Addressing Mental Health and Physical Activity in K-12 Children in Colorado Springs: A Health Impact Assessment

November 2016

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Acknowledgements
This project relied on the time and expertise of numerous groups and individuals. Celia Harris of Human Impact Partners provided technical assistance and guidance throughout the Health Impact Assessment process. Bethany Rogerson of the Health Impact Project provided guidance throughout the grant project. Julie Gibbs of Children's Hospital Colorado provided insight and guidance relating to non-profit hospitals and hospital community benefit. Lorez Meinhold of Keystone Policy Center facilitated stakeholder group meetings that informed this Health Impact Assessment and its recommendations. The Strategic Advisory Group for the Colorado HIA Program provided feedback on our process and reviewed drafts of the formal HIA report. The Strategic Advisory Group consisted of Drs Carol Runyan, Tim Byers, and Holly Wolf of the Colorado School of Public Health, Dr. Desmond Runyan of the Kempe Center, Dr. Shale Wong of the University of Colorado – School of Medicine, and Ms. Julie Gibbs of Children's Hospital Colorado. Special thanks to the Program for Injury Prevention, Education & Research (PIPER).

Our Institutional Partner
This Health Impact Assessment was conducted in collaboration with Children's Hospital Colorado.

Funding
This Health Impact Assessment is supported by a grant from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts. Matching funds from Children's Hospital Colorado – Child Health Advocacy Institute, Children's Hospital Colorado – Children's Research Institute, the Colorado School of Public Health – Center for Public Health Practice, and University of Colorado – School of Medicine, Department of Pediatrics, Section of Emergency Medicine.

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Executive Summary

The Colorado School of Public Health (CSPH), in collaboration with Children's Hospital Colorado (CHCO), conducted a health impact assessment (HIA) to generate implementation recommendations for the hospital's community health improvement plan in Colorado Springs. This HIA, which was guided by stakeholder input and priority areas identified in the CHCO Community Health Needs Assessment (CHNA) in El Paso County, focuses specifically on mental health and physical activity in school-aged children. Additionally, it addresses how these two priority health needs can be addressed through the utilization of school-based health centers (SBHCs) and through a new concept of a school-based resource center (SBRC).

SBHCs provide needed medical and nonmedical services to children that are underinsured, uninsured or do not have access to adequate care. These centers partner with hospitals, clinics, and community service providers to offer needed services to students attending the schools or districts in which they are located. While similar to SBHCs, SBRCs extend services and partnerships that are traditionally provided to students attending the schools or districts in which SBHCs are housed. SBRCs are a new concept, initiated by CHCO, that aim to deliver a holistic approach to addressing prevention, treatment, and education for students, their families, and the broader community through strong organizational partnerships.

Background

Changes associated with the Affordable Care Act and Internal Revenue Service rules require that non-profit hospitals conduct a CHNA every three years. To comply with these new regulations, hospitals must complete both a CHNA and a community health improvement or implementation plan to address the identified priority health needs. CHCO completed their CHNA for El Paso County in April 2016. The purpose of the CHNA was to help CHCO focus their efforts in the most urgent challenges that face children in Colorado Springs. The CHNA highlighted two priorities identified by the community: 1) mental health; and 2) the combined priorities of physical activity, nutrition and obesity.

Summary of Findings

This HIA used a combination of approaches to gather data and inform recommendations including: 1) a literature review; 2) a program assessment and 3) a review of evidence-based SBHC approaches. The literature review gathered published research on the history and background of SBHCs, as well as the impact of SBHCs on child mental health and physical activity outcomes. The program assessment collected information on existing resources and services related to SBHCs in Colorado Springs, including procedures and system-level structures. The review of evidence-based approaches to implementing SBHCs in the United States included interviews with SBHC professionals, a review of evidence-based websites, and a review of the effectiveness of SBHCs in the Denver metro area. Key findings include:

<u>Literature Review</u>

- SBHCs have a long history in the United States and are associated with **improved academic performance, increased utilization of preventive services, and increased utilization of mental health services**.
- SBHCs are **highly utilized** and vital in providing mental health screening and treatment for children in need.

- Literature examining the effect of SBHCs on **physical activity outcomes are limited**.

Program Assessment

- Colorado Springs only has **one operating SBHC** (Entrada SBHC) that provides services strictly to children attending School District 2. Other school districts partner with local organizations, such as Peak Vista Community Health Centers to provide basic medical and dental services in a mobile unit.
- The major success in implementing the Entrada SBHC is the **network of partnerships** between local community organizations and the school system.
- Challenges towards effective implementation of the Entrada SBHC are: socioeconomic conditions and staff turnover leading to **service underutilization**, as well as the demand for mental health services exceeding the supply of available services.
- Stakeholders across various fields of expertise identified **mental health and physical activity as health concerns** within the community.
- Partnerships and collaboration between schools and community service providers are **essential for the success** and impact of SBHCs.

Review of Evidence-based Approaches

- There is **not one implementation strategy** for SBHCs that is implemented across the United States. Different approaches that **vary in funding, organization, and structure** have shown positive health outcomes.
- The **Denver School-Based Health Center is a model of effective implementation** and expansion of SBHCs that has reduced barriers to health care for children in the Denver metro area.
- SBHCs require **full participation from schools and the local community** to ensure successful implementation and sustainability.

Summary of Recommendations

Based on the findings above, we recommend that CHCO:

1. Expand SBHCs in Colorado Springs and work towards establishing the aspirational concept of SBRCs.
2. Form a community task force, led by CHCO, to pursue the development of the SBRC concept and provide recommendations for implementation.
3. Partner with existing entities in Colorado Springs to expand upon and support current programs engaged in providing services to children in the school setting.
4. Collaborate with El Paso County Public Health to further understand utilization and access to healthcare in Colorado Springs.

Introduction

Non-profit hospitals, such as Children's Hospital Colorado (CHCO), are required to perform community benefit activities in order to maintain their non-profit status; however, these requirements are undergoing significant changes. Since the 2009 Patient Protection and Affordable Care Act (ACA), along with a sequence of IRS rules, non-profit hospitals have been pushed to think beyond health services delivery and toward activities that are intended to enhance population and the public health. Specific requirements for non-profit hospitals now include, but are not limited to, the completion of a Community Health Needs Assessment (and the corresponding development of a formal community health improvement or implementation plan to address identified needs.

This report summarizes a Health Impact Assessment (HIA) process, used to develop one component of the formal CHCO implementation plan that addresses the needs identified within the CHNA in El Paso County, Colorado, completed in 2016. HIAs serve as a useful tool to generate recommendations to advance health but have not been utilized specifically by non-profit hospitals to develop strategic interventions to address community health needs as part of their formal community benefit activities. This pilot HIA helps to address community needs as identified in CHCO's CHNA. [1]

Using a Health Impact Assessment

A HIA is a systematic process that combines evidence using various data and analytic approaches, along with stakeholder input to inform decision-making for a proposed policy, plan or project. HIAs are sensitive to the needs and perspectives of communities. They have been increasingly recognized as an accepted method to inform decision-making by maximizing the positive health impacts of key decisions. This particular HIA was used in part to inform the formal CHCO implementation plan by addressing the community health needs identified in the 2016 El Paso County CHNA.

Background

CHCO is the largest children's health care provider in the state and a major provider for the Rocky Mountain region. CHCO provides several specialized services and care to children in need throughout the state.[2] CHCO has a division called the Child Health Advocacy Institute (CHAI) that focuses on improving the health and safety of children in Colorado through partnering with community and public sector partners. CHAI is one of the entities within the hospital that provides significant benefit to the community through program and education initiatives. The Colorado School of Public Health (CSPH) is dedicated to teaching, research, and practice innovation to improve the health of Coloradans and populations nationally and globally. [3]

To our knowledge, HIAs have not been used previously in non-profit community benefit implementation planning. From January to May 2016, the CSPH and CHCO collaborated on this

[1] The full CHNA report can be accessed at www.childrenscolorado.org/communityhealth.
[2] For further information and background on Children's Hospital Colorado visit their website at, https://www.childrenscolorado.org/.
[3] For more information on the CSPH visit their website at publichealth.ucdenver.edu/.

rapid HIA to pilot the integration of HIAs into hospital community benefit activities, and more specifically to guide the creation of formal implementation plans for community benefit activities. Historically, there has not been one tool or method for addressing community benefit implementation planning among non-profit hospitals. Furthermore, community participation in the planning process has varied across hospital systems and states. We selected the HIA process due to its emphasis on community and stakeholder engagement and input, but also its integration of research and evidence-based approaches. The HIA team is made up of one faculty member and one research assistant from the CSPH, as well as two members of CHCO's CHAI.

CHCO has defined two distinct geographic areas to focus their community benefit activities: (1) the Denver metro area and (2) the El Paso County region, specifically the city of Colorado Springs. These regions were identified based on the physical location of current and future CHCO service provision facilities and the communities served by those facilities. This HIA focuses on CHCO's community benefit activities in Colorado Springs.

El Paso County CHNA Priority Areas

For the 2016 El Paso County CHNA, CHCO staff engaged in three core activities to identify the community health priorities[1]. Staff from CHCO first defined the community by reviewing hospital data, determining geographic boundaries, and identifying key stakeholders within those boundaries. Next, the CHCO team gathered demographic, health access, and health outcomes data through key informant interviews, focus groups, and administering an online survey to gather information on disease burden and distribution. Finally, CHCO selected priority areas by setting prioritization criteria and gathering community input.

The prioritization criteria included four components: scale (number of children impacted by the issue); impact (significance of impact among those affected by the issue); community importance (importance of issue to community members engaged in the CHNA); and sustainability (availability of current or future resources to address the issue long term). Through this process, CHCO selected two main community identified priority child health needs to address in Colorado Springs: (1) mental health and (2) physical activity, nutrition, and obesity. Although nutrition and physical activity are distinct issues, both are relevant to obesity and were grouped together for the purpose of the CHNA[1]. These two community health priorities served as the initial scope of the HIA. [4]

Mental Health in El Paso County

Mental health is a persistent issue in El Paso County and affects children of all ages. The CHNA conducted by CHCO found that nearly one in five parents reported that their young child (ages one to four) have difficulties with emotions, concentration, behavior, or being able to get along with other people[2]; while 21 percent of high school students reported feelings of sadness or hopelessness in the last two weeks that interfered with their normal activities[3]. Poor mental health in early childhood can have a negative impact on cognitive, social, emotional and physical development[1]. For older children, poor mental help may impact school performance and relationships with family and friends[1]. More concerning associations of untreated mental health

[4] For additional details related to the CHNA prioritization process please see the full CHNA report at www.childrenscolorado.org/communityhealth

issues in adolescence are risky behaviors and lifestyles, as well as attempted and actual suicide. In Colorado, more than 30 teens and young adults die as a result of suicide each year[4].

In addition, stakeholder feedback from the El Paso County CHNA highlighted mental health as a top community priority. The issue was raised three out of four times in focus groups, and by nearly a third of all community survey respondents. Many local organizations currently working in childhood mental health in El Paso County participated in prioritization meeting for the CHNA, where mental health was ranked as a top community health priority. Some of these local organizations included, Peak Vista Community Health Centers, Aspen Pointe, Colorado Crisis Services, and Centro de la Familia.

Physical Activity, Nutrition, and Obesity in El Paso County

Physical activity, nutrition, and obesity were identified in the CHNA as a combined priority area through data and stakeholder input. As previously stated, although nutrition and physical activity are distinct issues, both are relevant to obesity and were grouped together for the purpose of the CHNA[1]. Lack of physical activity and poor nutrition impact a large number of children in Colorado. Twenty-nine percent of El Paso County families rely on low-cost food. Only 42 percent of parents report that their child met the CDC recommendation of at least 60 minutes per day of physical activity, compared to a state average of 45 percent[5]. The Colorado Department of Public Health and Environment's 2012-2014 Child Health Surveys found that 27 percent of children in Colorado Springs are now overweight or obese, compared to the national average of 21 percent[1,2]. Childhood obesity can also lead to obesity in adulthood. A cohort study of 2,620 children ages 2-17, completed in 2005 found that overweight or obese children have a 70 percent chance of becoming an overweight or obese adult, and that obese six- to eight-year-olds are approximately 10 times more likely to become obese adults than their average-weight peers[6]. In addition, stakeholders engaged as part of CHCO's CHNA validated physical activity, nutrition, and obesity as a key community health need that should be addressed.

Purpose and Scope

This HIA was completed between January and May 2016 as a pilot project with CHCO to integrate HIAs into hospital community benefit activities, including the development of formal implementation plans. The recommendations from this HIA serve as one component of the formal CHCO implementation plan for addressing the CHNA identified needs of the Colorado Springs community. Therefore, the initial scope of this HIA was aligned with the broadly identified community health needs from the CHNA: (1) mental health and (2) physical activity, nutrition, and obesity.

With feedback from our formal HIA stakeholder group, the scope of the HIA was refined to focus on assessing the potential impact of school-based health centers (SBHCs) on mental health status and rates of physical activity/obesity, as well as the potential impact of SBHCs on partnerships and the coordination of health services provided to families of children in kindergarten through high school (K-12).

SBHCs provide healthcare services to children at school who are in need of care; these services include primary medical care, mental/behavioral health care, dental/oral health care, health education and promotion, substance abuse counseling, case management, and nutrition education[7]. The school-based resource center (SBRC) is a new and aspirational concept proposed

by CHCO. This concept is derived from general SBHC models; however, it focuses more efforts on prevention activities, treatment, and education for students, their families, and the community. The services provided in SBRCs are similar to those of SBHCs including healthcare service delivery. However, SBRCs also promote comprehensive, integrated, community-based systems of family support and child development services, in addition to providing technical assistance and capacity building among the community. This HIA assesses data and information on SBHCs related to mental health and physical activity outcomes among the K-12 population and applies those findings to generate recommendations related to building out the broader SBRC concept.

Stakeholder Engagement

Community stakeholders were involved in the screening, scoping, assessment, and recommendation generation phases of the HIA. Stakeholders were selected based on their current engagement in children's health in the community, as well as their potential influence in issues related to children's health. As previously stated, local stakeholders were involved in the El Paso County CHNA to help identify and prioritize needs in their community, which also served as the screening phase of the HIA. We invited many of the stakeholders engaged in the CHNA to participate in aspects of the HIA process. The HIA team also brought on other stakeholders from the school district, mental and behavioral health sector, and primary care services to join the formal stakeholder group. A list of the full stakeholder group is available in Appendix A.

Two formal stakeholder meetings were held during the HIA process. The first stakeholder meeting took place in February 2016 and had two aims: (1) to narrow the broad priority areas of mental health and physical activity/obesity; and (2) to better define the geographic scope. Representatives from a range of organizations including the local community library, county public health department, a parenting program, local domestic violence and sexual assault organization, mental/behavioral health, and the school districts participated in this meeting. All of the stakeholders were committed to discussing solutions for addressing the CHNA identified priority areas.

At this meeting, based on the hospital's institutional interest and capacity, CHCO proposed the utilization of SBHCs to address these community-identified priorities. All stakeholders at the meeting were open to this proposal. In this meeting, the stakeholders further discussed the narrowing of the geographic scope of the HIA from El Paso County to the city of Colorado Springs, due to a perception of greater and more acute need in addressing mental health and physical activity in that region. Despite this higher need, stakeholders in this meeting informed the HIA project team that there was only one SBHC currently providing services to children in Colorado Springs.

In collaboration with the stakeholder group, the HIA project team outlined and conducted assessment activities with individuals involved with the school district and those who had expert knowledge of SBHCs. These stakeholders provided information on the current landscape of available services in the community as well as expert knowledge on evidence-based practices related to SBHCs.

At the second stakeholder meeting, the HIA team presented findings from the initial assessment activities (the literature review and program assessment) and aimed to develop draft recommendations. The discussion of draft recommendations focused on addressing mental health and physical activity through increasing utilization of services, sustainability, care coordination

through community and school involvement and using SBHCs or SBRCs. Several stakeholders also provided suggestions to conduct additional assessment activities including identifying evidence-based approaches to implementing SBHCs that could be replicated in Colorado Springs.

Upon completion of all assessment activities, we held individual discussions and meetings with several key stakeholders. Feedback from these key stakeholders was utilized to formalize the recommendations presented in this report.

Assessment

Three assessment activities were conducted to explore the potential health impacts of SBHCs: 1) a literature review of research examining the impact of SBHCs on mental health and physical activity outcomes, 2) a program assessment of existing resources and services related to SBHCs in Colorado Springs, and 3) a review of evidence-based SBHC approaches in the United States. The literature review and program assessment were completed after the first formal stakeholder meeting, to provide general context and data on SBHCs; while the review of evidence-based SBHC approaches was later added based on stakeholder input to better inform the replication of successful approaches to implementing SBHCs in Colorado Springs.

Literature Review

Introduction

There is much evidence supporting the effectiveness of SBHCs. These centers offer broad-based services including medical care, dental care, mental health care, substance abuse treatment, nutrition counseling/education, health education, and case management services. Literature suggests that SBHCs improve health care access and use as well as academic outcomes, and target some of the most challenging child and adolescent health behaviors among all socioeconomic levels[8]. SBHCs have been successful in addressing the health care needs of students from kindergarten through high school. Studies show that although SBHC users were less likely to be insured, they were more likely to make primary care visits, less likely to use emergency care, and more likely to regularly maintain their health with vaccines and checkups[9].

Objective

The purpose of conducting this literature review was to develop an understanding of the history and background of SBHCs; examine the evidence behind the impact of SBHCs on child health outcomes; and specifically examine the evidence of SBHC impact on child mental health and physical activity outcomes. The SBHC model has been around for many years, with numerous studies conducted on these centers. While many studies discuss elements of SBHCs, few include research on approaches that address concerns of low utilization, community integration, and implementation strategies. We opted to focus on studies related to just physical activity as it was a broad priority area and part of a combined priority area with nutrition and obesity.

Methods

We began our search of the literature by using PubMed and Google Scholar search engines. We searched the key terms, “school-based health centers”, “school-based resource centers”, and “mental health” or “physical activity”. Furthermore, search restrictions included:

being published in the last 15 years, written in the English language, and available in full text. The search yielded over 200 studies. We then reviewed the titles and abstracts for each article and eliminated studies that did not meet the criteria of focusing on SBHCs or SBRCs, and addressing physical activity or mental health. There were no findings with the terms "school-based resource center". While there were many relevant articles related to "school-based health centers", we selected the eight articles that specifically examined some aspect of mental health or physical activity outcome for inclusion in this literature review.

Results and Discussion

The following section summarizes findings from the literature review related to the background and history of SBHCs, evidence-based approaches and outcomes, sponsorship and access to care, and the impact of SBHCs on outcomes of mental health and physical activity.

Background and History of SBHCs

SBHCs have operated in the United States for over 45 years, with a history of providing healthcare services to children at school who are in need of care or who otherwise do not have access to healthcare outside of the school system[10]. SBHCs are diverse in many ways; eight research articles from this literature review provide information on the mission of SBHCs and types of SBHC service delivery models in the United States.

The mission of SBHCs is to contribute to the health of children by providing access to primary health care and preventive health care services[12]. Schools that have incorporated the SBHC model have found that physical, mental, and dental health issues are conveniently addressed while children remain in school[12]. These centers have been successful in addressing the healthcare needs of students from K-12[11].

A cross-sectional survey conducted in 2003 found that 89 percent of centers provided primary preventive care (such as health assessments, screenings, and immunizations); treatment for acute illnesses; laboratory services; and prescriptions[8]. These services are similar, if not identical, to those provided in other primary care settings in the community. The majority of SBHCs provide services exclusively to children that attend the schools; however, some SBHCs are branching out to accommodate not only children that attend the school but also their families, school staff, and the community as a whole[11].

Keeton et al. found from a 2007–2008 National School-Based Health Care Census, that more than two-thirds of SBHCs nationwide have extended services to individuals beyond the student population at schools located within their neighborhoods. These individuals include students from other schools in the community (58%); out-of-school youth (34%); faculty and school personnel (42%); family members of students (42%); and other community members (24%) [11]. These findings demonstrate the high utilization of services among SBHCs by community members beyond the general student population. Thus, meaningful partnerships with community organizations are needed to reach and serve more individuals outside of the school population.

Evidence-Based Approaches and Outcomes

Evidence has shown positive effects of SBHCs on improved access to and use of healthcare, as well as improvement in specific health behaviors and academic outcomes; with academic success being a primary predictor of health outcomes. However, evaluation studies have been diverse in their methods and measurements, and have encompassed varying target

populations and outcomes[10]. The Community Preventive Service Task Force of the Centers of Disease Control and Prevention recently completed a systematic review of SBHCs and found gaps in evidence. The review suggested shifting the evaluation process to examine other outcomes, most notably the impact of SBHCs on population subgroups, population health indicators, and cost-effectiveness[10]

One retrospective cohort study, conducted between August 2002 and July 2003, compared the health and health behaviors of children enrolled in SBHCs to those who were not. The cohort included all 14 to 17-year-old Denver Public Schools high school enrollees who were either uninsured or insured by Medicaid or the State Children's Health Insurance[9]. Forty-eight percent of the cohort visited a SBHC or Denver Health community clinic. This group was further differentiated into those who used SBHCs and "others" who used community clinics but not the SBHCs.

This study found that though SBHC users were more likely than other users to be uninsured (37% versus 73%), they were more likely to make more primary care visits (52% versus 34%), to use less emergency care (17% versus 34%), and to participate in more preventive care activities, such as receiving a health maintenance visit (47% versus 33%), an influenza vaccine (45% versus 18%), a tetanus booster (33% versus 21%), and a hepatitis B vaccine (46% versus 20%)[9]. These results confirm those from other studies that show a positive impact of SBHC on child health outcomes and health behaviors. They also provide support for the reduced use of emergency care by and increased provision of services to uninsured individuals[9].

Sponsorship and Access to Care

From 1988 to 1998, the number of SBHCs grew from 100 to 1200 nationwide, with numbers increasing annually. These centers serve over an estimated 1.1 million students[8]. Once focused on urban high school students and populated areas, SBHCs are now expanding into non K-12 aged children in populated and remote areas of the United States[8]. The expansion of these centers has caused a major shift in funding and sponsorship, with "sponsorship [shifting] from community-based clinics to hospitals, local health departments, and community health centers"[8]. These three types of entities represent 73 percent of all sponsors[8]. This shift was due to the growing demands of services to the K-12 age group and lack of funds by smaller community-based clinics. In addition, SBHCs sponsored by public health departments and schools tend to have less on-site primary care hours than hospitals, universities, non-profit organizations, and community health centers[8].

SBHCs have been funded in many different ways, with the majority of SBHCs initiated and funded by federal and state grants. Denver Health's School-Based Health Centers (DHSBHC) in Denver, Colorado is an example of the use of multiple funding streams to maintain sustainability. DHSBHC is housed within Denver Public Schools and serve a large number of children in the city and county. They maintain strong political support because they serve a large number of children. This provides some assurance of continued state support and thus long-term sustainability, as Colorado is one of many states that offer annual, statewide funding for SBHCs[12]. While it is vital to secure start-up funding through grants, it is equally important for SBHCs to adopt a structure and model of engagement that allows the center to be sustainable. Inadequate structure relating to finance and funding and lack of community buy-in have been weak points for many SBHCs and the cause of failure over the years[12].

Expansions of SBHCs throughout the United States ensure that more underserved children receive necessary care and treatment. While this is a great step in offering help to those in need, it is estimated that these SBHCs only reach two percent of children enrolled in schools around the country[8]. This leaves over 11 million school-aged, uninsured or underinsured children without appropriate access to adequate healthcare[8]. In fact, SBHCs in most states represent only a small proportion of the larger health care system. Although access to and use of SBHCs are increasing, they do not yet meet the growing demand for healthcare services for underinsured and uninsured children[8].

Mental Health

Addressing mental health care needs is a priority that SBHCs have begun to incorporate more recently. The provision of mental health and counseling services have increased within SBHCs to include: crisis intervention, case management, comprehensive evaluation and treatment, substance abuse counseling, and assessment and treatment of learning delays or problems. SBHCs also use group counseling for peer support, grief counseling, and classroom behavior modification[8]. These centers play a crucial role in managing student mental health needs, currently providing 70 percent of mental health services that are provided in schools across the US[13]. Despite these efforts, the majority of children and adolescents with a diagnosable mental condition do not receive treatment[13].

Several critical reviews and meta-analyses have been published documenting the clear benefit of SBHCs for mental well-being, among other outcomes[14]. According to one study that compared adolescents relying on SBHCs with adolescents relying on a community health center network (CHN), youth with access to a SBHC were nearly 21 times more likely to complete a mental health or substance abuse visit[11]. The study suggested that although youth may have access to these services at a CHN, youth attending CHN may experience longer wait times and additional appointments; as such, enhanced availability of care was cited as one of the likely reasons for preferring use of SBHCs. In a prospective study among high school students conducted in New York City found that the average student visited a SBHC three or fewer times a year; yet mental health concerns accounted for one third of all visits, with depression as the most common diagnosis[15]. Although there are clear benefits to addressing mental health conditions through SBHCs, schools often choose not to integrate mental health services into the SBHCs because of lack of readiness or capacity issues, and uncertainty in selecting an appropriate mental health program [14].

Physical Activity

Few studies in our literature review focused on physical activity interventions among SBHCs or the impact of SBHCs on physical activity outcomes. Only one evaluation study conducted in Alameda County, California from 2008 to 2009 highlighted physical activity. In this study, adolescents who used SBHC services were followed for one year and compared to peers who did not use the services over the same year. Results of this study showed that adolescents who used the SBHC had a 30 percent increase in medical treatment and health education, which included physical activity education and interventions[16].

The lack of SBHC studies that assess physical activity interventions specifically limit the ability to draw conclusions on the effectiveness of these centers in addressing physical activity outcomes. Although there were few studies on this topic, SBHCs have been shown to increase overall health services to children in need, which include domains related to physical activity.

Limitations

This literature review has several limitations. First, there is a lack of articles in our review that specifically highlight physical activity interventions or outcomes. Although we found many studies that examined some aspect of the effectiveness of SBHCs, we chose to include eight that met our search criteria. Only one of the eight articles in this review studied physical activity outcomes, thereby limiting our ability to conclude the effectiveness of SBHCs on this health outcome. Next, we only included physical activity, not nutrition or obesity, in our search terms; research related to the effectiveness of SBHCs on nutrition and obesity outcomes were thus not included in this literature review. Therefore, we may have missed relevant literature that would have presented a more complete pathway for SBHCs and their impact on the combined priority area of physical activity, nutrition, and obesity.

Summary

SBHCs have increased in number, types of services offered, and overall use by patients over the last 30 years. In addition to offering traditional primary care, SBHCs have increasingly expanded services to meet the needs of diverse communities and students, including mental health screening and treatment. Sponsorship has shifted – due to the growing demands of services and lack of funding - from community-based clinics to hospitals, local health departments and community health centers. These centers have proven to be an innovative health care delivery model; though evaluation studies on the effectiveness of SBHCs are diverse in methodology, making it difficult to compare effectiveness across centers. SBHCs have improved access to and use of healthcare, increased specific health behaviors (such as use of preventive care), and improved academic outcomes. Although more research is needed to examine SBHC's impact on mental health and physical activity outcomes, existing studies suggest that SBHCs can improve mental health and physical activity for underserved K-12 children.

Program Assessment

As part of the assessment activities, we conducted a program assessment in Colorado Springs. The program assessment aimed to assess the current programs, procedures, and system-level structures of SBHCs. We conducted this assessment with two groups: child health services organizations and professionals involved in the school system and/or SBHCs in Colorado.

Methods

We conducted ten phone interviews with child health services organizations in Colorado Springs to gain insight into the current landscape of services offered to children in the community. These interviews included: TESSA (a non-profit organization dedicated to helping survivors of domestic and sexual abuse), Colorado Springs Health Foundation, El Paso County Public Health, National Alliance on Mental Illness (NAMI), SET Family Medical Clinics, Children's Hospital Colorado, Peak Vista Community Health Centers, Joint Initiatives (a non-profit organization that provides advocacy and policy initiatives to improve health services to children and families), the local Regional Care Collaborative Organization (RCCO), and School District 11. Representations from these organizations participated in semi-structured phone interviews, which lasted between 15 and 30 minutes. We used an interview guide including

questions related to work background, perceived community needs, and the role of CHCO to address needs.

Key informant interviews and site visits were further conducted with professionals involved in the school system and/or SBHCs in Colorado Springs. Interview participants were purposively selected due to their involvement in and/or knowledge of SBHC services in Colorado Springs. We outreached to eight entities, including five school districts of which one of the districts participated in the interviews. A total of four key informant interviews were conducted in-person with representatives from three organizations and one school district. Interviews were in-person, 30-45 minutes in duration, and conducted at Entrada SBHC as well as Mann Middle School located in School District 11 (SD11). We also conducted two site visits with Entrada SBHC and Mann Middle School in SD11 to observe the environment and implementation of their SBHC.

Results

Phone Interviews

Findings from the phone interviews with representatives from child health service organizations in Colorado Springs relate to main priorities in the community and how CHCO can address these areas. The top priorities for child health and service delivery in Colorado Springs as suggested by these organizations are: priority areas as access to care, mental health, and obesity. The majority of stakeholders interviewed by phone expressed that access to care is very problematic in the community. Transportation was brought up several times as there are limited options for those without a vehicle. According to one stakeholder at Children's Colorado Urgent and Outpatient Specialty Care at Briargate, transportation is one of the greatest challenges the clinic faces; since the bus system does not run to the clinic, the clinic often pays for other transportation services which is not always reimbursed and causes a financial and logistical burden. In addition to transportation, several stakeholders highlighted basic needs, such as vaccines and regular checkups, as part of the access to care issue.

Mental health was brought up in nearly every interview as a critical priority for the community, with several stakeholders commenting on high suicide rates and the growing problem of depression. The representative from NAMI mentioned that a shortage of providers for mental health services is a factor contributing to barriers for proper mental health treatment in the community. Lastly, physical activity, nutrition, and obesity were highlighted as priorities in the community. The Colorado Health Foundations' spokesperson expressed that more school-based initiatives of 'healthy eating" and "active living" need to be formed in order to reduce obesity rates for children in Colorado Springs.

When asked about how CHCO may address the priority issues, each organization provided different suggestions. These included: basic primary care, housing, health literacy and access to care. Yet, they agreed that the most effective strategy to address these needs would be through the implementation of SBHCs. However, there was a consensus among the stakeholders that it can be challenging to create effective partnerships within schools. Changing policies, underutilization of existing resources, and lack of urgency for change came up as current barriers.

In Person Interviews

Key informant in-person interviews were conducted with representatives from Entrada – the only SBHC in Colorado Springs, Peak Vista Community Health Centers, Aspen Pointe

Mental Health, and SD11. Interview participants provided information on their organization and their organization's role in the local SBHC, current local community needs, and their perspectives of facilitators and challenges towards implementing SBHCs.

Background of Organizations

Peak Vista Community Health Centers is one of the largest non-profit community health providers in Colorado Springs. They partner with several organizations in the area to provide dental, medical and mental health care services to children. One of these partnerships is with School District 2 (SD2) through the Entrada SBHC – the only functioning SBHC within Colorado Springs. Peak Vista is responsible for managing the operations and funding for Entrada SBHC. Peak Vista further partners with SD11 and other school districts in Colorado Springs to provide medical services via mobile clinics. [5]

According to the representative at Entrada SBHC, Entrada is located in SD2, which has been identified as a high needs area due to demographics, high poverty rates, food insecurity, and high crime rates. Entrada offers several services including: acute illness diagnosis, care, and management, behavioral health counseling, injury treatment, specialty referrals, and a variety of preventive care, such as immunizations, mammography referrals, physical exams, and well-child check-ups. Entrada was funded by a Colorado Department of Public Health and Environment start-up grant and is sustained by a 330 federal grant from the Public Health Service Act and general operating funds generated through Medicaid reimbursement.

A representative at Aspen Pointe shared that her organization manages the state Medicaid contract to provide mental/behavioral health in Colorado Springs. They currently serve school districts 2, 8, 11, 12, 14, and 49. Students from these districts may access Aspen Pointe behavioral health services at the main Aspen Pointe office, Entrada SBHC, or in specific schools within those respective school districts. Aspen Pointe staff visit the schools one to three days per week as needed when appointments are scheduled. This service is implemented by five full-time counselors employed by Aspen Pointe. Staff help to address childhood mental/behavioral health concerns at an individual level, but also offer family counseling. The Aspen Pointe representative reported that family counseling is often the most successful approach to managing mental or behavioral health conditions. She also reported that not one particular age group utilized the majority of her organization's behavioral health services; counselors have helped children of all grade levels with various diagnosable disorders.

The SD11 representative explained that SD11 is the largest school district in Colorado Springs, with five nurses who offer primary care throughout the entire district; they spend one day a week in middle schools and three days a week in high schools. Each school in the district also has school counselors who work either part- or full-time to provide academic advising or provide basic behavioral health counseling for students working through problems or concerns at school. If needed, school counselors refer students to Aspen Pointe and other mental health providers if the student mental health needs are beyond their training. Furthermore, the SD11 representative explained that her district has a partnership with Peak Vista and the Ronald McDonald Foundation; these organizations have mobile units that visit middle schools twice a month to offer basic medical and dental services to children in need. SD11 also works with Aspen Pointe who offers behavioral health counseling and treatment. Additional organizations with whom SD11 partners include Catholic Charities, Pikes Peak Equine Therapy, and Shandy

[5] More information on Peak Vista can be accessed on their website at http://www.peakvista.org/.

Clinic (behavioral health); these-entities offer services in times of crisis and when Aspen Pointe is unable to meet demands for such services.

The same representative from Mann Middle School in SD11 shared information on various physical activity programming offered through the school. Mann Middle School offers one semester of physical education annually and a fitness class before school. They have also incorporated the Michelle Obama's Let's Move initiative and hosts a 5K run/walk at the end of the year to increase physical activity and reduce obesity rates. The representative further explained that each school in the district offers differing programs to address children's health.

Community Needs

Representatives from three of the organizations (Entrada, Aspen Pointe, and SD11) considered physical activity and associated obesity outcomes as a top community priority. The Entrada representative explained that there were high rates of obesity among children in the community due to: a lack of safe neighborhoods for children to play in, lack of fresh produce available, and decreased ability among low income families to purchase such produce. The SD11 representative explained that the district has some of the highest rates of free or reduced price lunches served, with approximately 75 percent of students receiving free or reduced price lunches. High rates of free or reduced lunches is an indicator of food insecurity for families with children and inadequate access to affordable healthy foods, which further exacerbates the issue of obesity.

Another area of need was identifying and providing treatment for child mental health conditions. The representative from Aspen Pointe shared that the most common disorders in children being seen at their school-based services are: depression, attention deficit hyperactivity disorder, conduct disorders, and adjustment disorders. She further expressed that rates of these mental health disorders are on the rise. The SD11 community liaison echoed that mental health is a concern in her district.

Successes and Challenges in SBHC Implementation

The representatives from Entrada and Peak Vista shared several factors related to the successful implementation of the Entrada SBHC. It was reported by the representative from Entrada that the most effective marketing of services was through word of mouth from teachers to students' parents. Entrada SBHC has also been successful at increasing health outcomes among the clients served. These health outcomes include increased immunization rates resulting in a healthier student population and increased provisions of mental health services, leading to a decrease in emergent mental health episodes suffered by children being seen at the SBHC. Partnering with local service providers has also been an important factor in the successes of implementing Entrada. Entrada has been working towards addressing mental/behavioral health needs by partnering with Aspen Pointe – the local mental/behavioral healthcare provider in the area – to expand the geographic service delivery area.

The Aspen Pointe representative also shared "successes" in the SBHC model. She explained that school counselors are actively involved in supporting mental health treatment for students, which has led to substantial reductions in emergent mental health episodes for the children being seen by Aspen Pointe. The representative continued to state that barriers to transportation are minimized by having services available on site within schools where the students are located. Easy access to services reduces stress and burden on single and/or working parents who may need to take time off to take their child for care.

Many challenges to implementing the SBHC were also expressed by all interview participants. The Entrada representative felt that cultural barriers, socioeconomic conditions, and unsafe neighborhoods contributed to a high level of need in the community relating to physical activity and mental health. The Entrada representative also stated that culture plays a role in eating habits such as consuming foods high in sugar and fats that can lead to obesity. Low socioeconomic conditions and inadequate access to healthy foods limit families from buying healthy foods and fresh produce. Further, unsafe neighborhoods and living in confined spaces such as apartment complexes lead to children being less active and spending less time outdoors. These factors have contributed to a significant proportion of students becoming overweight.

Both the Aspen Pointe and Entrada representatives agreed that the socioeconomic conditions of their patients play a role in service utilization and impacts the coordination of care. They explained that single parents and working families experience greater barriers to accessing care during the standard work week, as they may have less flexibility in their work schedule to transport their children to and from appointments.

Another major barrier towards successful implementation of the Entrada SBHC has been underutilization of services, as expressed by both the Entrada and the Peak Vista representatives. Despite providing a variety of services through the SBHC, the center has been underutilized; both representatives attributed this challenge to high turnover rates among school staff, minimal buy-in from school employees, and poor advertising of services, resulting in a lack of awareness of services offered at schools. High rates of turnover in school staff creates additional demands on clinic staff to remind and train school staff of the services that the health center offers. Promotion of available services has been particularly difficult as use of flyers, cold calls, mailings, and social media were unsuccessful at increasing service utilization rates. To further exacerbate the issue of service underutilization, some schools may be reticent to integrate a SBHC into their facility and curriculum. The Peak Vista representative's view was that because SBHCs provide patient services during school hours when students most often are attending classes, many schools perceive reduced "seat time" for students in the classroom as lost funds for their districts.

Other interview participants provided additional challenges related to the delivery and utilization of mental health services and physical activity interventions. The Aspen Pointe representative felt that it has been difficult to conduct screening and treatment of illnesses to children in need. Though she agreed that offering services in each school in the community is the best method for providing high quality and vital care to children, there were several reasons that contributed to screening and treatment challenges. These difficulties related to increased Medicaid participants, due to the ACA expansion, which has kept Aspen Pointe's caseload above previous levels and a lack of understanding of mental health illnesses in the community. Similarly, the SD11 representative reiterated the challenges highlighted by Aspen Pointe with regards to capacity to meet the community's needs.

The Entrada representative discussed various initiatives that had been implemented to improve physical activity programs within the center. However, she expressed that many of these initiatives were unsuccessful due to low participation rates, her organization's lack of familiarity with implementing effective physical activity programs, and poor advertising of services. The SD11 representative also discussed several efforts to expand services for mental health and physical activity that were widely unsuccessful, due to lack of funding, lack of communication within the community, and underutilization of services. This representative further explained that

a lack of consistent physical activity programs within the school districts impacts the ability of school districts to provide comprehensive health and wellness services.

Limitations

There were several limitations in this program assessment. The main limitation was our lack of success in engaging with senior level representatives in school districts in Colorado Springs. Therefore, we were unable to make generalizations regarding SBHCs and services for the other school district or school districts in Colorado Springs. Despite our outreach efforts, we were only able to conduct one in-person interview with one of five school districts – SD11, including a school liaison from one of the middle schools in the district. Therefore, the perspectives shared from these representatives should not be interpreted as generalizable to other school districts. Despite this limitation, these interviews shed light on the lack of, but high need for, SBHC services in the school district.

Summary

The program assessment provided information regarding the current state of practice related to SBHCs in Colorado Springs, along with perspectives related to successes and challenges towards effectively implementing both the SBHC and other health-related interventions within the school setting. Beyond validating the community identified priority areas (mental health and physical activity), we found that Entrada has formed strong partnerships with multiple entities in the community, including Aspen Pointe and Peak Vista, to provide mental health services to children within School District 2 who are underinsured or uninsured and may not otherwise have access to medical care.

Despite successes related to improved health outcomes such as, increased vaccination rates and mental health treatment among student clients being served, many interview participants highlighted concerns of low utilization rates and other access challenges such as lack of knowledge of mental health conditions, high turnover rates within the school system, and ineffective marketing strategies. Finally, by conducting key informant interviews with a range of service providers in the Colorado Springs area, we were able to better understand the landscape of child health services, resources available, and successes and challenges of SBHCs; the extent to which they collaborated and partnered with the school system; and the potential opportunity in this community context to build a SBRC concept based on existing system-level structures.

Evidence-Based Approaches for Implementation

Research shows that SBHCs are effective at improving the utilization of mental health services[14] and the health and academic achievement of students, especially those who are low-income and at greatest risk of poor academic and health outcomes.[17, 18] The third assessment activity aimed to identify evidence-based approaches for implementation of SBHC. In particular, Denver Health's School Based Health Centers (DHSBHC) in Colorado have long been a model of effective implementation and expansion of SBHCs. Receiving national awards for innovation and evidence, DHSBHC provides a local example for and resources to other SBHCs in the state seeking to replicate their model. In this assessment activity, we present perspectives of local SBHC experts and research on DHSBHC's impact on child health outcomes to provide one example of an evidence-based approach to SBHC implementation. We also summarize a review of relevant websites that offer approaches to and models of SBHC implementation in Colorado and throughout the United States.

Methods

This assessment activity involved three parts: 1) informal interviews with experts in the field of SBHC implementation in Denver, 2) a review of published research related to DHSBHC's impact on health outcomes, and 3) a review of SBHC resource websites. We conducted two informal interviews with experts in the field of SBHCs in the Denver area to gain perspective on effective methods of SBHC implementation. One interview participant is a professional consultant with years of experience in SBHCs and the other is a representative from Denver Health who has been deeply involved in the DHSBHC.

We further reviewed published literature on the implementation and evaluation of DHSBHC to enhance our understanding of the evidence behind the impact of one local SBHC model. A search of PubMed using keywords of "Denver" and "School Based Health Centers" and searched publications authored by practicing physicians at DHSBHC. Lastly, we reviewed four SBHC resource websites to examine alternative approaches of implementation throughout the United States and in Colorado. Websites were selected based on recommendations from experts. These websites included: the Colorado Association for School-Based Health Centers, School-Based Health Alliance, Health Resources and Services Administration, and Denver Health. Each website was reviewed relating to implementation strategies, service provisions, structure/models, funding methods.

Results

Denver Health's School Based Health Centers: Implementation and Evidence

Denver Health implements a total of 17 SBHC locations within the Denver Public School (DPS) system. These locations are spread across the Denver school district in various neighborhoods, with Denver Health providing medical services at no cost through DHSBHCs. The DHSBHC district locations are open to all DPS students; while the neighborhood locations serve the students who attend each school and provide services to students of neighboring schools and the site-based locations specifically serve students who attend that particular location. If a SBHC is not on the property of a school, parents take their child, or children, to visit a "satellite" clinic. The core team of a DHSBHC is made up of one nurse practitioner (or advanced care provider), a medical assistant, and a licensed clinical social worker. According to the 2013-2014 DHSBHC Annual Report, DHSHBCs served over 10,000 students, in over 45,000 clinic visits in one year, of which 58 percent were covered by Medicaid or CHP+ (Colorado's Child Health Plan)[19].

Published research on DHSBHCs show that its model is effective at increasing immunization rates[20], improving child health and mental health outcomes, reducing unwanted teen pregnancies[22], reducing emergency room visits[23,24], increasing the likelihood of receiving health maintenance visits, and more broadly reducing barriers to health care for children[21]. A retrospective cohort study of DHSBHC elementary clinics, compared to SBHCs nationally, found that DHSBHC elementary clinics provided more than the national average level of staffing in each clinic, and that Hispanic children had fewer barriers to care in DHSBHCs than compared to other minority students attending SBHC nationally. Additionally, this study found that 20 percent of elementary students using DHSBHCs received a mental health diagnosis, compared to 10 percent nationally[21]highlighting the demand for services in elementary schools that are more likely to be met through the trained staff within SBHCs, compared to schools without SBHC.

In another cohort study of DHSBHCs, Black adolescents experienced significantly greater declines in unwanted teen pregnancies in schools where SBHCs were located compared to Denver schools where SBHCs were not located[22]. Deuson et al. (1999) further studied the cost-effectiveness of a Hepatitis B vaccination program administered through DHSBHCs and found the program to be cost-effective compared to the traditional provision of Hepatitis B immunizations in clinics outside of schools[25]. More broadly, in a comparison study of schools with and without SBHCs, DHSBHCs located within school were more effective at reducing barriers to care and increasing access to and use of health care services for children and adolescents[21].

Informal Interviews

We conducted two informal interviews related to facilitators and barriers to effective implementation of SBHCs in Denver with local experts on SBHCs. According to the expert at Denver Health, the most important aspect of starting a SBHC is building relationships with strong community partners, specifically the school district with whom you are partnering. He said it is also important for the community and school district to be engaged in the process from the beginning of planning and implementation, which contributes to the success of a SBHC by reinforcing the need and rationale for such an initiative. The other interview was conducted with another expert with years of experience working directly with SBHCs. She echoed much of the same information as the representative from Denver Health. She related the importance of building strong relationships within the community and being sensitive not to intrude or over step boundaries, but forging true partnerships that would increase services offered and effective methods of service delivery.

There were several barriers related to implementation as suggested by both interview participants. One of the greatest challenges is high turnover within the schools, such as the principal leaving every couple years or turnover in supporting staff. The representative from Denver Health shared that it can be a challenge to maintain a high level of understanding of what SBHCs are trying to accomplish when school staff need to be educated due to turnover. Furthermore, school staff often does not understand the importance of providing medical care to children during school time; pulling children – who may otherwise not receive care – out of one to two classes a year to receive preventive and medical care leads to higher graduation rates, fewer emergency department visits, and ultimately less time away from school. Additionally, it can often times take years to form these partnerships with community service providers and school districts in order to start a SBHC.

These interviews also highlighted the amount of time and effort needed to establish SBHCs. This process on average takes two to three years to engage and forge partnerships with school districts, community health providers, and other community organizations who have the desire and capacity to work together to strengthen families in their community. Furthermore, it takes time to establish and sustain funding for implementing a SBHC.

Resource Website Review

In the review of SBHCs websites, we observed several designs and implementation models for SBHCs used in Colorado and throughout the nation. The four resource websites showed variations among different types of SBHCs and suggested that each SBHC can be unique. SBHCs offer many of the same services such as primary medical care, behavioral health care, oral health care, health education and promotion, substance abuse counseling, case

management, and nutrition education. However, depending on the scale or size of the SBHC, it may only provide primary medical care. Furthermore, the funding, organization, and structure of SBHCs vary greatly. For example, SBHCs may be funded primarily by federal and state grants or can be more heavily funded by a community service provider. Similarly, organizational structures vary, such as being operated by the school itself, an outside provider, or a hybrid of both. The Colorado Association for School-Based Health Care offers a detailed manual that outlines models, funding sources, and other key aspects of forming and sustaining SBHCs in the state of Colorado[26].

Limitations

The review of evidence-based approaches for implementation has several limitations. First, we examined outcomes from DHSBHCs which serve a vastly different population than that of Colorado Springs. Although these populations differ, DHSBHCs were the closest with regards to proximity and most effective currently-running SBHC to examine. The second limitation was that this assessment took a less formal approach in interviews. We did not use a semi structured or guided interview format as we wanted to elicit open and honest responses. Furthermore, our review of literature related to DHSBRC and SBHC websites was less of a formal process than our official literature review about SBHCs a whole. Although this process or these activities was less formal, the results shed light on models to be adopted in Colorado Springs.

Summary

After speaking with professionals in the field of SBHCs in Denver and reviewing published research and resource websites, we found that evidence did not point to a specific model for SBHCs but instead highlighted a thoughtful community and stakeholder engaged approach to implementing SBHCs. Many models and approaches are used in various school systems around the nation. SBHCs vary in size, services provided, funding source, and organizational structure. Much planning and participation from the community and school districts are needed to maintain smooth operations in effectively providing services throughout these centers. Findings from this assessment activity provided a better understanding of the start-up, funding, and implementation strategies for SBHCs that could be replicated in Colorado Springs.

Summary of Assessment Findings

The assessment phase consisted of three activities: a literature review, program assessment, and review of evidence-based approaches to implementing SBHCs. The literature review and program assessment were completed in the initial scoping and assessment phases of the HIA; completion of these two activities provided background and history to SBHCs in the United States; outcomes based on SBHC evaluation studies, including mental health outcomes; and an understanding of the current state of practice with regards to SBHCs and other child health services and resources in the Colorado Springs area. The third assessment activity - review of evidence-based SBHC models - was completed based on stakeholder input to better inform the replication of successful approaches to implementing SBHCs in Colorado Springs.

The literature review revealed a long history of SBHCs in the United States, with initial services targeting youth populations that later transitioned to services for all K-12 children. SBHCs are associated with various outcomes including improved academic performance and other health measures; increased utilization of preventive services; and increased utilization of

mental health services. Although there exists literature surrounding the impact of SBHCs on child health outcomes, fewer studies specifically address issues of physical inactivity and associated obesity rates.

The program assessment examined the current landscape of services offered to children in the Colorado Springs community, as well as the programs, procedures, and system-level structures of Entrada SBHC. Key informant interviews with local child health service providers suggested access to care, mental health, and obesity as community health priorities and that CHCO could address these issues through the implementation of SBHCs. Additional key informant interviews with organizational representatives of the Entrada SBHC were related to existing practices, procedures, and structures of the center. The findings offered insight into how the sole SBHC in Colorado Springs functioned. Major challenges towards effective implementation of the center are: socioeconomic conditions and staff turnover contributing to the underutilization of services; while demand for mental health services in one school district exceeded supply, creating long waiting times for students to access services. The interviews with Entrada SBHC staff revealed a network of existing partnerships between local community organizations and the school system; highlighting a unique opportunity for Colorado Springs to consider the expansion of additional SBHCs to realize the SBRC concept.

The third assessment provided strategies to replicate an evidence-based SBHC approach specifically in Colorado Springs, based on the successes of models implemented in Denver, Colorado and elsewhere in the United States. The DHSBHC is a model of effective implementation and expansion of SBHCs. This model has increased immunization rates[20], improved child health and mental health outcomes, reduced unwanted teen pregnancies[22], reduced emergency room visits[23,24], and increased the likelihood of receiving health maintenance visits by broadly reducing barriers to health care for children[21]. Interviews with two SBHC experts revealed that the most important aspect to effective implementation related to strong partnerships with the community including the school district and other organizations. However, turnover among school staff and lack of education about the effectiveness of SBHCs were shared as barriers towards successful ongoing implementation. A review of SBHC resource websites further highlighted the nuances of implementing SBHCs, such that not one single evidence-based model was implemented across the nation. Rather, various approaches to implementing SBHCs have been used with positive results.

There were limitations in these assessment activities. Specifically, few studies in our literature review addressed our identified need areas with more studies that focused on mental health outcomes than physical activity. We also focused only on physical activity outcomes and did not review evidence related to obesity and nutrition outcomes. Therefore, the findings from the literature review may not reflect a true representation of evidence related to SBHCs impact on nutrition and obesity rates. Moreover, as there is only one SBHC in Colorado Springs, the program assessment was unable to compare programs and structures across centers. We also gathered the perspective of one school district among eight in Colorado Springs. Though these factors limit our ability to generalize the findings, the perspectives helped to provide insight towards the implementation of a SBHC. Lastly, we examined the evidence-based DHSBHC provide replication information for Colorado Springs. However, Denver and Colorado Springs have different demographics and health needs. Despite these limitations, the assessment activities helped to validate the identified priority areas from the El Paso County CHNA and provided clarity to inform meaningful recommendations that positively impact the Colorado Springs community in which CHCO serves.

Recommendations

The following section discusses recommendations based on assessment findings and stakeholder input. Each recommendation addresses mental health and physical activity needs for K-12 children in Colorado Springs. Each recommendation is intended to be addressed by CHCO and incorporated into their implementation plan to address the El Paso County CHNA community identified needs:

1. Expand SBHCs in Colorado Springs and work towards establishing the aspirational concept of SBRCs.

The findings from this HIA validated the community identified health needs of mental health and physical activity, nutrition, and obesity from the El Paso County CHNA. The assessment activities also identified SBHCs as an evidence-based and stakeholder supported approach to addressing these needs. Our assessment of evidence-based models and approaches to SBHCs revealed that successful SBHCs do not adhere to a specific operating model, but instead involve thoughtful and authentic stakeholder engagement with a specific focus on the targeted school district. CHCO has an interest in expanding upon the traditional SBHC model, through an innovative concept that they are defining as a SBRC which includes additional prevention activities, education, and technical support focused on improving population health that is not limited to the direct provision of healthcare services. Furthermore, this concept strives to not only provide services for children in the school district but also to families and the community as a whole.

The main overarching recommendation from this HIA is that CHCO should engage in focused and systematic efforts to collaborate with key stakeholders to advance SBHCs and the SBRC concept in the Colorado Springs area. The subsequent recommendations that are included as part of this HIA outline specific elements and activities as part of this broader effort.

2. Form a community task force, led by CHCO, to pursue the development of the SBRC concept and provide recommendations for implementation.

This recommendation operationalizes the next step for CHCO to continue its efforts to advance SBHCs. Findings from the assessment activities along with stakeholder input suggest that CHCO SBRCs should engage with key community stakeholders through a task force. At the same time, under a community benefit lens, CHCO should provide staff and resources to lead the task force and continue to make progress. As part of this task force, we recommend the inclusion of youth, parents, community leaders, and representatives from future partnering organizations, in addition to the key institutional stakeholders who are already engaged in SBHCs, to ensure appropriate representation of the community and allow for the voice of the community to be heard.

3. Partner with existing entities in Colorado Springs to expand upon and support current programs engaged in providing services to children in the school setting.

There are a number of key institutional stakeholders such as Peak Vista Community Health Centers and school districts in the Colorado Springs area who are already working in the Entrada SBHC or with other health service providers within the school setting. This

recommendation reflects the need to work with these existing stakeholders in a collaborative manner to advance SBHCs and the SBRC concept. CHCO should partner with these entities who are familiar with their community's needs by offering to provide resources and expertise that will enhance the efficiency and functionality of the current Entrada SBHC and help to initiate new SBRCs. Partnerships with existing establishments will strengthen community efforts and provide desired outcomes.

4. Collaborate with El Paso County Public Health to better understand the utilization of and access to healthcare in Colorado Springs.

Our assessment of SBHC efforts in Colorado Springs highlighted the underutilization of past and existing services. The underutilization of SBHC services was a consistent theme in the assessment and engagement components of this HIA. Our formal stakeholder group placed special emphasis on the need to better understand why existing services were being underutilized. They recommended that CHCO undertake specific efforts in collaboration with community stakeholders, such as El Paso County Public Health, to better understand perceptions around access to care and utilization of services among the school age population that is the target of SBHCs CHCO should work to incorporate this knowledge into ongoing efforts to advance school-based health and resource centers.

Overall Recommendation	Areas of Focus	Justification	Anticipated Magnitude of Health Impact*	Quality of Evidence**
Expand school-based health and resource centers	Mental health	Scientific evidence and stakeholder input	High	High
	Physical activity, nutrition, and obesity		High	Medium

**Impact Magnitude was considered high if it had strong effect on increasing access and engagement if recommendations are implemented, Medium if it had a moderate effect, and Low if it had very little effect*
***Quality of Evidence was considered high if it had majority stakeholder support or was supported by multiple peer-reviewed articles, Medium if it had support from half the stakeholders or found in at least one peer-reviewed article, and Low if it had little support from stakeholders and was not found in peer-reviewed articles*

Conclusion

This HIA piloted the concept of integrating HIAs into hospital community benefit activities, specifically implementation planning, within CHCO. Our objective was to assess the impact of SBHCs on mental health and physical activity outcomes, which were identified priority areas based on the El Paso County CHNA. Based on findings from the three assessment activities – a literature review, program assessment, and review of evidence-based approaches – we found SBHCs to be a viable, effective, and evidence-based approach towards addressing mental health and physical activity needs among K-12 children in the community.

The recommendations in this report offer an evidence-based approach for CHCO to engage with the community of Colorado Springs to address physical activity and mental health needs through school-based interventions and services. Furthermore, these recommendations suggest that CHCO build off existing SBHC models to create the innovative SBRC concept of

integrated services to strengthen families and communities through increased partnerships, the provision of family support and child care resources, and capacity building. CHCO should incorporate the recommendations from this HIA into their formal implementation plan to address the El Paso County CHNA community identified needs of mental health and physical activity, nutrition, and obesity. By collaborating with existing community services, CHCO can continue to carry out their mission of providing children and their families with an integrated pediatric healthcare delivery system.

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Appendix A

Stakeholder Group	**Representative**
El Paso Country Public Health	Kate Watkins Mina Liebert
Parenting Matters	Bernie McCarron
TESSA	Jessica Mars SherryLynn Boyles
Aspen Pointe	Kathryn Dosch
Children's Hospital Colorado	Scott Rucker Heidi Baskfield Julie Gibbs
School District 11	Jodi Shields
Pikes Peak United Way	Deana Hunt
Peak Vista	Randy Hylton
Joint Initiatives	Kathy Moan
National Alliance on Mental Illness (NAMI)	Lori Jarvis
Community Care of Central Colorado (Region 7 Regional Care Collaborative Organization - RCCO)	Terry Reishus
Entrada Health Center	Kim Redinger