



Public Health

Seattle & King County

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Evaluation of School-Based Health Center Clinic and School Nurse Services in Seattle, Washington September, 2000 - December, 2003

**Prepared by the Epidemiology, Planning and Evaluation Unit (EPE),
and Youth Health Services (YHS) of Public Health - Seattle & King County
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Executive Summary

Purpose: The purpose of this comprehensive report is to articulate the impact the school-based health centers (SBHCs) have had on the health and learning readiness of Seattle students. This report represents a culmination of all the activities conducted over the last three academic years (2000-2003) to evaluate the SBHC Clinic and School Nurse services housed in the SBHCs in 9 high schools and 3 middle schools in Seattle.

Goals: The primary focus of these evaluation activities has been to determine the extent to which the Seattle SBHCs (which includes SBHC Clinic and School Nurse services) have had an impact on students':

- **Improved Functioning in School Setting**
- **Increased Knowledge and Ability to Use Health Resources**
- **Reduction in Risky Behavior and Increase in Preventive Behavior**

Data Sources: The evaluation activities of the past three years have focused on assessing the impact of the SBHCs on these indicators through a variety of methodologies with different populations and data sources. These have included: a) surveys of student users of SBHC clinic and school nurse services and school staff, and b) qualitative focus groups and interviews with student non-users of SBHC clinic services and school staff. The intent of the evaluation activities was to focus on barriers to use of these services.

In addition, we have made use of the existing data from the 1999 Teen Health Survey, which provides a wealth of information on Seattle's middle and high school students, including their reported engagement in risky and preventive behaviors. Academic performance and disciplinary action data from Seattle Schools and data from the SBHC clinic databases allowed us to examine academic performance indicators related to SBHC clinic use. Local data for Seattle indicate unprecedented declines in rates of teen pregnancy, birth and abortion since the mid-1980s that coincides with the establishment of the SBHC clinics.

For the first time, in 2003 and continuing with the current school year (2003-2004), quantitative data on physical and mental health outcome and behavior change associated with usage of SBHC Clinic and School Nurse services are being collected and analyzed.

Findings: The data from all of these sources have indicated that SBHC Clinic and School Nurse services are important contributors to students' improved functioning in school. Students reported that being able to get health care at school allowed them to be more attentive in class and provided adults who could answer their questions and with whom they could discuss their problems. Staff reported that the SBHCs contributed to a **reduction in the rate of absenteeism and dropouts** and an **improvement in students' school performance**.

The data also suggest that the SBHCs, through the resources they provide to the school community, contribute to a **safer, less violent**, healthier and less stressful **school environment** for both students and staff. Analysis of the SBHCs users show that the SBHCs are **servicing** the population of students, **students** of low socioeconomic status,

who have a need for these services. Students who use the SBHC clinic are more likely to have a GPA of 2.0 or better than those who don't use the SBHC clinic service.

Students and staff report a need for health services that are accessible to students and students report that the **SBHCs enable them to get care sooner** if at all than they would have otherwise gotten it. Staff report that the SBHCs have an impact on **reducing substance use, postponing sexual involvement and reducing pregnancies**. The 1999 Teen Health Survey data and the local data on teen pregnancy support those perceptions.

The results of the most recent analysis of the pre/post survey data linked with the SBHC user data identifies some **patterns of change in key program outcomes** among SBHC Clinic and School Nurse users over the course of the school year. We found **improvements in individual functioning** measures such as **days of exercise** or **use of the dentist** in the overall samples and among those using the SBHC Clinic or School Nurse for health maintenance issues. Likewise we find some **improvements in mental health functioning** among those who are using the SBHC to address mental health issues. In addition, the data suggest that **users are forming more connections with adults** in the school setting. All of these findings indicate that users are starting to benefit from their use of the health services with respect to their ability to function well in the school setting.

Not surprisingly the most dramatic changes over time among users are revealed through **gains of knowledge about health resources**. In general, the SBHC Clinic and School Nurses users have **increased their ability to identify alternative locations for mental health and reproductive health services** and to **correctly identify appropriate locations for assistance for a student in need** (*based on a scenario question*). Of further interest are two additional findings: 1) High School SBHC Clinic mental health users DO NOT increase their knowledge of alternative mental health services and 2) for many populations the user incorrectly identify the urgent care clinic as a resource for someone with a mild illness.

The overall analysis suggests few changes over time in risky and preventive behaviors among High School SBHC Clinic users (the only students who were asked these confidential and controversial questions as part of their clinic visit). A further investigation of High School SBHC Clinic reproductive health users does demonstrate some **decreases** over time in their likelihood of **sexual activity** and sex with **multiple partners**. It also indicates slight decreases in the use of condoms among those having sex and increases in other more effective methods of birth control.

Conclusion and Recommendations: The evaluation findings point to **promising improvements in functioning, knowledge and behaviors** to be further explored with future evaluation efforts. Because this analysis was based on a small sample of users with pre/post data collected over a short period during the school year, we expect current efforts to yield more substantive findings. With the complete implementation of the evaluation approach during the 2003-2004 school year the program should expect to gather more accurate data about change in outcome measures and have the capacity to examine a wider range of different subgroups. At this juncture there is evidence of the program impact on short-term outcomes and more importantly strong evidence that the evaluation methodology in place will allow the program to address many questions about impact and efficacy in the future.

Introduction

The purpose of this comprehensive report is to articulate the impact that the school-based health centers (SBHC) have had on the health and learning readiness of Seattle students. This report represents a culmination of all the activities conducted over the last three academic years (2000-2003) to evaluate the Teen Health Center, Middle School Wellness Center and Secondary School Health Services programs.

The primary focus of these evaluation activities has been to determine the extent to which the Seattle SBHCs have had an impact on students':

- **Improved Functioning in School Setting** including the SBHC contribution to students' academic performance and a positive school environment.
- **Increased Knowledge and Ability to Use Health Resources** including students' demonstrated knowledge and ability to access health and mental health services as a result of the SBHC.
- **Reduction in Risky Behavior and Increase in Preventive Behavior**

Each year, an evaluation activity has been conducted to assess the impact of the SBHC on each of these indicators through a variety of methodologies with different population samples which included:

- 1) **User Satisfaction Survey (2001)** – This anonymous survey was administered to all students visiting the SBHCs in the spring of 2001. Students were asked a series of questions about their utilization of the SBHC, their satisfaction with services, and their perceptions about the impact of the SBHC and School Nurse Services on the indicators above. [For more information on this survey and methodology please see Appendix A.]
- 2) **A. School Staff Survey (2002)** – This anonymous survey was administered to all staff at the schools with a SBHC in the Winter/Spring of 2002. Staff were asked for their perceptions about the impact of the SBHC and School Nurse Services on the indicators above.
B. Qualitative Study of Non-Users (2002) – In the spring of 2002, an effort was also made to understand barriers to use of the SBHC. To understand **barriers** to use, interviews were conducted with selected staff from all the schools with SBHCs and focus groups were conducted with students who did not use the SBHC. [Information on the methodology and results of the staff survey and the qualitative study of non-users can be found in Appendix B.]
- 3) **A. Pre/Post Survey of SBHC Clinic and School Nurse Services Users Linked with SBHC User Database (2002-2003)** – Beginning in the fall of 2002, an evaluation team was convened to conceptualize a theory-of-change model, identify and select a set of program outcomes and indicators, create a comprehensive evaluation plan to measure the indicators, develop a SBHC Clinic and School Nurse user survey to be

completed at multiple time points over the course of the year, and implement a system for data collection over the course of the school year. The goal of this effort was to assess whether students who received services from the SBHC or the School Nurse demonstrated a change in any of the indicators above. The baseline data collection was first initiated in February 2003 during a student's initial visit to the Health Center or School Nurses and the follow-up data were collected in May 2003. [For detailed results and description of this effort see Appendix C.]

- B. Seattle Schools' Performance Data Linked with SBHC User Database (2003)** – SBHC user data from 2000-2001 were linked to school performance data for 2000-2001 and analyzed to examine the demographics and performance indicators of SBHC users compared to non-users. [See Appendix D]
- C. Case Studies of Users of SBHCs (2003)** – Qualitative interviews with selected SBHC users were conducted to capture case-specific descriptive information of the impact of the SBHC on students' perceptions of their health and school performance. [Appendix E]

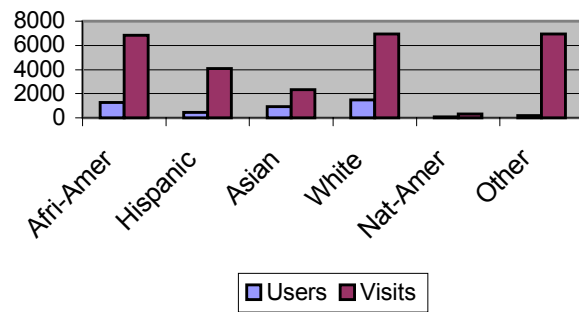
Following a general description of SBHC and School Nurse utilization data, this report is organized into chapters according to each of the three indicators above with relevant data from the various evaluation efforts presented.

School Based Health Centers

	SBHC Enrollment	School Enrollment	Percent Enrolled	Number Of Visits	Unduplicated Users	Visits Per Person	Users as Percent of SBHC Enrollment	Users as Percent of School
High School	7,134	12,036	59%	17,915	3,707	4.8	52%	31%
Middle School	2,003	2,770	72%	3,354	779	4.3	39%	28%

The school-based health centers are a key part of the public health strategy for reaching the hard-to-serve adolescent population. Nationally, school-based health centers have successfully provided preventive and primary medical and mental health services in many communities. In Washington State, Seattle was the first school district to partner with Public Health in establishing these centers. Bremerton School District is currently opening their first center and other districts are considering adopting the model. Seattle's experience has been similar to other areas of the country in that an average of one in three students utilize the health center services and that the most dramatic improvement in access is to mental health services.

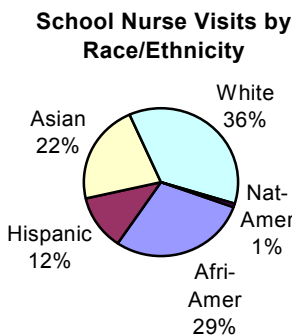
SBHC Clinic Users/Visits by Race/Ethnicity



The 9 High School and 3 Middle School SBHCs in Seattle operate as comprehensive primary care clinics that provide medical and mental health screening and treatment for young people on school grounds. School-based health centers offer services to youth in a familiar and “teen-friendly” setting, and are staffed by health professionals trained to work with adolescents. These centers are effective because they are designed to overcome barriers that discourage adolescents from utilizing health services, including: lack of confidentiality, inconvenient appointment times, prohibitive costs, and general apprehension about discussing personal health problems.

	Number of Visits	Unduplicated Users	Visits Per Person	Users as Percent of School
High School Nurse	26,493	5,887	4.5	49%
Middle School Nurse	18,653	2,391	7.8	87%

School nurses have considerable knowledge of the health resources in the school and community. As students present to their

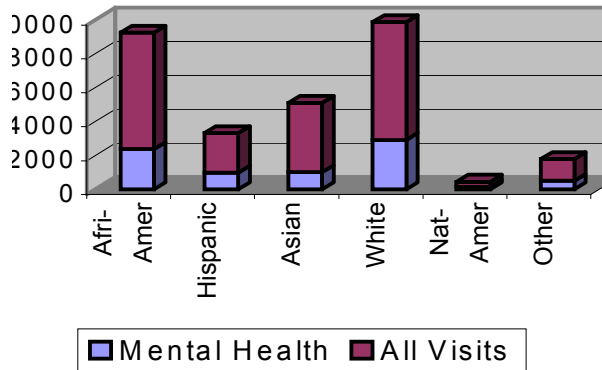


office, it is usual and customary to review where referrals might be made. In middle schools, the families will more frequently be involved in the students care. The older and more independent high school student is often the one directing the care. Ready access to care is not an issue when there is a SBHC available. The clinics offer an effective safety net to assure access to care.

Mental Health Services

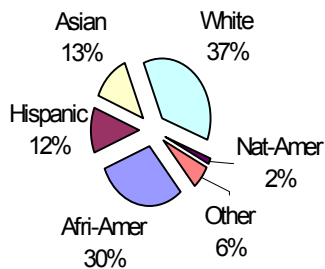
According to the Surgeon General’s report on children’s mental health services, one out of every five children has a diagnosable mental, emotional, or behavioral disorder. Up to one in ten children suffer from a serious emotional disturbance. However, seventy percent of children with a diagnosable disorder do not receive mental health services. Mental health services delivered through the school based-health centers account for 32.2% of all high school visits and 58% of all middle school visits.

SBHC Mental Health Visits



Not only does recent national data point to a high level of unmet need, but also to ethnic and racial disparities. A 2001 report from the Surgeon General’s Office reported that children in minority populations are less likely to have access to mental health services, and the care they do receive is often of poorer quality. Hispanic people are the least likely of all minority groups to access specialty mental health care, even though they, and African American children, have the highest rate of need.¹ Across the SBHC system in Seattle 36.7 percent of all student visits are related to mental health services. Mental health visits account for 41.9 percent all SBHC visits for Hispanic youth, 34.6 percent for African Americans and 46.7 percent of Native American youth during the 2002-2003 school year.

Mental Health Visits by Race/Ethnicity



Preventive Health Services

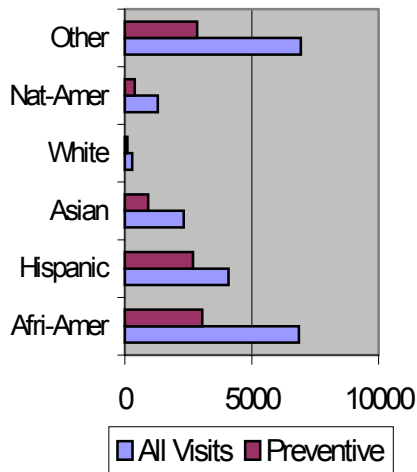
Adolescence is a critical time to avoid the onset of many health-damaging risky behaviors confronting today’s youth including -tobacco use, unsafe sexual activity and substance abuse- all of which can lead to lifelong health problems. Preventive health services are particularly critical for adolescents because many of these most serious, costly and widespread adolescent health concerns are potentially preventable.² And although adolescents confront substantial health risks, their use of health services, and especially preventive health services, is sporadic at best. “Foregone care is common among

teens, especially among those who are older, low-income, uninsured, from minority backgrounds, or involved in high-risk behaviors”.³ School based health centers are designed to address the preventive health needs of teens in a convenient and confidential environment that provides opportunities to deliver recurring preventive messages from trusted adults.

“The Teen Health Center is a safe place for me to go. It’s the only place I can let my feelings out. The staff really cares about me.”

Survey Respondent

Preventive Health Visits by Race/Ethnicity

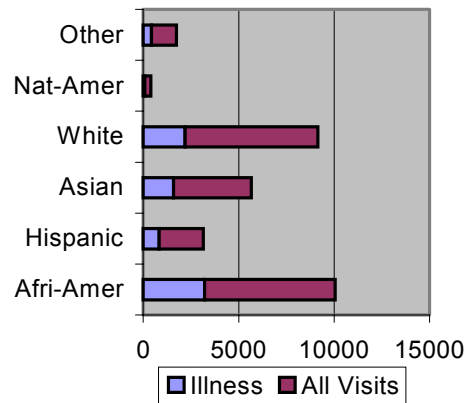


In Seattle, preventive health services accounted for nearly 48% of all services provided during the 2002-2003 school year. Nearly 66 percent of all visits for Asian students were for preventive health services, 45% for African Americans and 41% for white youth seen at the health centers. Preventive health services include preventive reproductive health services, routine health exams/sports physicals, health counseling and immunizations.

Illness Visits

A third important component of service provided by the Seattle SBHC system is delivery of illness related visits. In Seattle, illness related visits make up roughly 38% of all reasons for visits and include diagnoses such as acute reproductive health concerns, acne, anemia, chronic health issues and injury. School Nurses play an important role in case identification and triage in many of these circumstances. As access to health care becomes increasingly limited to high-risk populations such as adolescents, the acute care services provided at the SBHCs enhance the options for care that many students need.

Seattle SBHC Illness Visits by Race 2002-2003



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2. Brindis C, Morreale M, English A. The unique health care needs of adolescents. *Future of Children*. Volume 13:117-135. [Available: http://www.futureofchildren.org/usr_doc/ufoc13-1h.pdf]
3. McManus, Shejvali and Fox. *Is the Health Care System Working for Adolescents?* Maternal & Child Health Policy Research Center, October 2003.
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5. Ford CA, Bearman PS, Moody J. Foregone health care among adolescents. *JAMA*. 1999;282:227-2234.

IMPROVED FUNCTIONING IN SCHOOL SETTING

Having a School-Based Health Center (SBHC) Supports Students' Education and Contributes to a Positive School Environment

School age children are at risk for a wide variety of health problems ranging from poor nutrition and self-care to substance abuse, unintended pregnancy, family violence and suicide. The 1999 Seattle Teen Health Survey found that the percentage of students in Seattle Public Schools reporting feelings of depression remains high. There is little disagreement that the physical, social and emotional health of students impacts their ability to learn and be successful in school.

Linked Survey/User Database Analysis Findings:

High school and middle school users of SBHC clinic and School Nurse services received a pre/post survey in Winter and Spring of 2003 to determine whether their use of these services was associated with improved individual functioning, improved functioning in school settings, and students feeling more connected to adults. (For a complete description of the survey and results see Appendix C.) Specifically assessed were:

“You forget about how much you are worth and how much you should care about yourself and [the counselor] helps you to remember all that.”

Female, 11th grader

- Increased demonstration of positive self-care (i.e., goes to dentist, exercises regularly, gets adequate sleep, has healthy eating habits)
- Students feel more connected to one or more adults at school
- Increased belief that they could get help at school for health problems
- Improved mental health functioning (i.e. more likely to look forward to the future, less likely to feel sad and hopeless)
- Improved ability to handle problems or difficulties
- Increased ability to focus on school work

SBHC Clinic Users: Results of Pre/Post Evaluation Survey (See Table 1)

- There was a statistically significant **increase** in the **average number of days in which students exercised** among High School SBHC clinic users from 3.33 to 3.64.
- There were significant **increases** in the percentage of High School and Middle School users who **saw the dentist in the last year**.
- There was a significant **increase** among the High School users in the **number of adults the youth feels comfortable speaking with** from 1.73 to 1.95
- Among Middle School users there was a significant **decrease** in agreement with the statement **“If I got hurt at school I know I would get the help needed at school to handle this problem”** from 3.55 to 3.40. There was an **increase** in the belief that **“It has been difficult to focus on my school work because of my health or other problems”** from 1.66 to 1.81
- No changes over time in School Functioning indicators among the High School users
- No changes over time in the indicators of Mental Health Functioning

(Note: The lack of change in these last two findings is not surprising given that typically, this level of behavior change occurs over time with repeated messages and the pre/post survey involved only a few months of follow-up in 2003.)

TABLE 1: Overall SBHC Clinic Users: Comparison of Individual and School Functioning Indicators Pre vs. Post – Paired Samples

MEASURE	SBHC Clinic – High School Students (n=162)			SBHC Clinic – Middle School Students (n=131)		
	Pre	Post	P	Pre	Post	P
Outcome: Improved Individual Functioning						
Average Days Per Week of Exercise	3.33	3.64	*	4.12	4.05	
Average Hours of Sleep	6.68	6.69		7.97	7.73	*
Average Times Per Day – Fruits or Vegetables	2.33	2.38		2.77	3.07	
Have Seen the Dentist in the Last Year	71%	80%	*	76%	83%	*
How often have problems or difficulties (Scale A)	2.07	2.09		1.95	2.03	
“When I have problems or difficulties, I am able to handle them” (Scale A)	2.81	2.84		2.83	2.95	
“I look forward to the future” (Scale B)	3.58	3.57		3.60	3.54	
“I often feel so sad and hopeless...” (Scale B)	1.96	1.94		N/A	N/A	
Outcome: Students feel more connected to adults and school						
# Adults Feel Comfortable Speaking With (Scale C)	1.73	1.95	*	1.75	1.83	
Outcome: Improved functioning in school settings						
Ongoing Problem – would get help needed at school (Scale B)	3.26	3.36		3.31	3.25	
Hurt at School – would get help needed at school (Scale B)	3.40	3.46		3.55	3.40	*
“It has been difficult to focus on school work...” (Scale B)	2.08	2.04		1.66	1.81	*

* $p < 0.10$ level of statistical significance based on Paired Samples t-test

Scale A: 1 – never, 2 – sometimes, 3 – most of the time, 4 – all of the time

Scale B: 1 – definitely NOT true, 2 – mostly NOT true, 3 – mostly true, 4 – definitely true

Scale C: 0 – none, 1 – one, 2 – two, 3 – three or four, 4 – five or more

CASE STUDY – Shawna, 10th grade female

Staff Perspective: “Shawna first came in to see me because of her home life. There was a lot of arguing with her parents and she wanted to process the situation. A lot of the arguing was around the student choosing boys who were not good for her and who were involved in gangs and drugs. She was also picked on a lot in middle school and was suspended for fighting. She needed to find other ways to let out her emotions that wouldn’t result in violence or negative consequences. She would get involved in high-risk sexual situations.”

Summary of SBHC User Findings:

The analysis identified some increases over time in measures of Individual Functioning with respect to increased demonstration of self-care. We observe significant increases in the overall SBHC Clinic and School Nurse User populations in the **average days of reported exercise** and the **use of the dentist in the last year** and additionally see increases in these measures in SBHC clinic user populations who have participated in Health Maintenance visits and Nurse user populations who have a Health Concern.

The analysis indicates that the average High School SBHC clinic user reports an increase in the number of **“adults at the school that he/she would feel comfortable speaking with about a personal problem.”** This increase is particularly evident for High School and Middle School Users with Mental Health visits, suggesting that addressing mental health concerns might contribute to students’ feelings of connectedness in the school setting, which

is well-regarded as a protective factor within the field of mental health. This is a very positive finding related to mental health because it suggests that the student has perhaps recognized the SBHC staff member(s) as trustworthy, and a relationship has been established within the short pre/post timeframe.

CASE STUDY: continued

Shawna's Perspective: "I had problems at school, problems at home, problems with relationships -- friends and boyfriends...The counselor is really quiet and she listens...and things have gotten better, like now, I know how to not direct my anger at people and not to hold grudges. I know how to talk to my parents better...I know how to communicate ... "I need this, I want that..." The Nurse Practitioner gives me better ideas as far as birth control...like what's right and what's not right. She's just got the answer to everything. I just think, if she wasn't here...what could have happened to me?"

School Nurse Users: Results of Pre/Post Evaluation Survey (See Table 2)

- There was a significant **increase** in the **average number of days of exercise** among Middle School Nurse Users from 3.70 to 4.08. There was a slight **increase** in **average days of exercise** among High School Nurse users from 3.61 to 3.76.
- Decrease in belief that **"when I have problems or difficulties I am able to handle them"** from 2.95 to 2.73.
- No substantial changes in other measures of Individual and School functioning

TABLE 2: Overall School Nurse Users: Comparison of Individual and School Functioning Indicators Pre vs. Post – Paired Samples

MEASURE	NURSES – High School Students (n=102)			NURSES – Middle School Students (n=179)		
	Pre	Post	P	Pre	Post	P
Outcome: Improved Individual Functioning						
Average Days Per Week of Exercise	3.61	3.76		3.70	4.08	*
Average Hours of Sleep	7.15	7.19		7.94	8.04	
Average Times Per Day – Fruits or Vegetables	2.40	2.20		2.54	3.33	
Have Seen the Dentist in the Last Year	69%	71%		84%	82%	
How often have problems or difficulties (Scale A)	2.13	2.12		2.00	1.96	
"When I have problems or difficulties, I am able to handle them." (Scale A)	2.95	2.73		2.84	2.83	
"I look forward to the future." (Scale B)	3.61	3.59		3.56	3.52	
"I often feel so sad and hopeless." (Scale B)	N/A	N/A		N/A	N/A	
Outcome: Students feel more connected to adults and school						
# Adults Feel Comfortable Speaking With (Scale C)	1.98	1.90		1.89	1.81	
Outcome: Improved functioning in school settings						
Ongoing Problem – would get help needed at school (Scale B)	3.27	3.21		3.13	3.22	
Hurt at School – would get help needed at school (Scale B)	3.49	3.40		3.51	3.41	
"It has been difficult to focus on school work." (Scale B)	2.09	2.07		1.77	1.89	

* *p* < .10 level of statistical significance based on Paired Samples t-test
 Scale A: 1 – never, 2 – sometimes, 3 – most of the time, 4 – all of the time
 Scale B: 1 – definitely NOT true, 2 – mostly NOT true, 3 – mostly true, 4 – definitely true
 Scale C: 0 – none, 1 – one, 2 – two, 3 – three or four, 4 – five or more

Summary of School Nurse User Findings:

It is not surprising that the data reflect little change in some of the individual function indicators given that these types of changes typically take place over a longer period of time with repeated messaging. Much of the school nurses' efforts are spent triaging students; providing referrals, first aid, care for acute illness; and supporting students with special health concerns. They work with the school staff to prepare them to support the student in the event they have difficulties in order to prevent these concerns from interfering with their learning and academic performance. Middle School students with health concerns have an increasing belief that they would get the help they need if they had an ongoing problem at school (data not shown). This may reflect student confidence that staff are aware and able to assist with their concerns.

Analysis of School District Data by SBHC Clinic User Status:

School performance data from the 2001-2002 school year were analyzed by comparing student SBHC clinic users with clinic non-users as well as to students in schools without SBHCs. (For a more detailed description of this analysis and results see Appendix D.)

- **High School SBHC Clinic Users Had Higher Cumulative GPAs Than Non-Users:** A GPA equivalent of a "C" or better was positively associated with being a school-based health center user, with 94.4% of users compared to 92.3% of nonusers having a GPA of 2.0 or more. After adjustment for other potentially confounding factors such as race/ethnicity, gender, school, free or reduced lunch status, living with both parents, and enrollment in gifted program, the difference continued to be statistically significant.
- **High School SBHC Clinic Users Were More Likely To Have Been Suspended or Have Poor Attendance Records:** Student users of the school-based health centers were more likely than non-users to have been suspended for a short period of time, both at some time in the past (27.2% vs. 19.8%) and in the past year (7.8% vs. 4.8%). Students who did not use the school-based health center had better rates of attendance compared to school-based health center users.

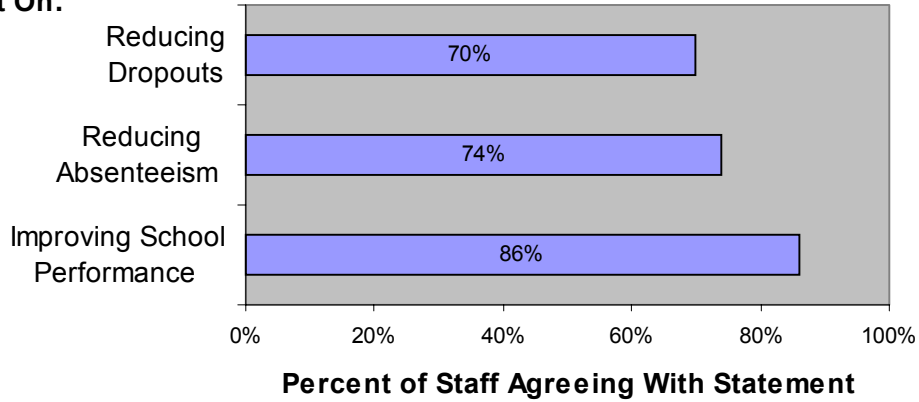
NOTE: Because of the cross-sectional nature of these data, we cannot discern which came first -- the disciplinary action or being a user. It is consistent with the goals of the SBHC for students who are having difficulty conforming to school codes of conduct to be referred for services at the SBHC clinic.

2002 School Staff Survey:

In 2002, teachers and staff of high schools and middle schools with school-based health centers were surveyed to determine their perceptions and level of satisfaction with the SBHCs. (For a complete description and results of the 2002 School Staff Survey see Appendix B.) Student physical and mental health as well as social and emotional issues are widely seen by staff as having an impact on a student's school performance. School staff reported that SBHCs play an important role in reducing these barriers to achievement through a positive impact on a variety of student behaviors and through identifying and treating significant issues that present barriers to academic achievement. A majority of staff felt the SBHC had an impact on reducing absenteeism and dropouts, and on improving school performance.

Staff Perception of SBHC Impact on Student Functioning in School Setting

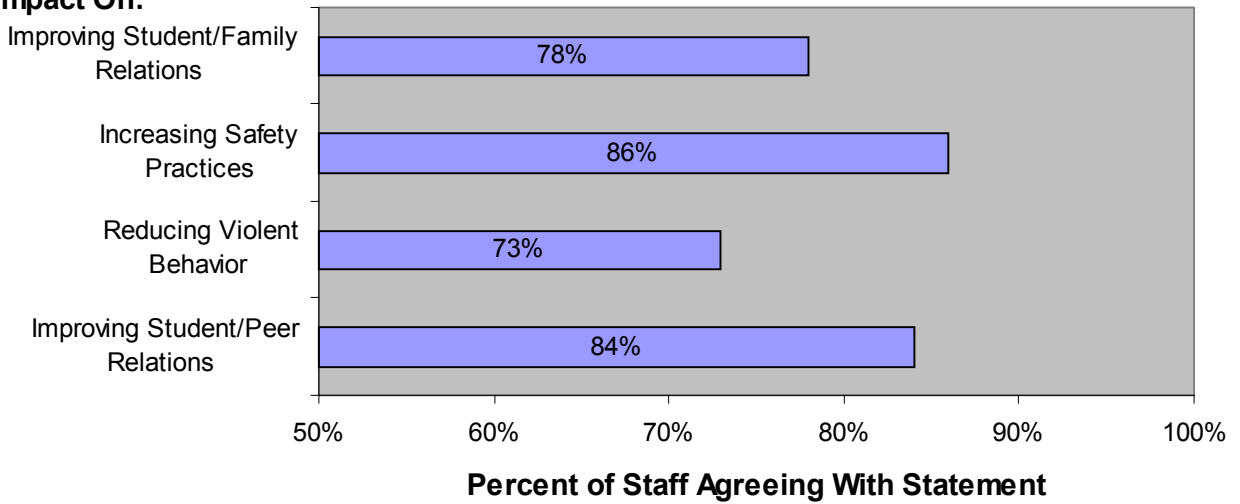
SBHC Has an Impact On:



Staff also commented on the impact of the SBHC on the school environment, which also impacts the level of student functioning in school.

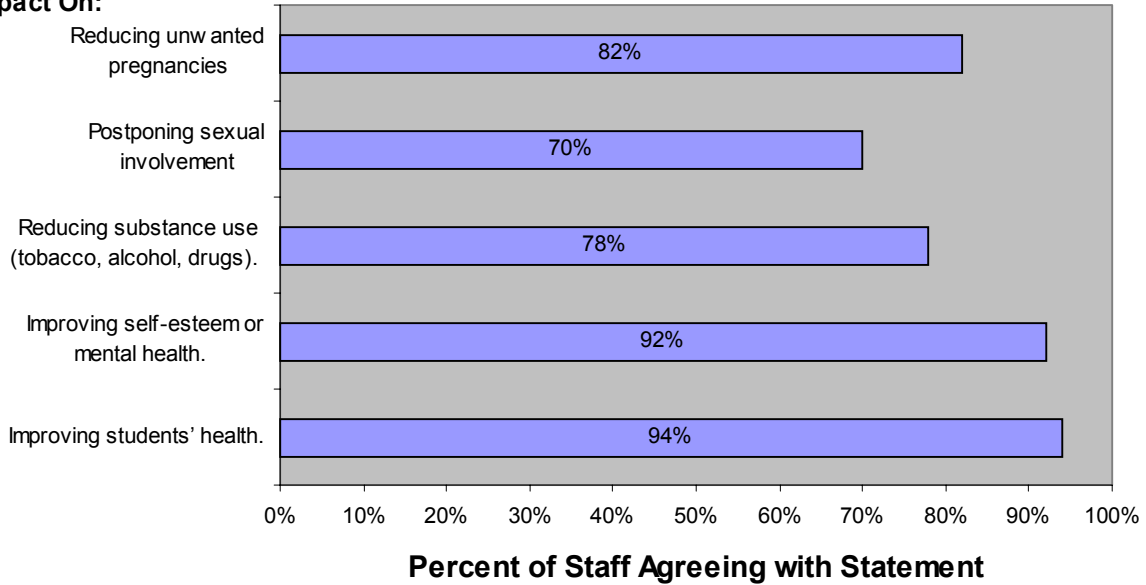
Staff Perception of SBHC Impact on School Environment

SBHC Has an Impact On:



Staff Perception of Impact of SBHC on Physical and Mental Health of Students

SBHC Has an
Impact On:



2001 Student User Survey:

In 2001 student users of the SBHC Clinic and School Nurse services completed anonymous surveys to assess their satisfaction with the services received at the SBHC and to determine the impact of the SBHC on their functioning in school. (See Appendix A for details and results of this effort.) A majority (90%) of student users reported that being able to get health care at school helped them to be more attentive when they were in class.

Between 75% and 94% of student users (depending on SBHC staff seen) reported that the SBHC staff are adults at school with whom they feel comfortable discussing their problems. Over 93% reported that SBHC staff usually provided the information needed to answer their questions.

78% of student users reported an improvement in their health as a result of using the SBHC at their school.

INCREASED KNOWLEDGE AND ABILITY TO USE HEALTH RESOURCES

Students Demonstrate Increased Knowledge and Ability to Access Health and Mental Health Services as a Result of the SBHCs.

Traditionally, adolescence is a time when youth begin to make independent decisions/choices about their health, and when attitudes toward health practices and health professionals solidify. It is widely known that adolescents utilize health care services less than any other age group and are least likely to seek medical care at a provider's office.⁶ It often happens that by the time teens show up at the doctor's office, their symptoms tend to have developed into full-blown illness. Alternatively, youth will often forego care completely if it isn't easily accessible.

Many adolescents confront various barriers to entering and using the health care system, including concerns about the confidentiality of services, convenience, cost, and how "teen friendly" the services are.

Linked Survey/User Database Analysis Findings:

High school and middle school users of SBHC Clinic and School Nurse services received a pre/post survey in winter and spring of 2003 to determine whether their involvement with these services was associated with an increase in knowledge of and ability to use health resources. Specifically assessed was students' knowledge of:

- Alternative places for mental health and reproductive health services (other than the SBHC)
- Appropriate places for receiving help

SBHC Clinic Users: Results of Pre/Post Evaluation Survey (See Table 3)

- There was a significant **increase** in the percentage of student users that **“know of a place other than the school health center where a youth can go for Mental Health Services.”**
 - For High School Users, this increased from 40 to 49%
 - For Middle School Users, this increased from 30 to 37%
- There was a significant **increase** in the percentage of student users that **“know of a place other than the school health center where a youth can go for Reproductive Health Services.”**
 - For High School Users, this increased from 51 to 62%
 - For Middle School Users, this increased from 24 to 40%

⁶ Critical Caring on the Front Line: Fact Sheets on SBHCs. The Center for Health and Health Care in Schools. [Available: <http://healthinschools.org/FS/facts.html>.]

- The average **number of “correct” scenario responses increased** significantly for Middle School students from 1.06 to 1.22. This increase is mostly attributable to a concurrent significant increase in the percentage that identify Community Health Clinic as a resource (47 to 60%)
- There was an **increase** in the percentage of High School users who identify Urgent Care as an appropriate resource (11 to 18%).

TABLE 3: Overall SBHC Clinic Users: Comparison of Knowledge of Resources Indicators Pre vs. Post – Paired Samples

MEASURE	SBHC Clinic – High School Students (n=162)			SBHC Clinic – Middle School Students (n=131)		
	Pre	Post	P	Pre	Post	P
Outcome: Increased knowledge of health resources						
Knows of a place other than the school health center where a youth can go for Counseling or Mental Health Services	40%	49%	*	30%	37%	*
Knows of a place other than the school health center where a youth can go for birth control or reproductive health services	51%	62%	*	24%	40%	*
Recommended for Help – Headache Scenario^a						
Average # CORRECT Answers (3 maximum)	1.20	1.33		1.06	1.22	*
Community Health Clinic	57%	65%		47%	60%	*
Community Mental Health Center	21%	27%		17%	19%	
Doctor or Pediatrician	43%	41%		42%	44%	
INCORRECT ANSWERS						
Emergency Room	15%	15%		8%	7%	
Family Planning Center	12%	13%		14%	8%	
Urgent Care	11%	18%	*	9%	10%	
Nowhere	8%	6%		9%	8%	

* $p < .10$ level of statistical significance based on Paired Samples t-test

(a) “Your friend Judy has had a cold for a week: she and her boyfriend just broke up and she has an important exam coming up. She’s had a headache that won’t go away, and it’s keeping her from studying. Where would you recommend that Judy go for help other than the school health center?”

School Nurse Users: Results of Pre/Post Evaluation Survey (See Table 4)

- There was a significant **increase** in the percentage of student users that “**know of a place other than the school health center where a youth can go for Mental Health Services.**”
 - For High School Users, this increased from 38 to 53%
 - For Middle School Users, this increased from 26 to 42%
- There was a significant **increase** in the percentage of student users that “**know of a place other than the school health center where a youth can go for Reproductive Health Services.**”
 - For High School Users, this increased from 41 to 52%

- The average number of “correct” scenario responses **increased** significantly for High School students from 1.05 to 1.25. This increase is mostly attributable to a concurrent increase in the percentage that identified *Community Health Clinic* or *Doctor or Pediatrician* as a resource.
- There was an **increase** in the percentage of High School users who identified *Urgent Care* as an appropriate resource (7 to 17%) and the percentage of Middle School users (16 to 23%)

TABLE 4: Overall School Nurse Users: Comparison of Knowledge of Resources Indicators Pre vs. Post – Paired Samples

MEASURE	NURSES – High School Students (n=102)			NURSES – Middle School Students (n=179)		
	Pre	Post	P	Pre	Post	P
Outcome: Increased knowledge of health resources						
Knows of a place other than the school health center where a youth can go for Counseling or Mental Health Services	38%	53%	*	26%	42%	*
Knows of a place other than the school health center where a youth can go for birth control or reproductive health services	41%	52%	*	26%	31%	
Recommended for Help – Headache Scenario^a						
Average # CORRECT Answers (3 maximum)	1.05	1.25	*	1.13	1.21	
Community Health Clinic	52%	61%		50%	50%	
Community Mental Health Center	25%	27%		21%	24%	
Doctor or Pediatrician	28%	37%		42%	46%	
INCORRECT ANSWERS						
Emergency Room	9.8%	11%		13%	14%	
Family Planning Center	5.9%	8.8%		11%	13%	
Urgent Care	7%	17%	*	16%	23%	*
Nowhere	3.9%	5.9%		5.0%	5.6%	

* $p < .10$ level of statistical significance based on Paired Samples t-test

(a) “Your friend Judy has had a cold for a week: she and her boyfriend just broke up and she has an important exam coming up. She’s had a headache that won’t go away, and it’s keeping her from studying. Where would you recommend that Judy go for help other than the school health center?”

Summary of Overall SBHC Clinic and Nurse User Findings:

The analysis indicates some increases in SBHC Clinic and School Nurse users' knowledge of health resources. In particular, we see substantial increases in their knowledge of alternative places with Mental Health and Reproductive Health services and ability to identify appropriate help resources in a scenario describing a student in need. (See Tables 3 and 4.) For both SBHC Clinic and School Nurse users there were significant increases in the percentage that “know of a place other than the school health center where a youth can go for **Mental Health Services** or for **Reproductive Health Services**.” In general, knowledge of such alternative places is greater among high school students in comparison to middle school students. However, the most substantial improvement over time appears among Middle School SBHC clinic users; in this population the percentage that “know of a place other than the school health center

where a youth can go for **Reproductive Health Services**” jumped from 24 to 40 percent between the pre and post surveys.

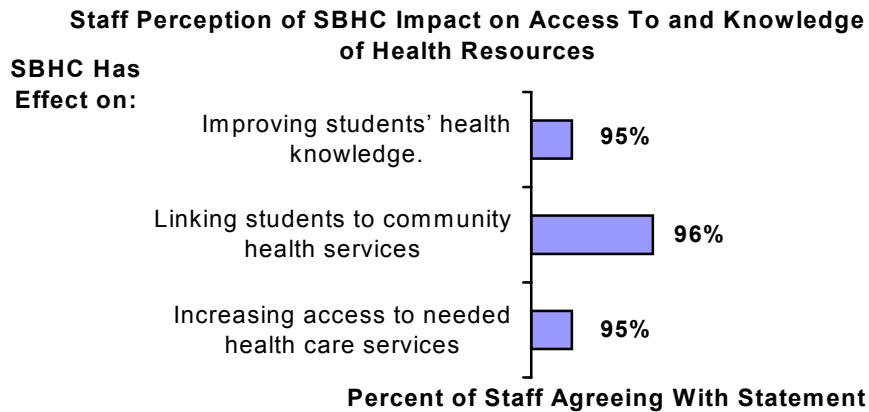
School nurses have considerable knowledge of the health resources in the school and community. As students present to their office it is usual and customary to review where referrals might be made. In the middle school, more frequently the families will be involved in the students’ care. The older and more independent high school student is often the one directing the care. Ready access to care is not an issue when there is a SBHC clinic available. The clinics offer an effective safety net to ensure access to care. The survey results demonstrate that both high school and middle school students have significantly improved knowledge of sources for mental health care, and have improved knowledge of where to get reproductive care following their nurse visits.

2002 Staff Survey:

Need for Services

- **82%** of school staff said that the SBHCs were needed “a great deal” by the students in their school.
- **50%** of staff said that a majority of students did not have access to health services other than the SBHCs in their school.

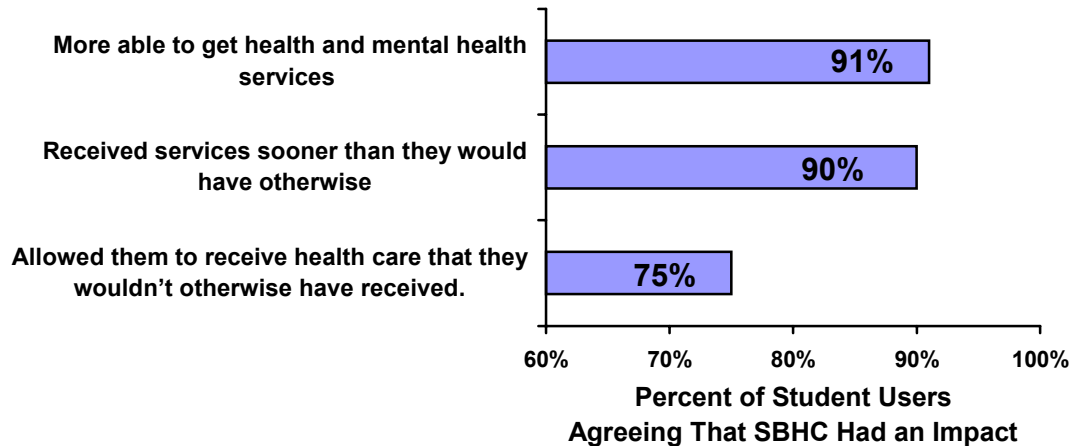
Increased Access to Health Care Services



2001 Student User Survey:

More than 80% of student users reported that they were more knowledgeable and better able to access health and mental health services as a result of the SBHC.

Impact of SBHC on Students Reported Access to Health Care Services



The following is a breakdown of students' reported reasons for visiting the SBHC by race/ethnicity. African American students had the smallest percentage of counseling visits (11%) followed by American Indian/ Alaska Natives (12%). Whites had the highest percentage of counseling visits (19%). A sizeable percentage (15-20%) of students from all race/ethnicity groups reported going to the SBHC to "Just Talk". Reproductive health (29%-44%) was the most frequently cited reason for a SBHC visit followed by General Health (19%-32%).

1999 Seattle Teen Health Survey:

Data from the Seattle 1999 Teen Health Survey were examined to look at differences in perceived access to health services of sexually active high school females who use their SBHC to those who don't and to those in schools without a SBHC.

Sexually active females who use the SBHC were significantly less likely than non-users and sexually active females in schools without a SBHC to:

- Report that they needed health care in the past year but were unable to get it.
- Report that they wanted to get help for stress/depression/family problems but have been unable to in the past year.

REDUCTION IN RISKY BEHAVIOR/ INCREASE IN PREVENTIVE BEHAVIOR

Having a School-Based Health Center (SBHC) Contributes to a Reduction in Risky Behaviors and an Increase in Preventive Health Behaviors by Students

Risky behaviors (e.g., substance abuse, violence and unprotected sex) are the leading threat to the health of adolescents and are increasingly responsible for the majority of deaths to adults under age 50.⁷ According to the American School Health Association, one in four sexually active teens will get an STD this year.⁸ Only a third of sexually active teens have ever been tested (35%). One reason they don't get tested is fear. "According to teens, many are worried about lack of confidentiality - having parents find out they are sexually active, or friends learn they are being tested." For teens who think they should get tested, "most said that teens won't end up being screened because they don't know where to go, or how to pay for it."⁸

In Seattle, a substantial proportion of students experience one or more of these risks. The 1999 Seattle Teen Health Survey data indicated:

- 1 in 10 students reported having been threatened or injured with a weapon, such as a gun, knife or club, on school property in the last year.
- Nearly 50% of high school students surveyed reported having tried marijuana and 23% reported binge drinking in the past month.
- 50% of the female students surveyed reported that they did not use a condom the last time they had sex.
- 39% of sexually active high school females have not had a pelvic exam in the past year.
- 10% of middle school students and 17% of high school did not exercise at all in the past week.
- 22% of middle school students and 39% of high school students used alcohol in the past month.

Adolescent health and behavioral issues develop over time and are significantly interrelated. One unhealthy choice can adversely impact a teen's range of choices in a seemingly unrelated area. Prevention, intervention, and treatment strategies will usually

" So I think being with [the counselor] has not only helped me emotionally but smart stuff too because I make a lot better decisions now. I think about what's going to happen and what could happen -- what's the possibilities...instead of just jumping into it mindlessly."

7th Grader, Female

not be truly successful if they only deal with the presenting symptom. In order to impact risky behaviors, young people need a conveniently located team of teen-friendly health care providers where students know it is safe to talk about troubling issues and receive confidential care.¹ School-based health centers address the most common health needs of adolescents. A broad range of primary and preventive health services are organized to significantly impact

7 Critical Caring on the Front Line: Fact Sheets on SBHCs. The Center for Health and Health Care in Schools www.healthinschools.org/FS/facts.html

8 "Sexually Transmitted Disease", SexSmarts: A Public Information Partnership. The Henry J. Kaiser Family Foundation and Seventeen magazine, August 2001.

9 Adolescent Pregnancy, Birth and Abortion, King County, 1980-2001, Public Health Data Watch, Volume 6 Number 1, June 2003, <http://www.metrokc.gov/health/datawatch/adolescent-pregnancy.pdf>

students' health behaviors. The SBHCs' unique position allows SBHC staff to give teens the information they need to make positive health choices, opportunities to practice actually making those good choices, and the support students need to sustain good decisions during a developmental period that is most challenging.

In Seattle, the SBHCs are located where young people spend a large portion of their time, providing health care to students in a safe and confidential manner. School staff and students reported an improvement in health status that they attribute to having a SBHC at their school. Staff and students also reported that students are more knowledgeable about how to take care of their health and are less likely, as a result of having a SBHC, to engage in risky behaviors. Local data provide evidence of a decline in risk-taking behaviors and an increase in preventive behaviors among Seattle teens.

2003 Public Health Data Watch - Declining Rates of Birth, Pregnancy and Abortion

A recently released report⁹¹ shows an unprecedented and dramatic decline in pregnancies, abortions and births to girls 15-17 years of age in King County.

The steepest teen birth decline has been in Seattle, where the birth rate fell by 65% since the peak in the late 1980s and early 1990s. The Seattle decline is greater than declines in other cities across the country with available data and coincides with the establishment of SBHC clinics. This is thought to be due to several factors including:

“I probably would have a kid if it weren't for the Teen Health Center. I wouldn't know so much about birth control...”
12th Grader, Female

- A delay and reduction in teen sexual activity.
- The increased use of long-acting hormonal and other highly effective methods of contraception.
- Reproductive health education and services which are available to teens in Seattle's school-based health center clinics, which were established in the mid-1980s when the decrease in teen pregnancy began.

2003 Linked Survey/SBHC User Database Analysis Findings:

The linked survey/user database was derived from Pre-Post surveys of SBHC users conducted in Winter and Spring of 2003 which were linked to the SBHC clinic user database for that same time period. (See Appendix C.)

SBHC Clinic Users: Results of Study

High School SBHC clinic users were surveyed to determine the extent to which their involvement with the SBHC clinic was associated with a reduction in:

- Smoking
- Alcohol/drug use
- Risky sexual activity

And an increase in:

- Use of contraception and prevention methods

The findings are presented in Table 5 and are summarized as follows. There was:

- No change in reported **30 day use** of cigarettes, alcohol, marijuana or other drugs.
- A decrease from Pre- to Post- in the percent of students with **multiple sexual partners** in the last 2 months (19.0% to 8.4%).
- No change in the reported level of **use of condoms** during sexual intercourse in the last 2 months.
- Increases in the likelihood of using **birth control pills** and **other methods** as types of birth control in the 2 months prior to the assessment.

(Note: The lack of statistically significant change over time with these behaviors is not surprising given that typically, this type of behavior change occurs over time with repeated messages whereas the pre/post survey involved only a few months of follow-up in 2003.)

One of the challenges, especially in the case of sexual behavior indicators, was the small number of respondents. Less than 80 students reported sexual activity in the last 2 months.

Given the small sample size it was difficult to examine the patterns of change for different sample subgroups. We did examine whether there were changes in cigarette, alcohol or drug use among those users with one or more Mental Health Visits (n=43), believing that this population would be the most vulnerable with respect to substance use. We found that while rates of usage are higher in this subgroup than in the overall sample, there was not much change in these rates between the Pre and Post assessments. We did observe, though, a slight decline in the percent of users in this subgroup who **used marijuana 1 or more times** during the last 30 days from 31.2 to 25.0%.

“I had a drug problem and ever since I went to the counselor, ever since I started talking about it (because I had never talked to anybody about it) I don’t do that stuff because now I have someone to talk to...and they actually believe me.”

9th Grader, Male

We also looked at those SBHC HS Users with one or more Reproductive Preventive visits (n=72), assuming that we might find the greatest impact on those users who are more likely to be sexually active.

In particular we observed in this subgroup:

- A decline in the percentage of users who report having **sexual intercourse in the previous 2 months** from 86.2 to 70.5%. Similarly, among those having sex in the previous 2 months a decline in the percentage with **multiple sexual partners** from 28 to 7.1%.
- A slight decline between Pre and Post in the percent of sexually active students who used a **condom** for birth control from 52 to 44 percent.
- Conversely, substantial increases between Pre and Post in reported use of **birth control pills** (38 to 51%) and **other method** (6 to 23%).

TABLE 5: Overall High School SBHC Clinic Users: Comparison of Risky Behavior Indicators Pre vs. Post

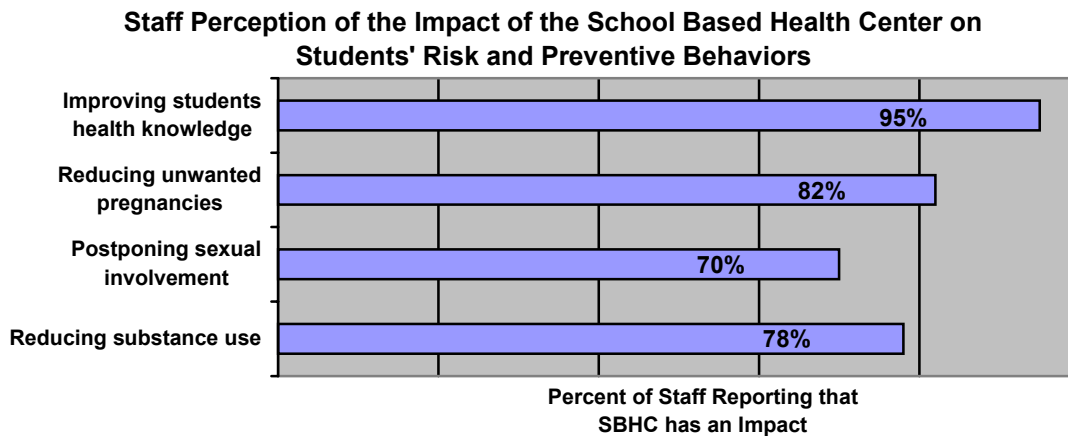
MEASURE	SBHC Clinic Users – High School Students (n=162)		
	Pre	Post	P
Outcome: Reduction in Risky Behaviors/ Increase in Preventive Behaviors			
30 Day Use (% with 1+ days of use reported below)			
Cigarettes	16.6%	15.9%	
Alcohol	22.8%	24.2%	
Marijuana	15.6%	16.1%	
Other drugs	3.4%	2.0%	
Sexual Intercourse -			
Ever	67.3% (n=107)	71.5% (n=108)	
└ Ever diagnosed with STD	5.6%	7.5%	
└ Had sexual intercourse in the last 2 months	76.0%	67.9%	
└ % with 2 or more partners last 2 months	19.0%	8.4%	
└ Average condom use during last 2 months*	3.4	3.4	
Types of Birth Control Used – last 2 months			
Birth control pills	36.7%	48.6%	
Withdrawal	10.1%	11.1%	
Condoms	50.6%	51.4%	
Other Method	11.4%	18.1%	
Depo	20.3%	18.1%	
Emergency Contraception	10.1%	13.9%	

*Scale A: 1 – never, 2 – rarely, 3 – sometimes, 4 – most of the time, 5 – all of the time

Analysis of the SBHC clinic user data indicate that 96% of girls receiving contraceptive services through the clinic did not get pregnant. In 2002-2003, 52 out of 1031 girls receiving contraception got pregnant (4%).

2002 School Staff Survey:

Staff report the SBHC has an impact on reducing students' high risk behaviors and increasing their preventive behaviors.



2001 Student User Satisfaction Survey:

- 78% of student users said their health had improved as a result of having a SBHC at their school.
- 87% of student users said they **know how to take better care of their health** as a result of contact they have had with staff of the SBHC.

1999 Seattle Teen Health Survey:

Data from the Seattle 1999 Teen Health Survey indicate that sexually active females who use the SBHC clinic engage in fewer risky behaviors and more preventive behaviors.

- 70% of sexually active girls in schools with a SBHC reported that they used it.
- **Sexually active females who use the SBHC clinic** were significantly **more likely** than non-users and sexually active females in schools without a SBHC to:
 - Have had a **pelvic exam** in the past year
 - Have **used a pregnancy prevention method** the last time they had sex
 - Have **seen a doctor for a physical exam** in the past year
 - Identify that there are **adults** (as well as a greater number of adults) that **they could go to talk with if they had a problem**
- **Sexually active females who use the SBHC clinic** were significantly **less likely** than non-users and sexually active females in schools without a SBHC to have:
 - **Smoked** in the past month
 - **Used alcohol** in the past month
 - **Used any drugs** in the past month and if they have used drugs, less likely to have used heavily

Evaluation Summary and Recommendations

Goals: The primary focus of these evaluation activities has been to determine the extent to which the Seattle SBHCs (which includes SBHC Clinic and School Nurse services) have had an impact on students’:

- **Improved Functioning in School Setting**
- **Increased Knowledge and Ability to Use Health Resources**
- **Reduction in Risky Behavior and Increase in Preventive Behavior**

Data Sources: The evaluation activities of the past three years have focused on assessing the impact of the SBHCs on these indicators through a variety of methodologies with different populations and data sources. These have included: a) surveys of student users of SBHC clinic and school nurse services and school staff, and b) qualitative focus groups and interviews with student non-users of SBHC clinic services and school staff. The intent of the evaluation activities was to focus on barriers to use of these services.

In addition, we have made use of the existing data from the 1999 Teen Health Survey which provides a wealth of information on Seattle’s middle and high school students, including their reported engagement in risky and preventive behaviors. Academic performance and disciplinary action data from Seattle Schools and data from the SBHC clinic databases allowed us to examine academic performance indicators related to SBHC clinic use. Local data for Seattle indicate unprecedented declines in rates of teen pregnancy, birth and abortion since the mid-1980s that coincides with the establishment of the SBHC clinics.

For the first time, in 2003 and continuing with the current school year (2003-2004), quantitative data on physical and mental health outcome and behavior change associated with usage of SBHC Clinic and School Nurse services are being collected and analyzed.

Findings: The data from all of these sources have indicated that SBHC Clinic and School Nurse services are important contributors to students’ improved functioning in school. Students reported that being able to get health care at school allowed them to be more attentive in class, and provided adults who could answer their questions and with whom they could discuss their problems. Staff reported that the SBHCs contributed to a **reduction in the rate of absenteeism and dropouts** and an **improvement in students’ school performance**.

The data also suggest that the SBHCs, through the comprehensive resources they provide to the school community, contribute to a **safer, less violent**, healthier and less stressful **school environment** for both students and staff. Analysis of the SBHCs users show that the SBHCs are **servicing** the population of students, those **students** of low socioeconomic status, **who have a need** for these services. Students who use the SBHC clinic are more likely to have a GPA of 2.0 or better than those who don't use the SBHC Clinic service.

Students and staff report a need for health services that are accessible to students and students report that the **SBHCs enable them to get care sooner** if at all than they would have otherwise gotten it. Staff report that the SBHCs have an impact on **reducing substance use, postponing sexual involvement** and **reducing pregnancies**. The

1999 Teen Health Survey data and the local data on teen pregnancy support those perceptions.

The results of the most recent analysis of the pre/post survey data linked with the SBHC user data identifies some **patterns of change in key program outcomes** among SBHC Clinic and School Nurse users over the course of the school year. We found **improvements in individual functioning** measures such as **days of exercise** or **use of the dentist** in the overall samples and among those using the SBHC Clinic or School Nurse for health maintenance issues. Likewise we find some **improvements in mental health functioning** among those who are using the SBHC to address mental health issues. In addition, the data suggest that **users are forming more connections with adults** in the school setting. All of these findings indicate that users are starting to benefit from their use of the health services with respect to their ability to function well in the school setting.

Not surprisingly the most dramatic changes over time among users are revealed through **gains of knowledge about health resources**. In general, the SBHC Clinic and School Nurses users have **increased their ability to identify alternative locations for mental health and reproductive health services** and to **correctly identify appropriate locations for assistance for a student in need** (*based on a scenario question*). Of further interest are two additional findings: 1) High School SBHC Clinic mental health users DO NOT increase their knowledge of alternative mental health services and 2) for many populations the user incorrectly identify the urgent care clinic as a resource for someone with a mild illness.

The overall analysis suggests few changes over time in risky and preventive behaviors among High School SBHC Clinic users (the only students who were asked these confidential and controversial questions as part of their clinic visit). A further investigation of High School SBHC Clinic reproductive health users does demonstrate some **decreases** over time in their likelihood of **sexual activity** and sex with **multiple partners**. It also indicates slight decreases in the use of condoms among those having sex and increases in other more effective methods of birth control.

Conclusion and Recommendations: The evaluation findings point to **promising improvements in functioning, knowledge and behaviors** to be further explored with future evaluation efforts. Because this analysis was based on a small sample of users with pre/post data collected over a short period during the school year, we expect current efforts to yield more substantive findings. With the complete implementation of the evaluation approach during the 2003-2004 school year the program should expect to gather more accurate data about change in outcome measures and have the capacity to examine a wider range of different subgroups. At this juncture there is evidence of the program impact on short-term outcomes, and more importantly strong evidence that the evaluation methodology in place will allow the program to address many questions about impact and efficacy in the future.