

By Hayley E. Love, John Schlitt, Samira Soleimanpour, Nirmita Panchal, and Caroline Behr

Twenty Years Of School-Based Health Care Growth And Expansion

DOI: 10.1377/hlthaff.2018.05472

HEALTH AFFAIRS 38,
NO. 5 (2019): 755–764

This open access article is distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) license.

ABSTRACT Youth in underserved communities lack access to consistent sources of high-quality health care. School-based health centers (SBHCs) address this challenge through the provision of primary care, mental health care, and other health services in schools. This article describes the current status of SBHCs nationally, including changes over the past twenty years. Data were collected through the School-Based Health Alliance's National School-Based Health Care Census. The number of SBHCs doubled from 1,135 in 1998–99 to 2,584 in 2016–17. During this time they adapted to the changing health care landscape and community needs. Sponsorship shifted predominantly to federally qualified health centers, and SBHCs provided access to primary care and, often, to mental, oral, and other health services to 10,629 schools and over 6.3 million students. SBHCs have grown steadily since 1998, and recent expansion through federally qualified health centers and telehealth technology forecasts even greater growth, innovation, and access for underserved communities.

Hayley E. Love (hlove@sbh4all.org) is director of research and evaluation at the School-Based Health Alliance, in Washington, D.C.

John Schlitt is president of the School-Based Health Alliance.

Samira Soleimanpour is a senior researcher at the Philip R. Lee Institute for Health Policy Studies, University of California San Francisco.

Nirmita Panchal is a research and evaluation manager at the School-Based Health Alliance.

Caroline Behr is a census intern at the School-Based Health Alliance.

Each day in the US, millions of children and adolescents—especially those of color and those who live in underserved communities—go to school with physical and mental health concerns that threaten their well-being and educational performance.¹ Youth living in impoverished communities have higher rates of asthma, substance use, anxiety and depression, and obesity and are at elevated risk of not having regular health maintenance visits.² Adolescents cite lack of access, concerns about confidentiality, and inconvenience as reasons for not using the health care system.³ When adolescents seek health services, they often access care in multiple settings (schools, medical offices, family planning centers, mental health clinics, and emergency departments), with little continuity of care.³ This fragmentation has far-reaching consequences. In the short term, young people with unmet or poorly managed health

care needs are more likely to be chronically absent from school, experience suspension, and drop out.^{1,4} In the longer term, they are more likely to be underemployed and financially unstable.⁵ There are costs to the health care system associated with fragmented and forgone care, overuse of the emergency department, and duplicated care—as well as costs to the education, welfare, and juvenile justice systems when health care needs are not met.¹

School-based health centers (SBHCs) are a logical response to the challenges that underserved youth face in health care access and use. The centers represent a shared commitment by a community's schools and health care organizations to address health care access and use among the nation's underserved communities and aim to support children's and adolescents' health, well-being, and academic success. The centers help youth and their families overcome access barriers—including transportation, time,

costs, and lack of continuity of care—that may prevent them from receiving needed health care services. Schools provide a space for the centers to operate, and local health care organizations bring an array of services delivered by a multidisciplinary team: primary care and often mental health care, social services, oral health care, reproductive health, nutrition education, vision services, and health promotion. Care is provided during and after school hours and often during the summer. In addition to students in the school, school-based health services may be provided to school staff members, students' family members, and others within the community.

Extensive research documents the impact of SBHCs on physical and mental health care access and outcomes for children and adolescents. A recent systematic review of the centers by the Centers for Disease Control and Prevention's Community Guide and the Community Preventive Services Task Force recommended them as an effective approach to advancing health equity.⁶ Their presence or use is associated with improved health-related outcomes, including increased preventive screening for oral health, vision, substance use, and nutrition; increased vaccinations; increased use of contraceptives; increased access to and use of mental and behavioral health services; decreased asthma morbidity; and decreased emergency department use and hospital admissions. The presence or use of the centers is also associated with improved student achievement outcomes such as grade point averages and rates of grade promotion and suspension.^{6,7} Center use is also associated with improved client experience of care⁸ and improved experiences of school life and feelings of connectedness to the learning environment for students, parents, and school personnel.⁹

The first SBHCs emerged in the late 1960s and early 1970s in urban communities in Cambridge, Massachusetts; Dallas, Texas; and St. Paul, Minnesota.⁷ Descriptive data from early centers focused on family planning access, teen pregnancy prevention, and supports to adolescent parents. The St. Paul SBHC program, for example, published research claiming a 40 percent drop in the pregnancy rate among the school population. While these findings were later disputed by secondary analyses,¹⁰ the results raised awareness of the centers among leaders in public health, pediatrics, nursing, and the emerging field of adolescent medicine and encouraged the centers' spread. These leaders' early work on the SBHC model helped build a mounting evidence base.¹¹

A first nationwide effort to document SBHC operations was undertaken in 1985 by the Center for Population Options, an organization dedicat-

ed to reducing unintended teenage pregnancy. The Center for Population Options' near-annual administration of the National School-Based Health Care Census captured the model's rapid growth and its evolution as it adapted to the differing needs and social norms of communities. The first Census in 1985 reported thirty-one SBHCs in eighteen urban communities.¹² Three years later the Center for Population Options documented a 400 percent increase: 120 SBHCs were operating in sixty-one cities across thirty states, primarily in high schools.¹³ By the 1998–99 Census¹⁴—now the responsibility of the newly formed SBHC membership organization, the School-Based Health Alliance—SBHCs numbered 1,135, a near-tenfold increase in a decade. Although urban high schools still dominated, the SBHC map was changing. The expansion into forty-five states included rural and suburban communities, as well as middle and elementary school settings.

Several factors explain the rapid two-decade expansion. The nation's preeminent health philanthropy, the Robert Wood Johnson Foundation, invested in SBHCs through multiyear, multisite initiatives. Between 1987 and 2001 the foundation invested over \$40 million to demonstrate the efficacy and test the sustainability of SBHCs.¹⁵ Simultaneously, state governments began establishing their own demonstrations. By 1998 thirty-eight states were allocating funds for SBHCs.¹⁶ Although many never ventured past the pilot phase, several states continued to expand their SBHC investments, and their grant programs remain operational. Medicaid expansions in the 1990s also contributed to a sustainable SBHC business model by guaranteeing health insurance coverage to a population of low-income adolescent patients who historically had limited ability to pay for services.¹⁷

Contemporaneous with the ascent of SBHCs was the expansion of federal support for community health centers to increase low-income families' access to primary care. These two health care access models, previously distinct and separate movements, intersected in 1995 when Congress earmarked community health center funds specifically for SBHCs. At its peak appropriation in 2002, \$7.8 million went to seventy-five SBHCs. When Congress consolidated a number of safety-net program authorizations, the dedicated funding was reabsorbed into the larger community health center fund, and the Healthy Schools, Healthy Communities Program was suspended. However, the Health Resources and Services Administration, the federal oversight agency, retained SBHCs in the eligibility criteria of future funding opportunities, provided grantees met the requirements of the community health

center program—thus cementing the model's growth and sustainability to that of federally qualified health centers.¹⁸

The SBHC model has evolved considerably in recent decades to adapt to the changing health care landscape and community needs. In this article we update empirical data on SBHCs and reflect on the significant growth and changes to the delivery of school-based health care over the past twenty years. The article describes the current state of SBHCs in the US, how they have changed during the past twenty years, and the characteristics of the students and communities with access to them.

Study Data And Methods

INSTRUMENTATION The National School-Based Health Care Census is a survey conducted by the School-Based Health Alliance that collects descriptive information about school-based health centers. Every three years since 1998, the Alliance has invited representatives from SBHCs across the country to participate in the Census. The 2016–17 Census represents the seventh survey conducted by the Alliance and is the primary data source for this article. In addition, Census data collected for the following school years were used to report trends: 1998–99, 2001–02, 2004–05, 2007–08, 2010–11, and 2013–14. Concurrent with the Census, the Alliance conducts the State Policy Assessment, which asks state departments of health and education about their investments in SBHCs. Data collected from the State Policy Assessment for the period from 1998–99 to 2016–17 are reported in the article.

Early versions of the Census were focused on identifying a specific model of school health care—one in which a health center and health care providers were physically located in the school. In this article the term *school-based health center* refers to one of four distinct primary care delivery models, which are determined by the location of patients and providers. In traditional SBHCs, patients access care at a fixed site on a school campus, and providers are physically on site (although some patients also access providers using telehealth). In school-linked centers, patients access care at a fixed site near a school campus through formal or informal linkages with schools. Providers are physically on site and may be accessed remotely. In mobile centers, patients access care at a specially equipped van or bus parked on or near a school campus. Here, too, providers are physically on site and may be accessed remotely. In telehealth-exclusive centers, patients access care at a fixed site on a school campus, and providers are avail-

able remotely through telehealth for primary care services (other services such as behavioral health, oral health care, nutrition, and vision providers and/or health educators may be available physically on site or remotely). For each of these four delivery models, the Census captured data on location, staffing team, services, populations with access, and funding sources.

Data from the Public Elementary/Secondary School Universe Survey Data of the National Center for Education Statistics for the 2015–16 school year were used to examine the characteristics of students and schools with access to SBHCs.¹⁹ Census participants identified the specific schools with access to the centers by selecting from a preprogrammed list of public schools from the National Center for Education Statistics. The information was used to match school and student characteristics to each center, including the total number of schools and students with access, grade levels served, students' ethnic/racial characteristics and eligibility for the free or reduced-price lunch program, school enrollment, and Title I program eligibility status.

PROCEDURE AND PARTICIPANTS The Alliance maintains a national database of SBHCs. Before the Census is launched, the database is updated with contact information from state SBHC rosters from the Alliance's twenty-five state affiliate organizations and the seventeen state departments of health and education that provide funding to SBHCs. For the 2016–17 Census, the Bureau of Primary Health Care's 2015 Uniform Data System data set was also used to update the Alliance database.

Data for the 2016–17 Census were collected during May–December 2017 via an online portal. Alliance staff used mail, email, and phone calls to encourage participation and partnered with a survey research firm to support data collection. The survey asked that the person (or persons) with the most knowledge about the care delivered by the SBHC complete the survey. Possibilities include health care program directors, managers, administrators, providers or clinicians, and administrative staff members.

The Census identified 2,584 SBHCs in the US (including those with each of the four delivery model types described above). The final study sample consisted of the 2,317 centers that completed the Census and reported providing primary care services on site or via telehealth by a physician, nurse practitioner, or physician assistant (a 90 percent response rate).

Of these 2,317 SBHCs, 1,894 were traditional SBHCs, 87 were school-linked, 69 were mobile, and 267 were telehealth-exclusive. The 267 non-responders were contacted by phone to confirm that they were operational and provided primary

care. The 217 centers that completed the Census but did not provide primary care (that is, they provided only behavioral health, oral health services, or both) were excluded from the sample.

DATA ANALYSIS Data were analyzed using summary and descriptive statistics in Stata, version 15. Missing data and “do not know” responses in the Census were excluded. The fifty-one SBHCs that did not identify schools with access to them or whose schools were not found in the National Center for Education Statistics data set were excluded from the school-level analyses. Grade-level types were identified based on the grades offered at the schools with access to a given SBHC. Elementary schools were defined as those offering prekindergarten, kindergarten, or both through fifth or sixth grade; middle schools started with sixth or seventh grade and ended with eighth or ninth grade; high schools started with ninth or tenth grade and ended with twelfth grade; and other schools were those offering any other grade combination. SBHCs that provided access to multiple schools of different grade-level types were classified as “other.”

LIMITATIONS Some limitations should be taken into consideration. First, despite extensive efforts to identify all SBHCs, some might have been missed through the Alliance’s methods.

Second, while contacts were instructed to have the person with the most knowledge about the program complete the survey, some data may have been unavailable or unfamiliar to respondents.

Third, fifty-one respondents did not identify schools with access to their SBHCs. Thus, school data—particularly on the numbers of students with access—might be underrepresented.

Fourth, data were not collected on schools with access using the same methods in previous Census administrations. Thus, comparisons could not be made across years to examine how school and student characteristics have changed over time.

Study Results

NUMBERS AND LOCATIONS OF SCHOOL-BASED HEALTH CENTERS The number of SBHCs grew from 1,135 in 1998–99 to 2,584 in 2016–17, representing a 128 percent increase. In 2016–17, SBHCs were located in the District of Columbia, Puerto Rico, and forty-eight states (all but North Dakota and Wisconsin) (exhibit 1).

DELIVERY MODELS, SPONSORSHIP, AND FUNDING SOURCES From 1998–99 to 2013–14 more than 90 percent of SBHCs were traditional centers, and fewer than 10 percent were mobile or school-linked (percentages derived from numbers presented in exhibit 2). The distribution

shifted in 2016–17 with the growth of telehealth-exclusive centers: Then 82 percent of the centers were traditional, 4 percent were school-linked, 3 percent were mobile, and 12 percent were telehealth-exclusive. The number of centers reporting any use of telehealth technology, regardless of delivery model, grew from 66 in 2007–08 to 467 in 2016–17.

For the first time in Census history, one sponsor type was dominant in 2016–17: Federally qualified health centers sponsored 51 percent of SBHCs, compared to 19 percent in 1998–99. With the rise in federally qualified health center sponsorship, the percentage of SBHCs sponsored by other organization types declined. However, there was a slight increase in the share of SBHCs sponsored by hospitals or medical centers from 2013–14 to 2016–17, because of the increase in telehealth-exclusive SBHCs. In 2016–17, 48 percent of telehealth-exclusive SBHCs were sponsored by hospitals or medical centers, and none was sponsored by a federally qualified health center (exhibit 2).

To remain sustainable, SBHCs combine funding sources—including public and private insurance revenue; federal, state, and local grants; school and school district support; and private foundation grants. In 2001–02 the Census began to track center funding sources. With each Census, the percentage of centers that billed Medicaid increased, from a baseline of 68 percent in 2001–02 to 89 percent in 2013–14 (data not shown). Similarly, billing of public and commercial insurers increased steadily in the same period, going from 43 percent to 71 percent for the Children’s Health Insurance Program, and from 45 percent to 69 percent for commercial payers (data not shown). Grants from all levels of government have been a mainstay of the SBHC funding model. These sources have remained fairly constant over the past dozen years: State government grants were most frequently cited (by 71–76 percent of centers) in every survey, followed by federal grants (37–53 percent) and local government grants (32–42 percent) (exhibit 2).

EXPANSION OF COMPREHENSIVE PROVIDER TEAMS All SBHCs provided primary care by nature of our inclusion criteria. In 2016–17, 85 percent employed nurse practitioners, and this share has remained relatively constant over time, along with the proportion of centers employing physicians (41 percent in 2001–02 and 40 percent in 2016–17). In 2016–17, 65 percent of centers had behavioral health providers as members of the provider team—a smaller percentage than in 2007–08, when the share peaked at 81 percent.

Forty-one percent of SBHCs had expanded care teams, defined as having primary care and be-

havioral health care staff along with one or more of the following: oral health providers (dentists, dental assistants, or dental hygienists), vision specialists, nutritionists or registered dietitians, and other coordinators. The proportion of centers that employed oral health providers increased from 9 percent in 2001–02 to 28 percent in 2016–17 (data not shown).

COMMUNITY AND SCHOOL CHARACTERISTICS

SBHCs provided access to 6,344,907 students in 10,629 schools (exhibit 3)—or 13 percent of school-age youth in US public schools in approximately 10 percent of US public schools. Forty percent of the centers provided access to elementary school-age children, 30 percent to middle or high school-age youth, and 30 percent to youth in all other grade combinations.

On average, compared to schools without access to SBHCs, those with access had higher percentages of black (24 percent versus 14 percent) and Hispanic (38 percent versus 22 percent) students enrolled (exhibit 3). They also had a higher percentage of students who received free or reduced-price lunch (70 percent versus 53 percent). Furthermore, 77 percent of schools with access to SBHCs were eligible for Title I funding, compared to 67 percent of schools without access (data not shown). The Title I program provides financial assistance to schools with high percentages of children from low-income families.²⁰

SBHCs open their doors to populations beyond students enrolled in their affiliated schools, including students from other schools (44 percent of centers in 2016–17), faculty or school personnel (39 percent), and families of student users (32 percent). The type of communities with access to centers shifted over time: 59 percent of centers served urban communities in 1998–99, but only 46 percent did so nearly two decades later. The growth in SBHCs providing access to rural communities is partly attributable to telehealth exclusive centers, as 56 percent of those centers provided access to rural communities in 2016–17 (exhibit 2).

Discussion

The number of school-based health centers nationwide more than doubled in the past twenty years, with centers in nearly every state. This growth can likely be attributed to a variety of factors, including evidence supporting their impacts, state-level investments, federal expansion of the primary care safety net, and advocacy.

EMPIRICAL EVIDENCE Data supporting the positive impact of SBHCs on health and educational outcomes has raised awareness among health and education stakeholders. In 2016, findings

EXHIBIT 1

Numbers of school-based health centers (SBHCs) and state dedicated funds, by state, 2016–17

State	SBHCs	State	SBHCs
AL	8	MO	12
AK ^a	7	MT	2
AZ	37	NE	9
AR	29	NV	12
CA	199	NH	1
CO ^a	58	NJ	15
CT ^a	166	NM ^a	61
DE ^a	30	NY ^a	196
DC ^a	7	NC ^{ab}	85
FL	115	OH	62
GA ^b	104	OK	2
HI	16	OR ^a	82
ID	2	PA	24
IL ^a	85	PR	2
IN ^b	48	RI	4
IA	12	SC ^b	61
KS	11	SD	3
KY	99	TN ^b	54
LA ^a	86	TX ^{ab}	201
ME ^a	13	UT	5
MD ^{ab}	82	VT	5
MA ^a	52	VA	7
MI ^{ab}	111	WA	44
MN	23	WV ^a	161
MS	73	WY	1

SOURCE Authors' analysis of data from 2016–17 from the National School-Based Health Care Census and the National School-Based Health Care State Policy Assessment. **NOTES** There were no SBHCs in North Dakota, Wisconsin, or the US Virgin Islands. Information about Census completion rates and details on delivery models by state are available on request. ^aState dedicated funds in fiscal year 2017: AK, \$2.0 million; CO, \$4.4 million; CT, \$10.0 million; DE, \$3.9 million; District of Columbia, \$2.6 million; IL, \$4.3 million; LA, \$7.4 million; ME, \$0.7 million; MD, \$2.6 million; MA, \$2.9 million; MI, \$20.0 million; NM, \$3.1 million; NY, \$17.0 million; NC, \$1.4 million; OR, \$7.4 million; TX, \$0.5 million; and WV, \$0.8 million. ^bThere were telehealth-exclusive SBHCs (explained in the text) in GA (73), IN (3), MD (6), MI (5), NC (35), SC (30), TN (2), and TX (113).

of the CDC's Community Guide systematic review resulted in the Community Preventive Services Task Force recommending that SBHCs be implemented in communities to promote health equity and improve educational and health outcomes.⁶

STATE-LEVEL INVESTMENTS Investments in SBHCs by state departments of health and education increased from \$61.9 million in 1998–99 to \$91.3 million in 2016–17 (exhibit 2). However, the number of states providing these dollars decreased from thirty-three to seventeen. In the past two decades, rates of SBHC expansion were nearly double in the sixteen states plus the District of Columbia with SBHC funding, compared to states without such funding (65 percent versus 36 percent) (exhibit 4). Although they rep-

EXHIBIT 2

Characteristics of school-based health centers (SBHCs), selected years 1998–99 to 2016–17

Characteristic	1998–99	2001–02	2004–05	2007–08	2010–11	2013–14	2016–17
All SBHCs	1,135 ^a	1,496 ^a	1,709 ^a	1,909 ^a	1,930 ^a	2,315 ^a	2,584
In the analysis	781	1,049	1,252	1,095	1,381	1,737	2,317
No. of SBHCs reporting by delivery model	781	1,049	1,251	1,095	1,364	1,736	2,317
Traditional model	743	1,005	1,226	1,047	1,287	1,633	1,894
School-linked model	28	28	— ^b	35	48	47	87
Mobile model	10	16	25	13	29	52	69
Telehealth-exclusive model	— ^b	— ^b	— ^b	— ^b	— ^b	4	267
No. of SBHCs reporting by sponsor type	781	1,036	1,250	1,094	1,341	1,734	2,305
Federally qualified health center	155	185	276	311	448	750	1,181
Hospital or medical center	295	356	414	301	354	330	464
Nonprofit or community-based organization	68	117	147	97	85	170	218
Local health department	156	174	217	167	178	136	130
School system	79	140	173	128	151	204	146
Other ^c	28	64	53	90	125	144	166
No. of SBHCs reporting by geographic location	781	1,028	1,252	1,095	1,364	1,731	2,310
Urban	461	663	735	620	740	887	1,074
Rural	206	260	342	298	379	599	823
Suburban	114	105	175	177	245	245	413
No. of SBHCs reporting by populations with access ^d	— ^b	687	1,244	1,089	1,264	871	2,313
Students from other schools	— ^b	392	407	407	638	753	1,010
Family of student users	— ^b	320	355	290	471	594	740
Out-of-school youth	— ^b	186	201	239	417	548	658
Faculty or school personnel	— ^b	317	235	296	468	537	904
Other people in the community	— ^b	119	153	167	238	314	399
Any nonstudent population	— ^b	— ^b	— ^b	— ^b	1,264	871	1,442
No. of SBHCs reporting by members of provider teams	781	1,026	1,208	1,018	1,381	1,737	2,317
Primary care provider	312	318	388	198	403	570	816
Primary care and behavioral health providers	260	428	548	437	461	440	550
Primary care and behavioral health providers with an expanded care team	172	280	255	383	517	727	951
No. of SBHCs reporting by funding for SBHCs ^d	— ^b	— ^b	926	968	1,286	1,540	2,301
State government funding	— ^b	— ^b	659	735	960	1,092	1,365
Federal funding	— ^b	— ^b	— ^b	354	687	804	1,062
Millions of dollars allocated by state government	\$61.9	\$71.1	\$63.8	\$83.1	\$90.0	\$85.0	\$91.3
States allocating funds to SBHCs	33	27	20	20	19	18	17

SOURCE Authors' analysis of data for the period from 1998–99 to 2016–17 from the National School-Based Health Care Census. **NOTES** Missing data and “do not know” responses are excluded. The delivery models and expanded care teams are explained in the text. ^aIncludes SBHCs that did not provide primary care. ^bQuestion was not included in the Census. ^cIncludes universities (for example, schools of medicine, nursing, and public health), mental health agencies, and tribal governments. ^dRespondents could select more than one response to this question.

resent only one-third of states, the jurisdictions with state funding are home to 60 percent of the nation's SBHCs (data not shown).

FEDERAL EXPANSION OF THE PRIMARY CARE SAFETY NET The increase in SBHCs coincided with a two-decade expansion of the federal community health center program that started in the 2000s, when funding doubled to build 1,200 new primary care access points.²¹ A second wave of growth was made possible by the Affordable Care Act (ACA), which included \$11 billion in mandatory funds to support the “operation, expansion and construction of health centers throughout the Nation.” Importantly, although not added to the federal code, SBHCs were explicitly identified in federal guidance as eligible to receive new

access-point funding—an initiative to support the delivery of comprehensive primary health care services to underserved and vulnerable populations.²²

ADVOCACY Growth can also be attributed to local, state, and national advocacy efforts, including the School-Based Health Alliance's successful advocacy to have SBHCs recognized as a federally authorized program in the ACA.⁷ In addition, the ACA included a one-time mandatory appropriation of \$200 million for the centers over four years to be used for capital expenses, including construction and renovation.

CONVERGENCE OF SCHOOL-BASED HEALTH CENTERS AND FEDERALLY QUALIFIED HEALTH CENTERS The growth of SBHCs sponsored by feder-

EXHIBIT 3

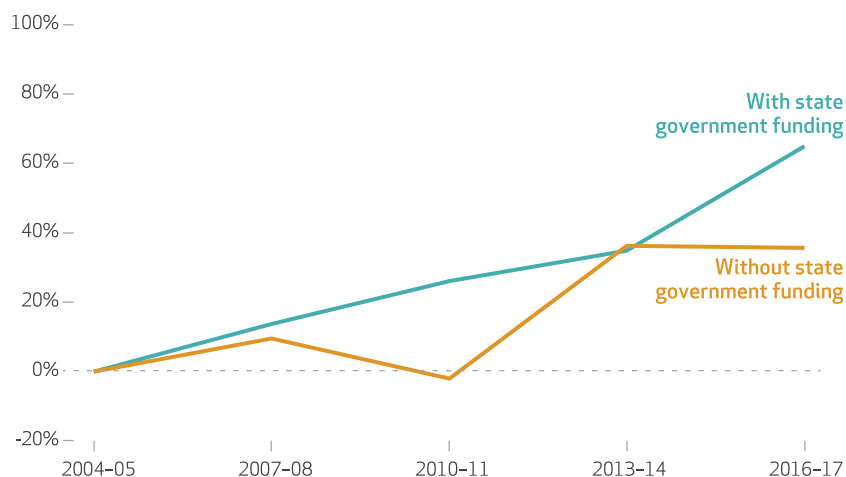
Characteristics of schools and students, by whether or not schools had access to school-based health centers, 1998–99 to 2016–17

	Schools with access	Schools without access	All schools
Schools	10,629	91,772	102,401
Students	6,344,907	44,269,656	50,614,564
School type			
Elementary	4,214	14,852	35,648
Middle	1,328	23,678	12,839
High	1,860	31,647	16,219
Other	3,227	19,758	37,695
Title I program status			
Eligible*	8,140	61,787	69,927
Racial/ethnic profile (mean % and SD)			
Hispanic	38.1 ±33	22.1 ±27	23.8 ±28
White	30.2 ±32	54.7 ±33	52.1 ±34
Black	23.5 ±30	13.9 ±23	14.9 ±24
Asian	3.8 ±8	3.6 ±8	3.6 ±8
Two or more races	3.1 ±4	3.5 ±4	3.4 ±4
Hawaiian Native or Pacific Islander	0.7 ±4	0.3 ±3	0.4 ±3
American Indian or Alaska Native	0.7 ±3	1.8 ±9	1.7 ±8
Socioeconomic characteristics (mean % and SD)			
Free lunch	63.1 ±26	46.2 ±27	48.0 ±28
Reduced-price lunch	6.2 ±6	6.3 ±6	6.3 ±6
Free or reduced-price lunch	69.7 ±25	52.9 ±28	54.7 ±28

SOURCE Authors' analysis of data for the period from 1998–99 to 2016–17 from the National School-Based Health Care Census and for 2015–16 from the National Center for Education Statistics Public Elementary/Secondary School Universe Survey Data. **NOTES** The exhibit includes 1,838 schools in US territories or jurisdictions (American Samoa, Guam, Puerto Rico, and the US Virgin Islands), schools run by the Bureau of Indian Education, and Department of Defense domestic schools. School types and the Title I program are explained in the text. SD is standard deviation. *For either targeted assistance or a schoolwide program.

EXHIBIT 4

Cumulative growth in numbers of school-based health centers, by whether or not state governments funded the centers, selected years 2004–05 to 2016–17



SOURCE Authors' analysis of data for the period from 2004–05 to 2016–17 from the National School-Based Health Care State Policy Assessment. **NOTE** The governments of sixteen states (AR, CO, CT, DE, IL, LA, ME, MD, MA, MI, NM, NY, NC, OR, TX, and WV) and the District of Columbia provided funding for their centers.

ally qualified health centers reflects a promising opportunity, yet neither the importance of the sponsorship for SBHCs nor the significance of the SBHC as a delivery model for federally qualified health centers has been described in the literature. Our data show that federally qualified health centers have recently become the dominant sponsor for SBHCs. In 2016 there were 1,367 federally qualified health centers.²³ Thus, with 272 federally qualified health centers sponsoring a total of 1,181 SBHCs (exhibit 2) in 2016–17, 80 percent of federally qualified health centers do not have SBHCs—leaving tremendous opportunity for partnership and growth.

There are clear advantages for SBHCs sponsored by federally qualified health centers: They receive better reimbursement rates from Medicaid and have avenues for funding through federal and state safety-net grant programs, thus improving their sustainability. But it is also likely that federally qualified health centers are seeking to establish school sites as a way to reach underserved children and increase community engagement and buy-in to serve broader populations.

EXPANSION OF SERVICES AND GROWTH OF TELEHEALTH With diverse services organized under one roof (a rarity for most traditional primary care offices), SBHCs eliminate access barriers and improve care coordination. In particular, the proportion of the centers providing oral health services has more than tripled in the past fifteen years. Low-income and underserved children experience significantly more barriers to accessing oral health care than their peers do.²⁴ Access to care in SBHCs improves oral health outcomes and reduces the need for emergency dental care.²⁵

Furthermore, SBHCs are using telehealth to expand access to care generally, as well as to specialty services. In 2016–17 one out of five centers used telehealth to provide services to students in their schools and communities. This use of telehealth technology is especially notable in rural areas, where transportation and provider shortages constitute significant barriers to accessing health care.²⁶

REACHING UNDERSERVED COMMUNITIES Because of structural inequities in their neighborhoods, youth who have low incomes and those who are members of racial/ethnic minority groups are put at elevated risk of not having regular health maintenance visits or receiving needed mental health care. These youth often have worse health outcomes than their peers do.^{2,27} SBHCs are serving schools with high proportions of socially and economically disadvantaged youth. On average, nearly two-thirds of students enrolled at schools with access to

SBHCs were Hispanic or black, compared to slightly more than one-third at schools without access to SBHCs. Minority youth have been found to use SBHC services more frequently than other community health delivery sites, which suggests that the centers are an effective strategy to overcome access barriers for these youth.²⁸

Future Directions For Research And Practice

USE OF TELEHEALTH IN SCHOOL-BASED HEALTH CENTERS

The use of telehealth in schools has the potential to improve primary care and mental health care access and use by reducing barriers such as provider shortages and limited transportation. Research is needed to explore telehealth's operational characteristics, including staffing, utilization, and reimbursement. Moreover, research is needed to examine its impact on health outcomes and users' experiences of care.

QUALITY MEASUREMENT While the National School-Based Health Care Census captures descriptive information about SBHCs, less is known about the quality of care. The School Health Services National Quality Initiative (NQI), led by the School-Based Health Alliance and the National Center for School Mental Health and funded by the Maternal and Child Health Bureau, has established a set of SBHC standardized performance measures that align with national child quality measurement initiatives and definitions. Starting in 2016–17, in alignment with the Census, SBHCs began voluntarily reporting on the performance measures. Future work in this area should encourage all centers to report on performance measures annually and use their data for improving and building awareness about the centers.²⁹

SCHOOL-BASED HEALTH CENTERS, FEDERALLY QUALIFIED HEALTH CENTERS, AND HEALTH CARE REFORM

The finding that more than half of SBHCs are now sponsored by federally qualified health centers requires further investigation. Unanswered questions include how federally qualified health centers influence the growth and sustainability of SBHCs, as well as why federally qualified health centers seek to establish school-based delivery sites and how SBHCs can affect these centers' ability to serve a community. More broadly, both this relationship and the growth of telehealth indicate that further research is needed on the potential role of SBHCs in national health care reform efforts—particularly on their potential to transform the delivery of primary care and other services.

SCHOOL-BASED HEALTH CENTERS AND EDUCATIONAL OUTCOMES Further exploration of the

potential impacts of SBHCs on educational outcomes can strengthen the evidence for education and health policy makers to support their expansion. Historically, a number of barriers prevented the linkage of health and educational data to protect confidentiality between service systems. New technology and methodologies allow for safely linking data and create opportunities to examine these relationships.

OPPORTUNITIES FOR EXPANSION Thirteen percent of public school students nationwide have access to SBHCs, yet there is still considerable room for expansion to bring services to other communities in need. The majority of schools without access to SBHCs were eligible for Title I funding, which provides financial assistance to local educational agencies and schools with high percentages of children from low-income families.²⁰ Additional research could help identify whether these Title I-eligible schools without SBHCs are in areas with limited access to health

care and whether the centers could be a viable option to expand access to care.

Conclusion

This article provides the most recent data on the current state of school-based health centers in the US and demonstrates that communities across the country are expanding access to school-based health care. By placing health care in schools, a site that is convenient and familiar to youth and their families, SBHCs enable communities that have poorer access to care—including low-income, immigrant, and rural communities—to easily access these services. This helps eliminate barriers to care such as costs, transportation, and trust that traditionally prevent underserved communities, and especially adolescents, from using the health care system. ■

The 2016–17 National School-Based Health Care Census was supported by grants from the Robert Wood Johnson Foundation, the Atlantic Philanthropies, and the Health Resources and Services Administration (HRSA) of the Department of Health and Human Services (HHS) (Cooperative Agreement No. U30CS09738-08-00 and Grant No. U45MC27804). The information or content and conclusions in this article are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by, HRSA, HHS, the US

government, or any foundation. None of the authors is employed by other institutions in addition to those listed as the primary employers. The authors gratefully acknowledge the support of Census advisers John Dougherty, Sarah Knipper, Amanda Martin, and Steve North, as well as the school-based health center professionals who generously provided data on their programs. The authors are grateful to staff members of the School-Based Health Alliance: Matt Even, who created the data collection system for the Census; and Suzanne Mackey, Jordanna

Synder, and Anna Mizzi, who collected and analyzed data from the State Policy Assessment. Lastly, the authors dedicate this article to the late Linda Juszczak, a founder and president of the Alliance, who was the Census's foremost champion. This is an open access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) license, which permits others to distribute, remix, adapt, and build upon this work, for commercial use, provided the original work is properly cited. See <https://creativecommons.org/licenses/by/4.0/>.

NOTES

- 1 Basch CE. Healthier students are better learners: a missing link in school reforms to close the achievement gap. *J Sch Health*. 2011; 81(10):593–8.
- 2 Irwin CE Jr, Adams SH, Park MJ, Newacheck PW. Preventive care for adolescents: few get visits and fewer get services. *Pediatrics*. 2009;123(4): e565–72.
- 3 National Research Council, Institute of Medicine. Adolescent health services: missing opportunities. Washington (DC): National Academies Press; 2009.
- 4 Council on School Health. School-based health centers and pediatric practice. *Pediatrics*. 2012; 129(2):387–93.
- 5 National Collaborative on Education and Health. Brief on chronic absenteeism and school health [Internet]. Chicago (IL): Healthy Schools Campaign; 2015 Mar [cited 2019 Mar 18]. Available from: <https://www.attendanceworks.org/wp-content/uploads/2017/09/Chronic-Absenteeism-and-School-Health-Brief-1.pdf>
- 6 Knopf JA, Finnie RK, Peng Y, Hahn RA, Truman BI, Vernon-Smiley M, et al. School-based health centers to advance health equity: a Community Guide systematic review. *Am J Prev Med*. 2016;51(1):114–26.
- 7 Keeton V, Soleimanpour S, Brindis CD. School-based health centers in an era of health care reform: building on history. *Curr Probl Pediatr Adolesc Health Care*. 2012; 42(6):132–56, discussion 157–8.
- 8 Ramos MM, Sebastian RA, Stumbo SP, McGrath J, Fairbrother G. Measuring unmet needs for anticipatory guidance among adolescents at school-based health centers. *J Adolesc Health*. 2017;60(6):720–6.
- 9 Strolin-Goltzman J, Sisselman A, Melekis K, Auerbach C. Understanding the relationship between school-based health center use, school connection, and academic performance. *Health Soc Work*. 2014;39(2):83–91.
- 10 Kirby D, Short L, Collins J, Rugg D, Kolbe L, Howard M, et al. School-based programs to reduce sexual risk behaviors: a review of effectiveness. *Public Health Rep*. 1994;109(3): 339–60.
- 11 Santelli J, Morreale M, Wigton A, Grason H. School health centers and primary care for adolescents: a review of the literature. *J Adolesc Health*. 1996;18(5):357–66.
- 12 Kirby D. School-based health clinics: an emerging approach to improving adolescent health and addressing teenage pregnancy. Washington (DC): Center for Population Options; 1985.
- 13 Lovick SR, Stern RF. School-based clinics 1988 update: a closer look at the numbers. Washington (DC): Center for Population Options; 1988.
- 14 Brindis CD, Klein J, Schlitt J, Santelli J, Juszczak L, Nystrom RJ. School-based health centers: accessibility and accountability. *J Adolesc Health*. 2003;32(6, Suppl):98–107.
- 15 Kanaan SB. Making the grade: state

- and local partnerships to establish school-based health centers [Internet]. Princeton (NJ): Robert Wood Johnson Foundation; [last updated 2007 Feb 26; cited 2019 Mar 1]. Available for download from: <https://www.rwjf.org/en/library/research/2007/02/making-the-grade.html>
- 16 School-Based Health Alliance. National School-Based Health Care State Policy Assessment 1998–99. Washington (DC): The Alliance; 2000.
 - 17 Henry J. Kaiser Family Foundation. Medicaid: a timeline of key developments (1965–2009) [Internet]. San Francisco (CA): KFF; [cited 2019 Mar 1]. Available from: <https://kaiserfamilyfoundation.files.wordpress.com/2008/04/5-02-13-medicaid-timeline.pdf>
 - 18 Federal Grants Wire. Healthy Schools, Healthy Communities [Internet]. [place unknown]: Federal Grants Wire; [last updated 2005 May 18; cited 2019 Mar 1]. Available from: <https://www.federalgrantswire.com/healthy-schools-healthy-communities.html#.XB0esFVKjAV>
 - 19 National Center for Education Statistics. Public Elementary/Secondary School Universe Survey Data: 2015–16 [Internet]. Washington (DC): NCES; [cited 2019 Mar 1]. Available from: <https://nces.ed.gov/ccd/pubschuniv.asp>
 - 20 Department of Education. Improving basic programs operated by local educational agencies (Title I, Part A) [Internet]. Washington (DC): Department of Education; [last modified 2018 Oct 24; cited 2019 Mar 1]. Available from: <https://www2.ed.gov/programs/titleiparta/index.html?exp=0>
 - 21 Executive Office of the President. A blueprint for new beginnings: a responsible budget for America's priorities [Internet]. Washington (DC): Government Printing Office; 2001 [cited 2019 Mar 1]. Available from: <https://www.govinfo.gov/content/pkg/BUDGET-2002-BLUEPRINT/pdf/BUDGET-2002-BLUEPRINT.pdf>
 - 22 Health Resources and Services Administration. New access points [Internet]. Rockville (MD): HRSA; [cited 2019 Mar 1]. Available from: <https://bphc.hrsa.gov/programopportunities/fundingopportunities/default.aspx?id=2660c949-34a8-475f-bc0c-15edee96489b>
 - 23 Bureau of Primary Health Care. 2016 Uniform Data System. Rockville (MD): Health Resources and Services Administration.
 - 24 Institute of Medicine. Improving access to oral health care for vulnerable and underserved populations. Washington (DC): National Academies Press; 2011.
 - 25 Bailit H, D'Adamo J. State case studies: improving access to dental care for the underserved. *J Public Health Dent.* 2012;72(3):221–34.
 - 26 Young TL, Ireson C. Effectiveness of school-based telehealth care in urban and rural elementary schools. *Pediatrics.* 2003;112(5):1088–94.
 - 27 Alegria M, Lin JY, Green JG, Sampson NA, Gruber MJ, Kessler RC. Role of referrals in mental health service disparities for racial and ethnic minority youth. *J Am Acad Child Adolesc Psychiatry.* 2012; 51(7):703–11.
 - 28 Juszczak L, Melinkovich P, Kaplan D. Use of health and mental health services by adolescents across multiple delivery sites. *J Adolesc Health.* 2003;32(6, Suppl):108–18.
 - 29 School-Based Health Alliance. Performance measures: Quality Counts Initiative [Internet]. Washington (DC): The Alliance; [cited 2019 Mar 1]. Available from: https://www.sbh4all.org/current_initiatives/nqi/