

# Expanding the Effects of “The Great Equalizer”:

## Schools as Health Centers in Low-Access Rural Communities

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### ABSTRACT

Poor children in rural communities face numerous barriers to health care access. School-based health centers (SBHCs) are a potential solution to health care access disparities and may have larger effects on health outcomes in rural schools than in urban schools. In this paper, I present an ethical argument for why SBHCs should be implemented in underserved rural school districts. I additionally evaluate SBHC program types based on the existing outcomes literature and analyze how SBHCs could be modified to best serve rural communities.

# **Expanding the Effects of “The Great Equalizer”: Schools as Health Centers in Low-Access Rural Communities**

## **Introduction**

While universal health care remains a hotly debated topic in the United States, increasing pediatric health care access is a relatively noncontroversial policy target. Understanding that poor children face significant health care access disparities, policymakers voted to expand public health insurance to children from families with incomes below 200 percent of the federal poverty level in 1997 (Fox 40). Public insurance programs like Medicaid and the State Children’s Health Insurance Program (SCHIP) guarantee basic health coverage for poor children, and over 93 percent of children are insured through government or private plans (Smith 6). Despite broad insurance coverage and numerous pediatric health initiatives, children in poverty continue to face significantly worse health outcomes than their peers. Worse health outcomes are reflected in lost school days, additional trips to the emergency room, and lost work hours for parents, all of which present additional challenges to poor families. The disconnect between current health care solutions and actual pediatric outcomes is alarming. Increased funding for health care is clearly not enough – health care strategies must evolve as well.

Recently, health care strategies have evolved to place an increased focus on prevention, and the front line of pediatric care begins with primary care providers. Poor children, however, are less likely to access primary care providers than their peers, limiting their access to preventive care. A lack of preventive care may allow minor health problems to develop into more serious conditions, increasing emergency room visits and overall health care costs. Health

insurance covers most of these costs, but out-of-pocket medical expenses and deductibles place significant budget strains on poor families.

Direct medical costs are not the only health care access barrier that poor children and their families face; rather, a number of factors contribute to health care access disparities. First, health care providers are distributed unevenly (Shipman). Second, many providers are unwilling or unable to accept new Medicaid patients (Berman). Third, transportation and scheduling conflicts may prevent visits to health providers (Arcury). Fourth, poor families may not trust health care providers, particularly families that are non-white (Boulware). While these problems exist in both urban and rural areas, the regions with the worst health care access tend to be rural. Access to health care and pediatric outcomes are significantly worse in rural regions without any primary care providers, even for those children who are insured (Guttmann). Additionally, children living in rural regions face higher levels of obesity and common chronic pediatric conditions (HRSA). Since primary care physicians are the front line of care for both chronic conditions and obesity, rural children without access to primary care may be at greater risk for complications and hospitalizations due to these conditions.

School-based health centers (SBHCs), which provide the services of a typical pediatric office, offer solutions to all of these problems. First, SBHCs give children access to a primary care provider at their school. Second, SBHCs provide care to students regardless of their insurance status. Third, students and SBHCs benefit from the built-in transportation and infrastructure that schools provide. Fourth, students are more likely to trust the health care providers at SBHCs because of preexisting relationships at their schools (Albright).

At this point, SBHCs are disproportionately located in urban schools (Love). However, I believe that SBHCs would have a larger impact in rural schools because of the greater health

care access disparities in rural regions. I argue that implementing more SBHCs in high-poverty, low-access rural regions would effectively employ existing infrastructure to reduce pediatric health disparities. Although a large portion of public health research and funding for children in poverty is understandably directed toward urban children, the health disparities of rural children demand attention as well. In fact, rural disparities in pediatric care access and outcomes may present an even stronger moral and ethical imperative for school-based interventions. In short, policymakers should prioritize the establishment of rural SBHCs to improve children's health through better health care access.

### **Rural health challenges**

In the United States, poor children experience worse health care access and outcomes than their peers. Furthermore, rural children face worse health care access and outcomes than their urban counterparts. In 2011-12, only 81 percent of rural children received preventive care, in contrast with 85 percent of urban children (HRSA). Insurance rates were equal between the two groups; therefore, we can assume that other factors limited health care access for rural children. Children from rural communities reported lower stress levels, which provided some protection from physical and psychological health problems. However, children from small rural areas experienced slightly higher rates of chronic health conditions. Additionally, 38 percent of children from small rural areas were obese, while only 30 percent of urban children were obese (HRSA). Obesity in childhood is correlated with obesity in adulthood, and it raises the risk for numerous chronic and potentially costly conditions. Asthma, which is commonly associated with inner-city pollutants, remains a common problem in rural areas, potentially due to farming chemicals and other environmental factors (Chrischilles).

Although the health outcomes of poor, rural children indicate that they are the least healthy of any group of American children, the majority of public health resources and research have been dedicated to urban health problems. This applies to SBHCs as well; as of 2013, only 14.2 percent of SBHCs were located in rural areas (Love). This is potentially due to the way in which SBHCs are sponsored, since many are associated with other health care providers in their communities. According to the School-Based Health Alliance, 43 percent of SBHCs are sponsored by a community health center, and 19 percent are sponsored by a hospital or medical center. In the areas with the worst health care access – where SBHCs are needed most – there may not be any health care organizations to sponsor SBHCs. Increasingly, SBHCs are being sponsored by school systems, accounting for 12 percent of SBHCs, and local health departments, which sponsor 8 percent of SBHCs (Love). Sponsoring and staffing rural SBHCs presents unique difficulties simply because there is less available health care infrastructure in rural regions. These challenges are significant; however, the ethical imperative to improve rural children’s health outweighs the difficulties of implementing new rural SBHCs.

### **Justification for rural SBHCs**

Many Americans would agree that all children, regardless of family socioeconomic status, have the right to receive basic health care. The broad support for children’s health insurance programs like SCHIP illustrates this general consensus. However, because many children still lack access to care, our society must examine other possibilities for improving pediatric care access and children’s health outcomes. To those who agree that children have the right to receive basic health care, I propose that the positive health outcomes generated by SBHCs are adequate justification for their increased implementation in rural schools. To anyone

who would deny that children have the right to basic health care, I argue that there are several moral frameworks that can be applied specifically to rural health care access and which support the implementation of SBHCs.

Childhood health is incredibly important because it impacts individuals throughout their lives. For example, childhood health impacts learning and academic success. If a second-grader with asthma is forced to miss school once every other week because of asthma attacks, she may fall behind her peers in basic reading and math skills and internalize her academic shortcomings. Childhood health is also strongly correlated with adult health outcomes. If an obese teenager misses the warning signals for diabetes, he may face a lifetime of blood glucose testing and insulin injections. Childhood is a time of physical, psychological, mental, and emotional development, and adequate health care is critical during this period. Healthy children are more likely to succeed in school, become employed as adults, and increase overall economic productivity.

From a viewpoint that employs elements of consequentialist and utilitarian perspectives, prioritizing rural SBHCs makes sense. SBHCs generate numerous positive health outcomes, which I outline later in this paper. I also outline the reasons why rural SBHCs may impact students' health and health care access more significantly than urban SBHCs. Because of the increased benefits associated with rural SBHCs, SBHCs should be prioritized in rural school districts that lack pediatric primary care providers in order to impact poor children's health most significantly. In 2006, approximately one million American children lived in a primary care service area (PCSA) without any pediatricians. 21 percent of these children were impoverished, and 65 percent were rural (Shipman 23). PCSAs are based on zip codes; when the majority of patients in one zip code seek care in an adjacent zip code, these regions are combined into a

PCSA (Goodman). Therefore, children in PCSAs without a pediatrician must travel long distances to receive pediatric care. Children from PCSAs with few or no pediatricians are less likely to receive basic preventive care and have significantly worse health outcomes than their peers (Guttmann). New SBHCs would have the largest impact in these regions because they would provide health care access to children who previously had none.

While SBHC start-up and operational costs would be significant, other health care costs would decrease as a result of SBHCs. As I explain in my analysis of SBHC programs, SBHCs reduce hospitalizations and other costly medical outcomes by preventing and managing medical conditions. I provide a more detailed cost-benefit analysis of SBHCs later in this paper that indicates that the economic benefits of SBHCs may actually outweigh their costs.

However, the principal justification for SBHCs is not based in cost-benefit analyses, but fairness. Equality of opportunity ultimately provides the best justification for this intervention. Unhealthy children are unable to reach their full potential, which prevents them from fully pursuing opportunities in childhood and beyond. Norman Daniels, a medical ethicist, argues that “fair equality of opportunity” requires a fair distribution of “social determinants of health.” Social determinants of health comprise any non-genetic factors outside of an individual’s control that contribute to health outcomes. Access to health care is one of many social determinants of health, and a clear imbalance exists between access to care in rural and urban areas. Increasing the number of SBHCs in underserved rural areas would generate a fairer distribution of access to care, improving rural children’s fair equality of opportunity.

“Fair equality of opportunity” goes beyond the popular perception of equality of opportunity – it requires society to help disadvantaged individuals to reach basic levels of health, education, etc., so they can truly pursue opportunities. While some may argue that taxpayers are

not obligated to support fair equality of opportunity, I believe that justice requires this. This is best explained the “veil of ignorance,” a thought experiment designed by the philosopher John Rawls. Behind the veil of ignorance, no one knows his or her place in society; therefore, individuals behind the veil of ignorance are “unbiased contractors.” Because rational and unbiased contractors act out of general self-interest, Rawls argues that any conditions that they consent to are fair. Based on this assumption, Rawls asserts that unbiased contractors would choose to live in a society where basic liberties are protected and fair equality of opportunity is promoted. Furthermore, he posits that unbiased contractors would choose to maximize conditions for the worst-off in society due to the possibility that they, themselves, could end up in this position. Thus, Rawls’ thought experiment justifies the unequal distribution of societal resources to maximize outcomes for the most disadvantaged in society. When applied to health, the most disadvantaged children are those living in rural areas without access to pediatric care. Justice requires that our society works toward fair equality of opportunity, and I contend that introducing SBHCs to underserved rural areas is one way that we can better approximate a fair society.

### **General benefits of SBHCs**

Recognizing that SBHCs are effective solutions for health care access disparities, more school districts and states choose to implement SBHCs each year. The number of SBHCs has steadily increased over the past fifteen years, and as of 2014, there were 2,315 SBHCs located in 49 states. Over 80 percent of these SBHCs were located in urban or suburban schools; however, between 2010 and 2013, almost 60 percent of new SBHCs were established in rural schools.



SBHCs tend to be located in communities with high poverty levels and diverse student populations, targeting students with the worst health care access and outcomes (Love).

While their components may vary, SBHCs share common traits that benefit both students and their families. Through their integration into schools, they offer students convenient access to medical care. Since buses are already provided to and from school, SBHCs especially help families with limited access to transportation. Furthermore, students do not need to leave school grounds for health appointments, minimizing lost instructional time. This is particularly beneficial to students with chronic conditions that require regular care.

Another common feature of SBHCs is that both insured and uninsured children receive treatment. This is possible through a combination of reimbursed care and additional funding sources, which I explore in more depth later in this paper. Since it is more fiscally prudent for SBHCs to treat insured students, SBHCs may work with families to apply for public health insurance, such as Medicaid and SCHIP.

Finally, SBHCs benefit from preexisting relationships within schools and communities, which aid in the development of provider-patient relationships. In a study of parent and student perceptions of SBHCs, students reported high levels of teacher support for SBHC use. Additionally, parents reported trusting SBHCs due to clear communication between the SBHC staff and parents as well as other family-centered approaches to health care. Most importantly, adolescents reported preferring school-based health care to care from other providers (Albright 2-5). Patients who trust their health care providers are more likely to comply with their treatment plans and have better health outcomes; therefore, SBHCs may have a larger impact on students than traditional medical homes (Lee).

## **Justification for adapting SBHCs for rural schools**

Due to their general benefits, establishing more SBHCs in rural schools could significantly improve rural children's health outcomes. Unfortunately, the overwhelming majority of SBHC outcomes research only focuses on urban schools. This is probably due to the prevalence of academic medical centers and other research institutions in cities, as well as the disproportionate concentration of SBHCs in urban and suburban regions. Ideally, more rural-specific research will be published as SBHCs become more widespread. However, as there is an ethical imperative to improve the health of rural children, rural SBHCs must be established based on currently available research.

While there are significant differences between urban and rural regions, public school systems provide some degree of standardization. Rural schools may be smaller than urban schools; however, urban and rural schools are otherwise relatively similar on countywide and statewide levels. Additionally, rural children's health problems do not present any radically different challenges. Therefore, school-based health programs developed in urban settings can reasonably work in rural areas as long as these programs are modified to best meet the needs of rural communities.

Rural SBHCs might actually impact health outcomes more significantly than their urban counterparts by providing health care to students who currently lack health care access completely. In rural regions without any pediatricians, an SBHC may be a child's only source of medical care, as opposed to urban areas where they may simply provide a more convenient option. Researchers analyzing access to care in Ontario found that almost 30 percent of households with children had no primary care physician in the counties with >3,500 children per pediatrician. Emergency department visits were twice as frequent in the counties with the lowest

per capita physician supply as compared to counties with the highest physician supply, and low acuity asthma emergency department visits were more than ten times more frequent. When these measures were analyzed based on neighborhood income quintile, the differences were much smaller (Guttmann 1122-1123). Therefore, differences in emergency department usage are more dependent on local pediatrician supply than family financial status. Since these differences are most pronounced at the lowest end of the physician supply spectrum, introducing an SBHC to an unserved or underserved rural county would likely generate larger changes in health outcomes than the introduction of an SBHC to an urban school.

The limited research available on rural SBHCs is promising, indicating that there may be more student participation in rural than urban SBHCs. In a study of rural and urban SBHCs in Ohio and Kentucky, researchers found that rural students visited their SBHC more frequently than urban students (Wade 742). Additionally, students at rural schools were referred to the SBHC by their parents for 44.8 percent of visits, indicating strong family support for these programs. In contrast, urban parents only referred their children for 11.3 percent of SBHC visits (Wade 744). West Virginia, which has widely implemented SBHCs, has experienced similar outcomes. Many rural schools in West Virginia are located in PCSAs without any pediatricians, making SBHCs the sole primary care option for many students. 86 percent of rural West Virginia students enrolled in their school's SBHC, while only 46 percent of urban students did the same (Crespo 191). Similarly, rural students visited their SBHC twice as often as urban students (Crespo 190). Based on these results, it is possible that rural SBHCs generate health outcomes that are equal to or better than urban SBHCs with similar programs. Since I analyze SBHC outcomes research that is primarily urban-based, the programs that I evaluate may have even greater effects than expected in rural schools.

## **Health program analysis**

School-based health programs must be chosen carefully to maximize efficiency and outcomes given funding, staffing, and time constraints. Ideally, schools would implement all recommended programs, providing holistic health care to their students. Instead, schools must choose which services to offer based on outcomes research, which primarily analyzes health and educational outcomes for students served by SBHCs. In this paper, I analyze three broad program types that have been extensively implemented and researched in SBHCs: typical primary care and health management services, immunizations and other preventive care services, and peer health management.

SBHC outcomes research produces mixed results, which complicates any discussion of which programs improve students' health most effectively. School-based health programs tend to complement each other; therefore, researchers struggle to isolate the direct health effects of individual programs. As Silberberg and Cantor note, the current body of research does not fully capture the effects of SBHCs or adequately compare these effects to other care models (9-10). Other factors may distort SBHC outcomes research; for example, patient confidentiality laws limit data collection without parental consent, longitudinal data sets are rare and may be inconsistent, and clients may not respond to follow-up surveys (Soleimanpour 1602). However, policymakers and public health workers must optimize SBHC services based on available information, and I will make my recommendations based on the current literature. More outcomes research is necessary for each of the program types I analyze, and future research should further elucidate the effects of these programs.

Another limitation to consider is that most outcomes research focuses on SBHCs within one region, or even a single SBHC. Obviously, health conditions and environmental factors vary

throughout the United States, and it may be difficult to generalize results from one region to another. Additionally, since SBHCs vary in format and in programs offered, the results obtained by one SBHC may not apply to another. Policymakers and researchers must be careful not to overgeneralize, and programs should be reevaluated in the context of each individual SBHC over time.

### **Direct medical services**

One common thread among SBHCs is the basic primary care that they offer, since the central purpose of SBHCs is to provide medical services to students. This goes further than the services provided by a regular school nurse, such as the administration of medication and first aid. In most cases, the services provided by SBHCs are similar to services provided by a typical primary care provider.

In addition to traditional pediatric care, many SBHCs provide mental health services and reproductive health services, particularly for high school students. These are valuable services that may not be offered by a typical pediatrician, meeting critical community needs. However, I have chosen not to focus on these services in this paper for several reasons. Mental health services require an additional specialized health care provider and therefore cannot be offered in some SBHCs. Reproductive health services represent an additional expense and may be controversial in conservative communities, reducing trust in the SBHC. When reproductive health services were first offered at an SBHC in Prowers County, Colorado, a conservative and rural region, community agencies were hesitant to partner with the SBHC (Beall 10). Nonetheless, both of these services are important to a community's health and should be further researched and considered for implementation in rural SBHCs.

Most generalized SBHC outcomes research focuses on students' use of preventive services as well as the number of student hospitalizations, while more specific research may focus on outcomes for specific conditions. I will focus on outcomes research for asthma and diabetes, both of which are studied extensively and generate massive public health costs.

**Asthma-related services.** The 2013 National Health Interview Survey found that 8.3 percent of American children have asthma, making it the most common chronic pediatric condition after obesity. Asthma requires careful management, so it is a frequent target for SBHCs. Inadequate asthma care may lead to frequent hospitalizations and higher medical costs; therefore, improving primary care access through SBHCs may result in lower health care costs as well as improved outcomes for pediatric asthma patients.

In a comparison of SBHC and non-SBHC schools in the greater Cincinnati area, there were clear health benefits for asthmatic students who used SBHC services. Schools were studied longitudinally, before and after SBHCs were implemented, as well as in comparison to schools with similar demographics in which SBHCs were never implemented. In the SBHC schools, the proportion of overall visits due to asthma ranged from two to eleven percent. After the implementation of SBHCs, students with asthma were 43 percent less likely to go to the emergency room, and overall hospitalizations decreased as well (Guo 269). The overall cost of hospitalizations decreased when SBHCs were introduced to schools, while hospitalization costs increased over time in the non-SBHC schools (Guo 271). Hospital costs tend to be significantly higher than primary care costs due to the expanded staff, space, and services associated with hospitals; therefore, reducing hospitalizations is a popular strategy for reducing overall health

care costs. Reducing hospitalizations through SBHCs would have an even larger impact in rural areas, where hospitals tend to be less accessible.

Hospitalizations are not only expensive but time-consuming as well, potentially resulting in lost classroom time as well as lost work time for parents. A study of schools in New York found that asthmatic students who used SBHCs were hospitalized over 30 percent less frequently than their counterparts at schools without SBHCs. This reduction in hospitalization rates correlated with a reduction in lost school days, with the students who used SBHCs missing three fewer school days per year (Webber 125).

**Diabetes-related services.** Diabetes, which has high comorbidity with obesity, is another common chronic condition in children. It is much more common in adults due to the time necessary for the development of insulin resistance; however, risk factors for diabetes are often found in children and adolescents. Therefore, most of the research on diabetes and SBHCs focuses on prevention rather than disease management. SBHCs, as students' primary medical home, may help to identify diabetes risk factors early on. Students may change their behaviors when adequately informed of their diabetes risk, potentially preventing the development of the disease. Preventing diabetes in adolescence prevents a lifetime of constant insulin self-regulation, numerous health complications, and high medical costs.

In one study, several SBHC schools near Buffalo implemented a diabetes risk factor screening program during primary care visits. Nurse practitioners were trained to recognize acanthosis nigricans, darkened skin patches that correlate with insulin resistance. If other risk factors, such as high BMI, were present, students' blood glucose levels were tested as well. These screenings were simple to complete in the SBHC setting and provided valuable

information to students and their families about diabetes risk (Rafalson). Implementing diabetes risk factor screening in rural SBHCs would be inexpensive but extremely beneficial, especially in communities with many overweight and obese children and adolescents.

## **Immunizations**

SBHCs also provide a convenient way for students to receive immunizations, another important component of disease prevention. Vaccines provide both individual and public health benefits, reducing the spread of communicable diseases. Immunizations are not particularly time-consuming, but students may not be able to receive them if they cannot access a primary care provider. While schools are able to offer immunizations without SBHCs, there is some evidence that parents are more comfortable with their children receiving immunizations from an SBHC.

In a national survey of over five hundred randomly selected SBHCs, 84 percent reported offering immunizations to students. Of these SBHCs, 69 percent tracked student immunizations in an electronic database, which helped them to remind students and families about missed or upcoming vaccinations (Daley 447). SBHCs that did not provide vaccinations often cited funding concerns; however, most SBHCs were able to cover immunization costs through a combination of insurance reimbursements and vaccine-specific grants (Daley 448).

SBHCs' capacity to follow up with students who have missed vaccines may actually result in higher immunization rates for these students than for those using other medical providers. In a Denver study, researchers compared students who received the majority of their health care at an SBHC to students who received the majority of their health care at a community health center (CHC). Students who received care at SBHCs were significantly more likely to be



up to date on their hepatitis B, Tdap, varicella, MMR, and HPV immunizations than students who received care at CHCs. Additionally, they were more likely to complete immunization series requiring multiple doses (Federico 1631). SBHC users were much less likely to be insured than CHC users; however, they were able to receive immunizations at SBHCs due to vaccine-specific funding sources (Federico 1632).

SBHCs may also improve immunization rates by building trust with students and parents. Despite overwhelming research indicating that immunizations are safe and beneficial, much of the general public remains wary of vaccines. In another study of Denver SBHCs, researchers conducted focus groups with students and parents to determine satisfaction with and trust in local SBHCs. Many parents reported increased trust in their child's SBHC as a result of frequent communication and reminders about immunizations and other care (Albright 3). Additionally, the majority of parents said they felt "very comfortable" with their child's SBHC administering immunizations (Albright 4). Based on the success of SBHC immunization programs in Denver, new SBHCs should strongly consider offering them as part of their services.

### **Peer health management**

In addition to primary care, SBHCs may also offer group-based health programs. SBHCs are uniquely positioned to benefit from the students they serve, since their patients are effectively all on the same schedule. This makes it easier to schedule peer support groups, allowing students to help each other to maintain their health. These groups most benefit students with common medical conditions like asthma and obesity, allowing students to learn from each other and provide emotional support. Adolescents tend to be the target group for this kind of intervention, as it requires a certain level of responsibility and maturity. When appropriately implemented,

these programs may improve health outcomes for students and self-esteem for peer leaders while reducing overall health care costs.

Peer-led groups may result in better outcomes than adult-led groups by increasing acceptance of the group leader as well as individual accountability. In one study, randomly assigned adolescents at an asthma day camp experienced better asthma-related outcomes in peer-led management groups than in groups led by an adult. Patients in the peer-led group had significantly fewer acute primary care visits and school clinic visits as a result of asthma symptoms (Rhee). More research is necessary to determine whether these benefits would translate to a school setting, where there is less focus on asthma management. While these differences were too small to be practically significant, there may be other unmeasured benefits for students in peer-led management groups, including improved self-efficacy. Additionally, peer-led groups require minimal adult support outside of an initial training phase for peer leaders. In rural schools with minimal resources, peer-led health management groups would maximize outcomes given limited staff.

The biggest obstacle to peer health management programs in rural schools would be finding a critical mass of students to participate. Rural schools tend to have fewer students than their urban counterparts, and there simply may not be enough students with a certain condition to make peer management groups cost-effective. These programs could be implemented on a school-by-school basis depending on the number of affected students.

Regardless of school size, many rural schools should consider implementing this type of program for overweight and obese students. In small rural areas, where children are least likely to access primary care, over 38 percent of children aged 10-17 were overweight or obese in 2012 (HRSA). Obesity has high comorbidity with other medical conditions such as diabetes and high

blood pressure (Pinhas-Hamiel 702). Additionally, children who are overweight or obese tend to remain overweight or obese as adults. Therefore, reducing the weight of overweight and obese children can have widespread and long-lasting health effects.

Obesity can be prevented, managed, and reduced through exercise and nutrition, making it a good target for peer management programs. While a large number of research articles explore the connections between obesity and peer effects, little research has been published on the potential for using students as peer leaders in obesity management groups. The Center for Youth Wellness (CYW), a Boston clinic designed to help overweight and obese adolescents, has demonstrated successful outcomes when using group programs. Physicians, dieticians, psychologists, and other health professionals lead these groups. There is a large focus on self-initiated change and personal goals, since weight management is highly dependent on individual choices (Meagher). These principles could easily be adapted into a peer management group. Since SBHCs lack the resources to hire such a diversified health care team, training adolescents to help each other could be an effective solution. Additionally, overweight adolescents may feel more empowered to make positive changes when encouraged to do so by peers who have similarly struggled with their weight. The implementation and evaluation of peer-led weight management pilot programs in rural schools should be a priority. There are potentially great benefits to this kind of program, but further research is necessary.

### **Additional services**

While basic medical services are the staple of SBHCs, these centers provide the infrastructure necessary to offer additional health care services that students might not be able to access otherwise. These services could include anything from hearing and vision screenings to

dental clinics. It might be prohibitively expensive to support these services throughout the year, but it would be reasonable to offer them on a quarterly basis.

Specialized health services, such as dental care, may already be offered at rural schools at specific times. However, these programs tend to be sponsored by a local community health center or medical group rather than the school system. For example, the Rockbridge Area Health Center sponsors dental clinics at schools in Lexington, Virginia and in the surrounding county. These clinics are not comprehensive, but they do offer sealant treatments, which are an important part of preventive dental care. Since these programs rely on an outside sponsor, children in the most underserved regions may not have access to them. SBHCs at underserved schools could contract with specialists at appointed times throughout the year, which would further improve students' health without adding health care providers to the SBHC staff. Medical exam rooms within a preexisting SBHC would provide an adequate site for additional medical services, and they could provide further advantages by serving as a site for community medical exams outside of school hours.

Overall, all of the school-based health programs that I have evaluated could realistically be implemented in rural schools. Nonetheless, there are still several challenges that rural SBHCs face.

### **Challenges facing rural SBHCs**

While there are a number of SBHC formats that effectively provide medical services, there are several key similarities among SBHCs that are considered best practices. These best practices include complete integration into the school, provision of a wide breadth of medical services, consistent use of parental consent forms, and reliance on community input (Keeton).

All of these best practices are implementable in rural SBHCs and can be modified to best meet the needs of various communities.

The National Alliance of School-Based Health Centers additionally recommends a wide variety of providers, including nurses, physicians, therapists and social workers, in order to provide holistic care. However, this model may be unrealistic for rural schools with limited funding and access to health care professionals. The Colorado Rural Health Consortium, a group of stakeholders from nine rural SBHCs across Colorado, asserts that successful rural SBHCs require “minimum two hours per day staffing with a provider who has prescriptive authority” (Beall 7). SBHCs may benefit from hiring physician assistants (PAs) or nurse practitioners (NPs), mid-level providers. While PAs and NPs have prescriptive authority equivalent to physicians, their salaries are substantially lower, making them less expensive alternatives for SBHC staffing (Anderson). Additionally, school systems could hire health care providers to serve at several locations; for example, a physician could serve for two hours per day at a high school, two hours at a middle school, and two hours at an elementary school within a single community. Student access to a physician one day per week would be an improvement over no access whatsoever. By splitting salary costs between schools, school systems could reduce overall health care costs. Additionally, this model would allow students to continue care with the same provider as they grow up, improving trust and strengthening the provider-patient relationship. Overall, creative solutions and flexible schedules should help to address many of the logistical challenges associated with rural SBHCs.

## **Funding SBHCs**

Funding constraints present the main challenge to increasing the number of rural SBHCs. Upfront costs would be high due to the construction of medical exam rooms and additional clinic space. Operational costs could be adjusted based on location; however, hiring a medical staff would be relatively expensive. School districts in poor rural counties already have tight budgets and would not be able to financially support the construction and operational costs of SBHCs. While health care is an important priority, it would be difficult to justify taking money away from education to use for SBHCs. Therefore, outside funding sources are crucial for SBHC sustainability.

Most SBHCs operate with multiple revenue streams, using insurance reimbursements and grants to cover their costs. If schools can help their students to enroll in Medicaid or other health insurance programs, they will be reimbursed for the vast majority of their care. However, Medicaid and SCHIP reimbursement rates are lower than reimbursement rates from private health insurance plans, so additional revenue is necessary (Cunningham). In 2013-14, 18 states provided \$85 million in total to fund SBHCs. Additionally, 53.4 percent of SBHCs received federal funding, which primarily came from the HRSA's SBHC Capital Program and block funding for federally qualified health centers (Love). Rural school districts with low health care access should be a priority when allocating federal and state SBHC funds in the future.

Although SBHCs may generate a net cost overall, they are linked to Medicaid savings. In a study of SBHC and non-SBHC elementary schools in Atlanta, there were clear financial benefits generated by the SBHC. Before SBHC implementation, students at both schools generated similar Medicaid costs. After SBHC implementation, students who used the SBHC had significantly lower Medicaid costs for inpatient visits, emergency department visits, and

medication (Adams 783). In a longitudinal cost-benefit analysis of SBHCs in Ohio, annual Medicaid outlays were \$35 lower per SBHC student than for their peers, generating net Medicaid savings. The full cost-benefit analysis included reduced parental productivity loss as well, since parents didn't have to lose time at work to take their children to an outside health care provider (Guo 1621). Over the long term, better health care access could generate better academic and economic outcomes for students as well as lower future health costs. Given this analysis, increasing government funding for rural SBHCs is justifiable due to both short-term and long-term net societal benefits.

### **Summary and next steps**

Given the outcomes presented here, SBHCs are a promising solution to many rural barriers to health care access. Overall, SBHCs have successfully improved health care access and health outcomes for thousands of children. These benefits may be greatest for poor children, especially those who would not have access to a health care provider otherwise. For all of these reasons, policymakers should work to establish more SBHCs, especially in underserved rural regions. At this point, real or perceived funding constraints are the main obstacle to implementing SBHCs more widely; however, overall health care costs would potentially decrease as a result of these programs. Even if there are additional costs involved, we are morally obligated to improve health care access and health outcomes for disadvantaged rural children, and SBHCs are a good way to accomplish this goal given existing educational infrastructure. With all of this in mind, what are the next steps in establishing more rural SBHCs?

Direct policy recommendations are outside the scope of this paper, but I will make several general recommendations for how new SBHCs should be established. SBHCs should be tailored to the students and communities they serve while incorporating three core elements. Based on outcomes, SBHCs seem to be the most effective at improving immunization rates. This is an important public health goal and a popular funding target, so vaccinations should be a priority for rural SBHCs. The basic primary care services offered at SBHCs, such as services aimed toward treating asthma and preventing diabetes, have proven successful as well. By giving students access to a primary care provider with prescriptive authority, even if only on a weekly basis, SBHCs can help underserved rural children to manage any health conditions and prevent further problems. Finally, SBHCs should be used as a site for dental care, health screenings, and other important preventive care services on at least a quarterly basis, since underserved rural children likely would not be able to access these services otherwise. Additional full-time health care providers and programs may add further benefits; however, budget-constrained schools should focus on basic services to maximize efficacy.

While I argue that there should be a greater focus on implementing SBHCs in rural regions without existing pediatric care providers, this is not an argument against urban SBHCs. These health centers provide numerous benefits to the students they serve, and they often act as their students' primary medical home. However, I have presented an ethical argument for implementing SBHCs in underserved rural regions, and this ethical imperative indicates that rural schools should receive a larger proportion of SBHC funding in the future. Similarly, research on rural SBHCs should be prioritized, since very little exists. While I have proposed a basic plan for SBHC programming primarily based on urban SBHC outcomes, rural-specific research is necessary for optimizing new SBHCs. Government funding supports a significant



portion of public health research, and this funding could be targeted to rural SBHC-specific projects. As rural SBHCs become more common, more outcomes data will become available, and SBHCs will be able to share best practices. We have an additional obligation to figure out the most effective and affordable way to scale up SBHCs, since the current pace of SBHC establishment is far too slow to reach many children who lack primary care access.

Numerous factors contribute to rural pediatric health outcomes, but lack of access to care is what truly sets apart rural children from urban children. There are many potential solutions to this problem; however, few take advantage of existing infrastructure as effectively as SBHCs. Many cities have chosen to support SBHCs in public schools, recognizing their potential for providing quality primary care to poor children. This potential will be even greater in rural areas with the fewest medical resources, and our government and society should actively support and prioritize the establishment of SBHCs in school districts that serve poor, rural children.

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