLS. If the results of the intake assessment indicate that the student does not need intensive support, the social worker will refer the student to an associate social worker or intervention specialist with recommendations for support. If the results of the intake assessment indicate that the student does need a higher level of support, the Wellness Center will provide that support directly or connect the student to a provider in the community while continuing to provide case management services.

All school-based providers are employed by the school district, which helps to ensure everyone is on the same page. All care sites have intervention specialists who help students develop healthy coping skills. They also have mentors who work with specific high-risk populations, such as foster care youth and African American students. Some of the higher-need schools have a dedicated social worker assigned to them; the system also utilizes itinerant social workers who serve a group of schools to work with students to identify and address any underlying factors that are driving certain behaviors (e.g., attendance issues). The wellness centers each have a nurse practitioner on hand, allowing them to provide basic primary care services including physical examinations, health screenings, treatment for minor illnesses and injuries, and immunizations. The credentialed school social workers at the wellness center can provide individual, group, and family therapy. The wellness center may also refer students with high-level mental health needs to local mental health agencies in the community. The multitiered support structure allows the system to triage things so that they can ensure that only those with the highest level of need are referred to scarce mental health resources in the community.

Barriers to Implementing and Sustaining School-Based Integrated Systems of Care

Funding. Almost all interviewees commented on the lack of funding available at the state and federal levels to develop and implement school-based integrated systems of care. One interviewee explained that the school-based health center where she works strives to meet the needs of the whole community, meaning that many of the provided services are not billable against insurance or Medi-Cal. She added, "Some clinics would only see a student if it was a billable thing, but they need to meet the needs of the whole community, regardless of the ability to pay." Another interviewee commented on how the inconsistency of available grant funding often creates abrupt stoppages in her work: "I've been a grant-based social worker for a long time, but they run out and then I have to divvy up all the things I was doing to different people and hope that I had built strong enough relationships to hold it." While interviewees stressed that they cannot rely solely on grants as a sustainable resource, they emphasized that it takes a long term to procure stable and predictable funding streams and develop business strategies that maximize patient revenue.

Workforce availability. Staffing challenges were another key infrastructure issue identified by interviewees. Some indicated that the current shortage of licensed and credentialed medical providers in California is a key barrier to starting up a school-based integrated system of care. One interviewee observed, "We would need medical professionals to do something like this and throughout the state of California; there is a shortage of medical professionals, particularly nurses." Relatedly, another interviewee indicated that the specific skill sets needed to work in a school-based context may be lacking: "There are a lot of school-based skills that medical professionals may not have. For example, the skill of an ER nurse likely would not transfer to a school-based health context." Other interviewees emphasized that staff turnover can also be very problematic. Staff turnover can disrupt schools that attempt to set up systems of care by placing the school in a process of frequent recruitment, integration, and rapport building mode. It can also negatively affect workplace morale by imposing additional workload expectations and obligations on remaining staff.[31,32]

Building trust and common ground amongst all partners. The success of a school-based integrated system of care requires providers and school staff to work together in pursuit of the best possible outcomes for the child. Some interviewees observed that territoriality and conflict between school staff and clinic staff can sometimes be a barrier to achieving this goal. One interviewee explained, "For example, school nurses are vital and important. They can feel threatened by a school-based center. School nurses and clinic nurses—they may have a conflict. Sometimes, school counselors can be territorial—that 'they're their students.' When they see each other as partners, it works better."

Building trusting relationships with families. School-based integrated systems of care strive to involve parents or caretaker and other family members in matters pertaining to student health and wellness, where appropriate. Families are also a focal point for health education and health promotion events. Connecting with families at this level can be challenging. One interviewee stated, "Not all families, especially those who would have experienced ACEs, not all of them see schools as a place they can trust. You have to go into this knowing that you might need to build that bridge for them."

Creating new and innovative solutions is difficult when working in survival/crisis mode. The past 18 months have been extremely challenging for schools in terms of navigating the sharp vicissitudes of a pandemic. Uncertainties surrounding the public health emergency still persist in school settings. Several interviewees explained that the majority of this period has been spent operating in "crisis mode" and managing the damage inflicted by the collective trauma of COVID-19. Operating in such an environment leaves little opportunity to think about and plan innovative solutions to addressing ACEs and complex trauma. As one interviewee put it, "Schools are so overwhelmed with concerns right now; some school staff are resistant to doing things a different way."

Noted gap in serving uninsured, non-Medi-Cal covered families. The ultimate goal of many school-based integrated systems of care is to provide care to <u>all</u> students and families. Some interviewees shared that there are limitations in terms of services and resources they are able to refer students and families out to. Students and families who are uninsured or underinsured, but do not qualify for Medi-Cal coverage, can be at a particular disadvantage when it comes to accessing referral services. One interviewee stated, "My biggest complaint

to the state is that the best services that [we] can refer students and families to require Medi-Cal eligibility. If you don't have insurance or are not Medi-Cal eligible, services are extremely limited."

Schools need support developing and implementing multidimensional policies and procedures. Although not every school has explicit policies and processes in place to address ACEs, many do have some type of practice in place to identify pupils and connect them to resources (i.e., community liaison, campus service coordinator). One interviewee, for example, stated that the school has a team of professionals who analyze student statistics such as absences and disruptive behavior, but that they are striving to build a formal screening instrument so that they can "incorporate social/emotional, connection, and belonging into learning." Another interviewee stated that their school is apprehensive about using screening because they might not be prepared to support students who require assistance: "If you screen for ACEs, you'd better have the resources in place."

Conclusion

Early intervention is critical for a child experiencing ACEs; but many children and adolescents experience multiple challenges in getting the help they need in a timely manner. Schools can play an important role in improving the screening, treatment, and prevention of ACEs and associated health issues among K–12 students and their families by implementing school-based integrated systems of care that can address some of the barriers to traditional models of care. However, there are no clear guidelines on how schools should create integrated systems of care. The findings from the qualitative interviews revealed a variety of different integrated care models already operating in school districts throughout California and identified key components that should be taken into consideration when designing such a model. Building a school-based integrated system of care that meets the specific needs of the community and student population will help to ensure that students who have been exposed to ACEs are getting the help they need to improve their overall health and well-being.

Resources

ACEs Aware Initiative The ACEs Aware Initiative is a statewide initiative led by the Office of the California Surgeon General with the goal of halving adverse childhood experiences (ACEs) and toxic stress within one generation. The state Surgeon General's Office and the Department of Health and Human Services are collaborating with health care groups to provide training and other resources to physicians to improve their capacity to assess and treat ACE as part of primary care.

California School-Based Health Alliance The California School-Based Health Alliance is a nonprofit organization that focuses on bringing health services and resources to the state's schools. The organization's ultimate goal is to improve student's health and well-being as well as academic success. The Alliance provides training and technical assistance to schools and communities, shares best practices with educators, and advocates for policies that promote quality health care within schools.

Collaborative Learning Solutions For over a decade, Collaborative Learning Solutions (CLS) has worked with school districts and sites across the country to create positive school environments that facilitate student success. CLS provides a range of services to help build district and site capacity to address ACEs and other issues impacting the student population.

Dovetail Learning Dovetail Learning is a non-profit organization whose mission is "to [strengthen] resilience in children, youth, and the adults who serve them." Dovetail trains and supports educators, physicians, parents/caregivers, and business leaders in how to foster their social-emotional and resilience skills, both for themselves and in order to support children, families, and organizations—and, ultimately, to change the culture within these groups.

Healthcare Integrated Services Healthcare Integrated Services (HCIS) provides integrated primary care and behavioral health services for K-12 students and medical apprenticeship programs for high school students. HCIS also provides resources and tools to help other school-based providers build their capacity to assess and address ACEs in their patient population.

National Center of Excellence for Integrated Health Solutions The National Center of Excellence for Integrated Health Solutions provides evidence-based resources, tools, and support for organizations working to integrate primary and behavioral health care. Center experts in organizational readiness, integrated care models, workforce & clinical practice, health and wellness, and financing and sustainability are available to help organizations create a customized approach to advance integrated care and health outcomes.

SHAPE Education SHAPE Education works with schools and other agencies to establish data systems that provide educators and providers with meaningful and immediate insights of student progress. SHAPE Education can work with school districts and health providers to create customized and integrated data systems to improve communication and tracking of student progress across agencies.

References

1. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *Am J Prev Med*. 1998;14(4):245–258. doi:10.1016/S0749-3797(98)00017-8
2. Commission on Social Determinants of Health. Accessed October 17, 2021. https://www.who.int/teams/social-determinants-of-health/equity-and-health/commission-on-social-determinants-of-health
3. Social Determinants of Health—Healthy People 2030 | health.gov. Accessed October 17, 2021. https://health.gov/healthypeople/objectives-and-data/social-determinants-health
4. Braveman P, Gottlieb L. The social determinants of health: It's time to consider the causes of the causes. *Public Health Rep*. 2014;129(Suppl 2):19–31.
5. Link BG, Phelan J. Social conditions as fundamental causes of disease. *J Health Soc Behav*. Published online 1995:80–94. doi:10.2307/2626958
6. Krieger N, Rowley DL, Herman AA, Avery B, Phillips MT. Racism, sexism, and social class: Implications for studies of health, disease, and well-being. *Am J Prev Med*. 1993;9(6, supplement):82–122. doi:10.1016/S0749-3797(18)30666-4
7. Krieger N, Sidney S. Racial discrimination and blood pressure: The CARDIA study of young black and white adults. *Am J Public Health*. 1996;86(10):1370–1378. doi:10.2105/AJPH.86.10.1370
8. Cassel J. The contribution of the social environment to host resistance: The fourth Wade Hampton Frost Lecture. 1976. *Am J Epidemiol.* 1995;141(9):798–814. doi:10.1093/oxfordjournals.aje.a117515
9. Berkman LF, Kawachi I, Glymour MM, eds. *Social Epidemiology*. 2nd edition. Oxford University Press; 2014.
10. Hertzman C, Boyce T. How experience gets under the skin to create gradients in developmental health. *Annu Rev Public Health*. 2010;31(1):329–347. doi:10.1146/annurev.publhealth.012809.103538
11. McEwen BS. Protective and damaging effects of stress mediators: central role of the brain. *Dialogues Clin Neurosci*. 2006;8(4):367–381.
12. McEwen BS. Stressed or stressed out: What is the difference? *J Psychiatry Neurosci*. 2005;30(5):315–318.

13. Kelly-Irving M, Lepage B, Dedieu D, et al. Adverse childhood experiences and premature all-cause mortality. *Eur J Epidemiol*. 2013;28(9):721–734. doi:10.1007/s10654-013-9832-9
14. Shern DL, Blanch AK, Steverman SM. Toxic stress, behavioral health, and the next major era in public health. *Am J Orthopsychiatry*. 2016;86(2):109–123. doi:10.1037/ort0000120
15. Williams Shanks TR, Robinson C. Assets, economic opportunity and toxic stress: A framework for understanding child and educational outcomes. *Econ Educ Rev*. 2013;33:154–170. doi:10.1016/j.econedurev.2012.11.002
16. Brady KT, Back SE. Childhood trauma, posttraumatic stress disorder, and alcohol dependence. *Alcohol Res Curr Rev*. 2012;34(4):408–413.
17. Franke HA. Toxic stress: Effects, prevention and treatment. *Children*. 2014;1(3):390–402. doi:10.3390/children1030390
18. Carroll JE, Gruenewald TL, Taylor SE, Janicki-Deverts D, Matthews KA, Seeman TE. Childhood abuse, parental warmth, and adult multisystem biological risk in the Coronary Artery Risk Development in Young Adults study. *Proc Natl Acad Sci U S A*. 2013;110(42):17149–17153. doi:10.1073/pnas.1315458110
19. Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *Lancet Public Health*. 2017;2(8):e356–e366. doi:10.1016/S2468-2667(17)30118-4
20. Lorenc T, Lester S, Sutcliffe K, Stansfield C, Thomas J. Interventions to support people exposed to adverse childhood experiences: systematic review of systematic reviews. *BMC Public Health*. 2020;20(1):657. doi:10.1186/s12889-020-08789-0
21. Finkelhor D. Screening for adverse childhood experiences (ACEs): Cautions and suggestions. *Child Abuse Negl*. 2018;85:174–179. doi:10.1016/j.chiabu.2017.07.016
22. Marchette LK, Weisz JR. Practitioner review: Empirical evolution of youth psychotherapy toward transdiagnostic approaches. *J Child Psychol Psychiatry*. 2017;58(9):970–984. doi:10.1111/jcpp.12747
23. Bentovim A, Vizard E, Gray J. Editorial perspective: Treatment of complex maltreatment—Beyond the NICE guideline? Manuals, muddles or modules. *Child Adolesc Ment Health*. 2018;23(3):297–300. doi:10.1111/camh.12280
24. Home. ACEs Aware. Accessed October 17, 2021. https://www.acesaware.org/
25. Thakur N, Hessler D, Koita K, et al. Pediatrics adverse childhood experiences and related life events screener (PEARLS) and health in a safety-net practice. *Child Abuse Negl*. 2020;108:104685. doi:10.1016/j.chiabu.2020.104685

26. Nooteboom LA, Mulder EA, Kuiper CHZ, Colins OF, Vermeiren RRJM. Towards Integrated youth care: A systematic review of facilitators and barriers for professionals. *Adm Policy Ment Health Serv Res*. 2021;48(1):88–105. doi:10.1007/s10488-020-01049-8
27. Guest G, Bunce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. *Field Methods*. 2006;18(1):59–82. doi:10.1177/1525822X05279903
28. Hamilton A. Qualitative methods in rapid turn-around health services research. Veterans Administration *Health Services Research & Development Cyberseminar.* https://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/780-notes.pdf. December 11, 2013.
29. Taylor B, Henshall C, Kenyon S, Litchfield I, Greenfield S. Can rapid approaches to qualitative analysis deliver timely, valid findings to clinical leaders? A mixed methods study comparing rapid and thematic analysis. *BMJ Open*. 2018;8(10):e019993. doi:10.1136/bmjopen-2017-019993
30. Advancing Social and Emotional Learning. CASEL. Accessed October 17, 2021. https://casel.org/
31. Pescheny JV, Pappas Y, Randhawa G. Facilitators and barriers of implementing and delivering social prescribing services: a systematic review. *BMC Health Serv Res*. 2018;18(1):86. doi:10.1186/s12913-018-2893-4
32. Glisson C, Schoenwald SK, Kelleher K, et al. Therapist turnover and new program sustainability in mental health clinics as a function of organizational culture, climate, and service structure. *Adm Policy Ment Health Serv Res*. 2008;35(1–2):124–133. doi:10.1007/s10488-007-0152-9
33. Darling-Fisher CS, Salerno J, Dahlem CHY, Martyn KK. The Rapid Assessment for Adolescent Preventive Services (RAAPS): Providers' assessment of its usefulness in their clinical practice settings. *J Pediatr Health Care*. 2014;28(3):217–226. doi:10.1016/j.pedhc.2013.03.003
34. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9. *J Gen Intern Med*. 2001;16(9):606–613. doi:10.1046/j.1525-1497.2001.016009606.x
35. Knight JR, Sherritt L, Shrier LA, Harris SK, Chang G. Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Arch Pediatr Adolesc Med*. 2002;156(6):607–614. doi:10.1001/archpedi.156.6.607