

Elementary School-based Health Center Use

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ABSTRACT. *Background.* The number of school-based health centers (SBHCs) has grown from 40 in 1985 to >900 in 1996. During the 1996–1997 school year there were 914 SBHCs, 32% of which were located in elementary schools. Despite the relatively large number of elementary SBHCs in existence, SBHCs serving elementary-aged students are not adequately represented in the literature.

Objective. To analyze physical and mental primary health care utilization in a comprehensive elementary SBHC for an underserved Hispanic population.

Design. Retrospective analyses of services used at an elementary SBHC during the 1995–1996 school year. We describe physical and mental health services utilization provided by SBHC staff who offered a range of primary medical and mental health services.

Patients. The study population was predominately Hispanic, and comprised of 811 elementary school students (grades preschool through fifth) registered for SBHC use. Analyses were conducted on 591 students who used the SBHC.

Results. The 591 SBHC users made 2443 visits, ranging between 1 and 54 visits/individual; mean 4 visits/student. Two thirds of visits (1638) were medical provider visits, and 33% (798) were mental health provider visits. Most students (75%) saw a medical provider exclusively, 9% saw a mental health provider exclusively, and 16% of students were seen by both. Mean duration of medical provider visits \pm SD was 15 ± 13 minutes, mean for mental health provider visits \pm SD, 37 ± 16 minutes. Of the 3035 diagnoses, 64% were medical and 36% were mental health diagnoses. These diagnostic frequencies are grouped as follows: acute medical (31%), health maintenance (22%), depression (10%), non-*Diagnostic and Statistical Manual of Mental Disorders-IV* mental health diagnoses (8%), conflict disorder/emotional disturbance (8%), chronic medical (8%), academic/learning disorder (7%), anxiety disorder (3%), and other (4%).

Conclusions. High rates of SBHC utilization by this population and the range of diagnoses recorded suggest health care delivered in a comprehensive, culturally-sensitive SBHC has the potential for impacting the health and well-being of underserved elementary-aged students. *Pediatrics* 1998;101(6). URL: <http://www.pediatrics.org/cgi/content/full/101/6/e12>; child, school health services, student health services, child health services,

delivery of health care, schools, outcome and process assessment (health care), Hispanic Americans, pediatrics/organization and administration), diagnosis.

ABBREVIATIONS. SBHC, school-based health centers; FTE, full-time equivalent; PA, physician assistant; LPC, licensed professional counselor; DPS, Denver Public School (system); DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders-IV*; DESBHC, Denver elementary SBHC; NAMCS, National Ambulatory Medical Care Survey.

Comprehensive school-based health centers (SBHCs) were first introduced as a means of reducing health care access barriers experienced by many medically underserved adolescents. Since that time, the proliferation of SBHCs has been rapid,¹ and widely endorsed by a range of professional health organizations and community agencies.^{2–4} By the fall of 1996 >900 SBHCs and school-linked health centers were in operation.⁵

Numerous studies have documented SBHCs' efficacious reduction of health care access barriers in the adolescent population.^{2,3,6–9} Another population that has experienced numerous health care access barriers is the Hispanic American population. Hispanics are likely to experience financial and nonfinancial barriers to health care access, including language, cultural, education, and transportation barriers.¹⁰ These barriers are likely related to Hispanics' underutilization of preventive health services.¹¹ Addressing these access barriers will be a major task of health delivery systems of the future, especially as the Hispanic population is projected to be the largest US minority population within 13 years.¹² SBHCs are in a unique position to reduce financial, language, familial, and transportation barriers to care for this population. Yet little is known about how more accessible health care will influence the acceptance of primary health services by Hispanic children.

Although improved access to primary physical and mental health services has been achieved by adolescent users of SBHCs, the health services literature contains few published studies on the utilization of primary health services in elementary SBHCs. This study is a first step in the examination of a full-service, comprehensive, elementary SBHC, providing a detailed description of service utilization by a primarily Hispanic elementary school student population.

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METHODS

Design

This is a retrospective study of all visits to a SBHC by students (preschool through fifth grade) attending a Denver, Colorado public elementary school. Visits were completed during the 1995–1996 school year (August 1, 1995 through June 15, 1996), the first full year of the SBHC's operation.

Staffing at the elementary SBHC included the following bilingual, bicultural staff: 1.1 full-time equivalent (FTE) medical providers (1.0 FTE physician assistant (PA) and 0.1 FTE physician) who provided preventive health care, treatment for acute health problems and minor trauma, and care of stable chronic illnesses; 1.0 FTE master's-prepared licensed professional counselor (LPC), who provided individual, group, and family therapy; 1.0 FTE community outreach worker, who was responsible for making home visits, conducting case management, organizing health-related events (ie, health fairs, classes for parents), and recruiting students for clinic registration; and 1.0 FTE health technician, responsible for office management, updating the clinical services tracking system, scheduling appointments, and assisting in the management of the clinic.

Data Collection and Analysis

Data for each visit were captured using *School HealthCare ONLINE!!!*¹³, a personal computer-based management information system. Utilization data were imported into SPSS (SPSS, Inc, Chicago, IL), the software package used to analyze all data. Differences between groups (race, ethnicity, gender, age) were calculated with χ^2 tests for categorical variables and *t* tests for continuous variables.

Study Sample

The study population was composed of 811 students with parental permission to receive services at the SBHC during the 1995–1996 school year. School attrition was high within the school. New students' demographic data were added to the SBHC database as they were enrolled in school and students who withdrew from the school were retained in the database until the end of the academic year. Therefore, the SBHC enrollment rate represents >100% of the school's cross-sectional population (806), an artificially high percentage attributable to the mobility of the population. We estimate that 83% of students at the school during any one cross-section of time have parental permission to use the clinic.

Of the 811 enrolled students, 591 students (73%) made one or more visits to the SBHC during the study period (users); and 220 did not visit the SBHC (nonusers). Students who used the services gained access to the clinic either by parents making appointments, teachers referring students, or by self-referral. Parents must attend well-child examinations, as well as mental health intake assessments. If parents are available during clinic hours they often accompany their child for other visits. Once parental permission is given for students to use the SBHC, the clinic is not required to contact parents before treatment initiation. The clinic staff maintains close contact with parents in person, by phone or phone message, or by notes to parents.

Demographic data from the SBHC users and nonusers are compared in Table 1. The following variables were compared for users and nonusers: gender, ethnicity, age, and grade. SBHC users and nonusers did not differ by gender composition or ethnicity. The mean age of SBHC users (mean \pm SD, 7.38 \pm 2.12) was slightly lower than that of SBHC nonusers (8.13 \pm 2.27), *t* = 4.38, *P* < .001. Fifth grade students were significantly less likely than students in other grade levels to use the SBHC (χ^2 (*df* = 1) = 36.90; *P* < .001).

The school's study population represented a significantly higher percentage of Hispanic students and lower percentage of white and African-American students, compared with the overall elementary school ethnic composition in the Denver public school (DPS) system. The ethnic composition of the school population was 91% Hispanic, 6% white, 2% African-American, and 2% other ethnic groups. In contrast, the ethnic composition of all elementary school students in the DPS system was 49% Hispanic, 26% white, 21% African-American, and 5% other ethnic groups.

TABLE 1. Frequency Distributions of Demographic Attributes of SBHC-Registered Elementary Student Users and Nonusers*

Variable	SBHC-Registered Users		SBHC-Registered Nonusers	
	N	(%)	N	(%)
Gender†				
Female	287	(49)	104	(47)
Male	304	(51)	116	(53)
Total	591	(100)	220	(100)
Race/Ethnicity†				
Hispanic	537	(91)	198	(90)
White	32	(5)	13	(6)
Other‡	22	(4)	9	(4)
Total	591	(100)	220	(100)
Age§				
3–4	44	(7)	7	(3)
5–6	184	(31)	56	(26)
7–8	168	(28)	57	(26)
9–10	152	(26)	57	(26)
11–13	43	(7)	43	(20)
Total	591	(100)	220	(100)
Grade§				
Prekindergarten	92	(16)	24	(11)
Kindergarten	122	(21)	41	(19)
First grade	94	(16)	34	(16)
Second grade	87	(15)	33	(15)
Third grade	89	(15)	24	(11)
Fourth grade	77	(13)	23	(11)
Fifth grade	30	(5)	41	(19)
Total	591	(100)	220	(100)

* Complete demographic data were available for all students registered at the SBHC.

† No significant difference found with χ^2 analyses.

‡ This category was composed of students from the following groups: Native American, African-American (Non-Hispanic), and Other.

§ Percents may not add up to 100% due to rounding; using *t* test for age and a χ^2 test for grade, *P* < .001.

RESULTS

SBHC Utilization Rates

The 591 students who used the SBHC made a total of 2443 visits during the 1995–1996 school year. Individual students made between 1 and 54 visits to medical and mental health providers. The mean number of visits was 4.1 \pm 4.6; the median was 3.0.

There were a total of 1638 visits to a medical provider (67% of all visits) and 798 visits to a mental health provider (33% of all visits). The number of visits for individual students to medical providers ranged from 1 to 20 visits, whereas visits to mental health providers ranged from 1 to 52 visits. The mental health providers' mean number of visits with students was higher than that of medical providers (mean number of visits to medical providers 3.1 \pm 2.4, mental health providers 5.4 \pm 6.7), although the median number of visits to both medical and mental health providers was 2.

We grouped visits by the provider seen as either medical provider visits or mental health provider visits. Only 2% of medical provider visits (35/1638 visits) included a mental health diagnosis and mental health providers assigned only mental health diagnoses.

Three quarters of the 591 students who used the SBHC made visits exclusively to medical providers,

and 9% only saw a mental health provider. Sixteen percent of students were seen by both medical and mental health providers. The frequency distribution of students' visits by service provider(s) is described in Table 2.

Visits with medical providers lasted a mean \pm SD of 15 ± 13 minutes (median, 10 minutes), while visits with mental health providers lasted a mean \pm SD of 37 ± 16 minutes (median, 40 minutes). The median duration of all students' visits was 15 minutes.

Description of Assigned Diagnoses

A total of 3035 diagnoses were assigned within 2443 visits (the maximum number of diagnoses recorded per visit was 4). Of the 3035 diagnoses 64% were medical diagnoses, and 36% were mental health diagnoses. All diagnoses were grouped into diagnostic categories. These categories were used in two ways. We describe the frequency and percentage of students who received at least one diagnosis in a specified category (Table 3), and we also summarize diagnostic frequency within each category (Table 4).

Table 3 shows that more than half of students received preventive health/health maintenance care, and the same percentage of students received acute medical care at the SBHC. One quarter of the students received a mental health diagnosis, one fifth were assigned a chronic medical diagnosis, and less than one tenth of students were assigned diagnoses in the following categories: injury/emergency, dental, and other.

Table 4 shows all the diagnoses assigned by diagnostic category. Acute care diagnoses accounted for nearly one third of all 3035 diagnoses, and 48% of all 1951 physical health diagnoses. Health maintenance accounted for more than one fifth of all diagnoses, and 34% of all physical health diagnoses. The health maintenance category was comprised of health screenings and immunizations as well as comprehensive physical examinations. Immunizations and physical examination follow-up visits constituted 477 of 482 diagnoses (99%) within the health screening/immunizations grouping.

Chronic medical diagnoses accounted for more than one tenth of the 1,951 physical health diagnoses,

TABLE 3. Proportion of SBHC Users Assigned Specified Diagnoses (N = 591)

Diagnostic Category	N	%*
Preventive health	337	57.0
Acute medical	336	56.9
Mental health	155	26.2
Chronic medical	126	21.3
Injury/emergency	44	7.4
Dental	36	6.1
Other	17	2.9

* Percentages do not total 100% because individual students may have received several diagnoses that may encompass more than one category of care.

and 8% of the total diagnoses. Remaining physical health diagnostic categories accounted for 4% of all diagnoses, and 6% of physical health diagnoses, and included injuries, dental problems, and other medical problems.

Ten percent of all diagnoses, and 27% of the 1084 mental health diagnoses were for (nonspecific) depression. Deferred diagnosis, a category for mental health diagnoses that did not warrant a diagnosis from the *Diagnostic and Statistical Manual of Mental Disorders-IV* (DSM-IV), constituted the next largest percentage of mental health diagnoses, 24%. Although non-DSM-IV diagnoses indicate no significant mental health problem, many of the problems identified and addressed during a single visit were of significant concern to the student (e.g., peer conflict). Remaining mental health diagnostic categories accounted for nearly one half of mental health diagnoses, and 17% of all 3035 diagnoses, and included conflict disorders/emotional disturbance (22% of mental health diagnoses), academic/learning disorders (19% of mental health diagnoses), and anxiety disorders (8% of mental health diagnoses).

The duration of students' visits by these diagnostic categories was also investigated. The highest mean visit time was for visits where the primary diagnosis represented comprehensive medical/psychosocial examinations (47 ± 7 minutes). The range of mean visit times for the various mental health primary diagnostic categories (depression, conflict disorder, anxiety disorder, non-DSM-IV diagnoses, academic/

TABLE 2. Frequency Distribution of Elementary School Students' SBHC Visits by Service Provider(s)

Number of Visits	Medical Provider Exclusively		Mental Health Provider Exclusively		Mental and Medical Providers	
	N	(%)*	N	(%)†	N	(%)‡
1	135	(31)	20	(38)	0	(0)
2	99	(22)	9	(17)	12	(13)
3	79	(18)	4	(8)	13	(14)
4	42	(10)	3	(6)	7	(7)
5	30	(7)	2	(4)	4	(4)
6-7	40	(9)	4	(8)	17	(18)
8-10	10	(2)	3	(6)	9	(10)
11-15	6	(1)	6	(11)	18	(19)
≥ 16	1	(<1)	2	(4)	15	(16)
Total§	442	(100)	53	(100)	95	(100)

* Mean = 3.0 ± 2.3 ; median = 2.

† Mean = 4.6 ± 5.4 ; median = 2.

‡ Mean = 9.2 ± 7.8 ; median = 7.

§ One student completed a visit with an outreach worker, who was neither a medical nor a mental health provider.

TABLE 4. Frequency Distribution of Diagnostic Categories and Subsumed Diagnoses Assigned for Elementary Students' Visits to a SBHC

Diagnostic Category and Number of Subsumed Diagnoses*	N	%
PHYSICAL HEALTH DIAGNOSES TOTAL	1951	64.3
Acute medical	935	30.8
<i>Respiratory (384), Ear (159), Infections (100), Skin (100), Symptoms (54)</i>		
Health maintenance	669	22.0
<i>Health screening/immunizations (482), Comprehensive physical examinations (187)</i>		
Chronic medical	228	7.5
<i>Asthma (84), Atopic dermatitis and eczema (45), Tuberculosis (+purified protein derivative) (37)</i>		
Injury	51	1.7
Dental problems	37	1.2
Other	31	1.0
MENTAL HEALTH DIAGNOSES TOTAL	1084	35.7
Depression	297	9.8
Non-DSM-IV diagnoses	256	8.4
Conflict disorder and emotional disturbance	236	7.8
Academic/learning disorder	210	6.9
<i>Attention deficit disorder/attention deficit hyperactivity disorders (86), Academic underachievement (100)</i>		
Anxiety disorder	85	2.8
TOTAL PHYSICAL AND MENTAL HEALTH DIAGNOSES	3035	100.0

* Specific diagnoses listed under each category may not add up to the total in that category because only the most common diagnoses are listed.

learning disorder) was 28 to 41 minutes. The mean duration of visits for dental problems was 17 ± 15 minutes. The mean visit duration for each of the other medical diagnostic categories (chronic medical, injury, acute medical, health screening, supervision) was <15 minutes, with a range from 8 to 14 minutes.

Patterns of SBHC Service Utilization

Utilization patterns were analyzed for all students who made their first visit to the SBHC during the study time period (449/591, 76% of all users). The remaining students' first SBHC visits occurred before the study time period began, so the first provider seen by these students was not known; and therefore, these 142 students were not included in the following analyses. Of the students whose first visits were within the study time period, the majority of students' first SBHC contacts were with a medical provider (82%, 370/449). The remaining 18% saw a mental health professional during their first visit to the SBHC. The temporal sequence of students' contacts with SBHC providers is shown in Table 5. Although the majority of students (73%) were seen for medical visits only, approximately 10% of students initially saw a medical care provider, followed by a mental health provider. A smaller proportion (7%) initially received care by a mental health professional, and then received care by a medical provider.

DISCUSSION

This is one of the first studies of physical and mental health care utilization of a comprehensive

TABLE 5. Sequence of Students' Visits to SBHC Providers

Service Provider	N*	%
Medical only	326	72.6
Medical—mental health	44	9.8
Mental health only	47	10.5
Mental health—medical	32	7.1
Total	449	100.0

* Includes only students whose first visit to the SBHC was within the study time period. Students not included (N = 142) made their first visit to the SBHC before the study period began.

elementary SBHC model. Because of the large majority of Hispanic students in the study population, this study also contributes to the literature of mental and physical health issues for Hispanic children. Compared with national and other data available, findings from this study suggest comprehensive elementary SBHCs help improve health care utilization among underserved Hispanic children.

A Comprehensive Elementary SBHC Model

According to a survey of SBHCs serving all grade levels,¹⁴ 77% employed a nurse practitioner or PA, 61% employed a medical doctor, 54% employed a registered nurse, and 27% employed a psychiatrist. The mean FTEs for these four types of SBHC clinical positions at the elementary school grade level are 0.74 FTE nurse practitioner or PA, 0.13 FTE medical doctor, 0.55 FTE registered nurse, and 0.89 FTE psychiatrist.

By comparison to these national SBHC statistics, this comprehensive Denver elementary SBHC (DESBHC) is more fully-staffed and better equipped to meet its students' needs. This SBHC employed 4 full-time positions, a PA, a LPC, a community outreach worker, and a health technician. Also, a part-time school nurse collaborated with the clinic, although she was not employed by the health center. The center also employed a part-time medical doctor. Most of the SBHC staff were Mexican-Americans, which appears to have eliminated substantial cultural and language barriers to accessing care, which many Hispanic-Americans experience.¹¹

Clinic Registration and Use

Of the 900 SBHCs in operation during the 1995–1996 school year, 32% were located in elementary schools.⁵ One report³ found between 41% and 100% of students in schools with SBHCs registered at a clinic (students were in grades prekindergarten through 12th grade). By comparison, in the DESBHC, >100% (811/806) of the school's cross-sectional population registered for clinic services. Although this percentage is artificially high (attributable to high attrition), the popularity of this program within this community is supported by the high annual registration rate.

In a general survey of elementary SBHCs, 77% of registrants used the SBHC.¹⁴ Compared with this general survey, a slightly lower percentage students

used DESBHC services (73%). This small difference may be related to the high mobility within this population, where students may have left the school soon after registering, thereby having little time to access clinic services.

Visit Rates

A study analyzing data from the 1993–1994 National Health Interview Survey, supplemental questionnaire on child health for children <18 years old,¹⁵ found that, compared with insured children, uninsured children were significantly less likely to visit a physician during the past year. Also compared with children with insurance, children without insurance, controlled for other confounding factors, made on average 1.84 fewer visits to a physician in one year. Insured children <18 years old, without a disability had, on average, 4.3 physician contacts per year, whereas uninsured counterparts made only 2.3 physician contacts per year. Thus, the SBHC visit rate of 4.1 visits/student more closely resembles the rates of physician contacts for insured, rather than uninsured students.

The National Ambulatory Medical Care Survey (NAMCS) grouped children younger than 15 years old together and the mean visit rate for the NAMCS study was for a 12-month period, whereas this study covers a 10.5-month period. The NAMCS statistics describe primarily medical visits (<4% psychiatric visits) to a representative sample of all office-based physicians.¹⁶ When compared with the NAMCS report of office visits per year among youth (mean, 2.1 visits/individual), DESBHC visits rates among this predominately Hispanic population were higher. The mean number of visits to either a medical or a mental health provider by DESBHC users was 4.1. The larger mean number of visits to the DESBHC needs to be tempered with the fact that one third of all visits to the DESBHC were to a mental health provider, whereas <4% of all NAMCS office visits were to a psychiatrist. The mean number of visits exclusively to the DESBHC medical provider was 3.1.

Visit rates reported by other SBHCs vary greatly, differing with types of services offered, community demand, clinic longevity, and hours of clinic operation. Most importantly, care often provided by the parent alone, sometimes with physician's telephone advice, were not recorded in this study, although these types of visits represented nearly one half of all contacts with students in one study.⁶ In a Robert Wood Johnson Foundation report of 23 high school SBHCs, students averaged between 1.7 and 7.0 visits per user in a school year.³ The total number of visits by 4000 middle school students to SBHCs offering medical and mental health services was 19 907,¹⁷ an average of 5.0 visits per student. In a study of elementary SBHCs in operation during the 1992–1993 school year, elementary SBHC users averaged, 5.3 visits per school year.¹⁴

Physical Health Diagnoses

In a national survey of SBHCs operating during the 1992–1993 school year, acute care (48%), and

preventive health care (26%) dominated the services provided at primary grades.¹⁴ By comparison, the DESBHC had a lower percentage of acute medical visits (31% vs 48%), which is likely related to the relatively high percentage of mental health diagnoses. Similar to national data, 22% of all diagnoses at the DESBHC were for health maintenance, including immunizations and comprehensive examinations, thereby meeting an expressed goal of the DESBHC. This report of relatively high preventive health care diagnoses is especially important because Hispanic populations are less likely than predominantly non-Hispanic populations to obtain preventive health care.¹¹

Mental Health Diagnoses

Children's mental health problems are important to identify at an early age so that related future difficulties might be prevented.¹⁸ Yet, epidemiologic literature concerning children's mental health is limited. According to 1980–1981 statistics, the Office of Technology Assessment estimated 12% to 15% of the nation's children suffer from emotional problems requiring mental health treatment, although 70% to 80% of these children do not receive appropriate mental health services. The need for more easily accessible mental health care for children is evident.

Many Hispanic students are at risk for mental health problems and related outcomes resulting from the prevalence of poverty,¹⁸ poor housing, low education levels, migration, discrimination, and cultural estrangement.¹⁹ Increased access to, and familiarity with mental health services is an important element in providing comprehensive health services. Minority students often assume mental health services are irrelevant at best, but with increased access to these services, these perceptions may be amenable to change.²⁰ Familiarity with such services while minority students are young might help offset reluctance to access these services at a later age.

Schools have been increasingly supported by mental health professionals as optimal sites for children and adolescents to receive mental health services.^{21,22} Yet, detailed description of elementary school mental health services utilization was not previously documented. Twenty-six percent of all students who used the DESBHC were identified to have a mental health concern and 20% received a mental health diagnosis. Indeed, nearly one tenth of all DESBHC users accessed mental health services exclusively. Data also show that students commonly require numerous visits after their initial visit with a SBHC mental health provider. Although limited research has documented the effectiveness of SBHC mental health providers, data from a recent pilot study support the treatment efficacy of school-based mental health services.²²

A national survey of elementary SBHCs showed counseling services represented only 10% of the diagnoses at the elementary school level, reflecting the paucity of mental health professionals in elementary SBHCs. This low percentage of mental health diagnoses contrasts with the higher percentage of these diagnoses (20%) at SBHCs serving adolescent popu-

lations.¹⁴ In contrast to the national data from both primary and secondary SBHCs, the DESBHC's percentage of mental health diagnoses (36%) was higher. This relatively high proportion of mental health diagnoses emphasizes the demand for mental health services at an elementary school level and the utilization of such services if trained personnel are available to provide care.

Visit Duration

There is a lack of existing literature on visit duration among an elementary school-aged population. An adolescent SBHC study in which the length of medical and mental health provider visits were analyzed separately, is therefore, used as a point of comparison. In a 1988–1992 study of adolescent SBHC utilization,²³ the mean duration of students' visits to a medical provider was 21 minutes, and the mean duration of visits to a mental health provider was 47 minutes. In contrast to the adolescent SBHC study, DESBHC mean duration of students' visits was lower (medical provider 15 minutes; mental health provider 37 minutes). Where visit duration for this DESBHC is not directly comparable to the adolescent SBHC visit duration, this may be explained by the age of the student population served (younger students often receive shorter visits than older students²⁴) and the corresponding provision of age-appropriate services (eg, reproductive health counseling and other services) to an adolescent population, possibly experiencing more complex problems.

Accessibility of Health Services

SBHCs have been recognized as a means of reducing traditional barriers to health care access. Barriers that prevent health care access include transportation difficulties,² lack of insurance,^{2,15,25} lower education levels,^{11,25–27} language barriers,²⁸ cultural barriers,^{11,25,26,29–31} and poverty.^{2,25,26} The Hispanic population is more likely than the population as a whole to experience these barriers. Although 20.5% of the general US population <18 years old live in poverty, 40.3% of Hispanic youth experience this same disadvantage.³² Also in comparison to all other racial and ethnic categories used by the US Census Bureau, Hispanics were least educated.³³ Although 81.5% of White non-Hispanics and 70.4% of African-Americans >24 years old were high school graduates, only 53.1% of Hispanics had completed high school. In 1996, 28.9% of Hispanic children were uninsured, compared with 10.6% of White non-Hispanics and 18.8% of African-American children.³⁵

Barriers to health care access are indeed a contributing factor to the well-documented underutilization of physical^{11,36,37} and mental health^{38,39} services among Hispanics. SBHCs, including this DESBHC, however, can improve access to health care for Hispanic populations. For example, in an elementary population with a large proportion of Hispanics (44%), the SBHC facilitated services provision for one quarter of the student population, all of whom the school nurse judged would not have otherwise received services.⁴⁰ In a predominately Hispanic mid-

dle school (86% Hispanic, not Mexican-American), 72% of students who registered to use services did so.¹⁷

Specifically, Hispanics with access to SBHCs may be more likely to utilize preventive health services than Hispanics who do not have these services available to them. A 1991 study compared utilization patterns at two health care sites (a hospital-based pediatric clinic and a SBHC) serving a predominantly Hispanic adolescent population in one inner-city neighborhood.⁴¹ Results from this study showed counseling and health care maintenance visits were obtained significantly more often at the SBHC than at the pediatric clinic. Acute and chronic illness visits were provided significantly more often in the hospital-based pediatric clinic. Authors concluded that the SBHC appears to serve needs different from those served at the pediatric clinic, and the two clinics' services appear complimentary. This is an interesting finding because statistics indicate that Hispanic underutilization of preventive health care services is especially pronounced.^{11,25}

The success of the DESBHC in reducing barriers to physical and mental health care access is documented by the number of visits per student, as well as the range of diagnoses. The largely uninsured student body were seen in the SBHC at visit rates comparable to the population of insured children (without disabilities).¹⁵ However, this outcome cannot be attributed solely to the elimination of the insurance barrier, because regardless of insurance status, minority populations often find health services less accessible. By locating physical and mental health services within the school so that services are geographically accessible, and by staffing the clinic with providers who were sensitive to the cultural norms of the community, many of the barriers to Hispanic health care access (ie, transportation, language, culture) were reduced.

ACKNOWLEDGMENTS

This work was supported by a grant from the Carnegie Corporation of New York.

We thank the SBHC staff for their data collection efforts, and Wayne D. Eckerling, PhD, Denver Public Schools, Office of Planning, Research, and Program Evaluation, for the use of Denver Public Schools data.

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DOI: 10.1542/peds.101.6.e12

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