

WORKING P A P E R

A Baseline Assessment of the District of Columbia School Health Nursing Program

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PREFACE

This report describes findings from a baseline assessment of the District of Columbia (D.C.) School Health Nurse Program (SHNP). The D.C. SHNP is currently run by the D.C. Department of Health (DOH) and coordinated by the Children's National Medical Center (CNMC) under the auspices of their office, Children's School Services (CSS). As part of the D.C. SHNP, school nurses provide health services that include 1) assessment and care for acute illness or injury, health education and counseling, medication administration, and treatment for students with medical conditions; 2) hearing, vision, and scoliosis screenings and referrals; 3) immunization surveillance; 4) promotion of a healthy school environment; and 5) liaison services between school staff, parents, and community health providers. The baseline assessment presented in this report includes an examination of:

- stakeholder perspectives on gaps in student health care and how the D.C. SHNP should contribute,
- the linkages between school nurses and community health services, and
- the essential features of a comprehensive school health program including the roles and responsibilities of school nurses.

This report was written to address the strategic planning needs of the D.C. SHNP. It may also be of interest to other stakeholders including DCPS administrators, principals, and teachers, as well as community health providers.

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ACKNOWLEDGEMENTS	VII
EXECUTIVE SUMMARY	1
1. INTRODUCTION	7
2. STUDY OVERVIEW	13
3. STUDENT SERVICE NEEDS & D.C. SHNP SERVICE PROVISION	19
4. PERSPECTIVES ON THE SCHOOL HEALTH NURSING PROGRAM	29
5. FACILITATORS, BARRIERS, AND CHALLENGES TO CARE	43
6. RECOMMENDATIONS FOR THE SCHOOL HEALTH NURSING PROGRAM	53
7. AN EVALUATION PLAN FOR THE SCHOOL HEALTH NURSING PROGRAM	63
REFERENCES	77
APPENDIX A: SURVEY METHODOLOGY	79
APPENDIX B: INTERVIEW METHODOLOGY	83

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EXECUTIVE SUMMARY

Health services provided in schools can address a key gap in children's health care by screening for health issues early and providing a convenient and accessible place for acute illness services, chronic disease management during school hours, and health education. Coordinated school health programs that build on nursing services can further these efforts by using prevention and education strategies to address the types of health issues that often impede student learning.

Currently, the core of the school health program in the District of Columbia (D.C.) is the School Health Nursing Program (D.C. SHNP). The D.C. SHNP is a program of the D.C. Department of Health. It is currently coordinated by the Children's National Medical Center (CNMC) under the auspices of their office, Children's School Services (CSS). While there are some data describing the types of nursing services delivered, we have not had the opportunity to examine the full extent of the program's offerings prior to this study. This report documents findings from a baseline assessment, which will set the stage for a longer-term evaluation of how the D.C. SHNP is being implemented and whether the program is having a positive impact on students and the school community.

Specifically, a comprehensive evaluation of the D.C. SHNP includes gathering information on: a) the services that youth access and whether the services used meet their health needs; b) the barriers and facilitators to care as articulated by students, parents, and other key stakeholders; c) the challenges confronted by school nurses to provide services; d) the perceived quality of the care that is offered as reported by students, parents, and school staff; and e) the resources that are invested in the program and how these resources map to improvements in youth health outcomes.

The baseline assessment presented in this report includes an examination of:

- stakeholder perspectives on gaps in student health care and how the D.C. SHNP should contribute,
- the linkages between school nurses and community health services, and
- the essential features of a comprehensive school health program including the roles and responsibilities of school nurses.

Methods

The baseline assessment includes three data collection strategies: 1) a review of existing data on the D.C. SHNP using CSS information from the last two years of available data (2005-2006; 2006-2007), 2) stakeholder interviews, and 3) stakeholder surveys. CSS data were analyzed to obtain a general understanding of services provided and to assess how the provision of school health service matches perceived need for services by geographic area and school level. We also surveyed students (5th, 7th, 9th, and 11th), parents, school staff members, and nurses about use of nursing services, satisfaction with care, facilitators and barriers to obtaining or delivering care, and ideas for program improvement. Finally, key informant interviews with nurses, teachers, and principals provided a targeted, in-depth examination of how nurses and school staff view the D.C. SHNP, identified facilitators and barriers to delivering services, and offered

recommendations for program improvement. In addition, we interviewed community health providers about their relationships with school nurses and their roles in health service referrals. At the conclusion of this report, we provide a plan for a longer-term, outcomes-based evaluation.

Key Findings

In the next sections, we highlight key findings from the nursing data analysis. In many cases, our findings are presented by Ward, based on the fact that civic and policy discussion of issues in D.C. is commonly presented in this way. Additionally, analyses of health need using data from the National Survey of Children's Health (NSCH) suggest that unmet health need varies by Ward and supports Ward as both a statistically and policy relevant descriptor. We know from prior work (Lurie et al., 2008) that residents of Ward 3 have the highest incomes, and Wards 7 and 8 have the greatest percentages of residents living in poverty (22 and 33 percent, respectively) and the lowest median family incomes. Approximately one-third of residents of Wards 7 and 8 are children.

In addition, we summarize results from our stakeholder surveys and interviews with respect to experience with nursing services and facilitators and barriers to care.

D.C. SHNP trends in service provision

As part of the D.C. SHNP, school nurses provide health services that include 1) assessment and care for acute illness or injury, health education and counseling, medication administration, and treatment for students with medical conditions; 2) hearing, vision, and scoliosis screenings and referrals; 3) immunization surveillance; 4) promotion of a healthy school environment; and 5) liaison services between school staff, parents, and community health providers.

Rates of health suite visits were greater among middle school students compared to other grade levels. For elementary school students, common reasons for health suite visits included ear, nose, and throat (ENT) difficulties; gastrointestinal (GI) difficulties, and skin issues. Middle school students reported far more GI issues; and high school students presented with issues that were diverse and could not be categorized into existing groups. There were no significant differences by month in the illnesses presented, although October and November appeared to be months during which there were more frequent GI related visits by high school students.

The rate of health suite visits varied by ward and school level, as elementary school use was greater in Wards 2 and 3 and visits among older students were greater in Wards 1 and 5. For elementary and middle school visits, most students were returned to class after visiting the nurse. Parents were called slightly more often in high schools compared with elementary and middle schools. In general, referrals for outside care were more common among elementary school students, yet there was significant variation across wards. Referrals for community health services were more frequent in Wards 1, 4, and 7, particularly for middle school students in Wards 4 and 7.

The overall number of health education session that students received as part of the D.C. SHNP was somewhat low, though a clear directive on the required number of sessions is lacking.

Health education sessions were more common among elementary schools in Wards 2 and 4. In Wards 1 and 4, many of these health education visits were related to mental or behavioral health issues. Nutrition sessions were more frequent in elementary schools in Ward 2.

Perspectives and overall experience with school nursing

Students. Respondents generally reported good experiences with the school nurse and high satisfaction with the quality of the care they received in the school health suite; however, some students reported a desire for access to additional resources. For example, students shared frustrations that the nurse was unable to provide over-the-counter medicine. Middle and high school students also expressed dissatisfaction with the size of cots or beds in the health suite and the limited number of resting places in the suites. Students also wanted more health information materials and health education sessions with the nurse. Fifth grade students requested assistance on nutrition and sexual health issues, while middle and high school students asked for more help with nutrition and mental health concerns.

Parents. While parents were generally pleased with their children's care, they noted some dissatisfaction. Namely, they expressed concern about the opportunities to obtain referrals for community health providers from nurses and the nurses' abilities to help with their children's medications (e.g., limitations on administering over-the-counter medication; requirements for keeping prescriptions current with the nurse).

School staff. School staff members were supportive of nursing services. For example, teachers reported the benefits of being able to send students to the school nurse when students were experiencing mental health or behavioral problems. However, principals and teachers also were unclear about the health services nurses provided and reported some dissatisfaction with the overall program. For example, while staff members overwhelmingly reported a need for the D.C. SHNP and satisfaction with the services that their students received, approximately 40% of school staff rated the overall program as only fair or poor. Some of this dissatisfaction was related to the perception that the scope of services provided by various nurses was too limited and that the nurse was not always available during peak times for student needs (e.g., lunch, recess). Teachers also reported an interest in having nurses involved in more health education and promotion activities as an expansion of nurses' current services. An undercurrent to principals' dissatisfaction entailed a feeling that principals did not have adequate input into the services their schools received or a platform for contributing to their nurses' performance evaluations.

Nurses. Job satisfaction was quite high among D.C. SHNP nurses. Few nurses reported negative factors related to their job roles or responsibilities. However, nurses did share concerns about their ability to follow-up on student referrals for community health services, and their ability to communicate with parents. Further, they expressed concerns about their opportunities to provide health education for students and also the quality of the health suites' equipment and physical space.

Facilitators and barriers to obtaining or delivering services

Students. Students in our sample reported that easy access to the nurse and a positive experience when in the health suites were important facilitators for visiting the school nurse. However, the health suite schedule (e.g., uncovered time during nurse lunch break and after-school activities) was a barrier for some students.

Parents. Parents appreciated that school nursing services were being provided. They also indicated that a key reason for using nurses' services was their trust in the program because it is located within the schools. They also appreciated the convenience of services so that their children did not have to miss classes to visit an outside provider.

Nurses. Nurse also cited convenience for students as a facilitator to service use. However, nurses reported some difficulties in providing health services. Nurses discussed the challenges of providing medication, including the medicine renewal process, even when they had the clinical expertise. Other challenges included poorly outfitted facilities that were not conducive to quality care and a need for more appropriate health education materials (e.g., brochures, videos/DVDs). Nurses reported that administrative time, while important, distracted them from providing care. In response to this concern, many nurses requested assistance with non-clinical tasks so they could focus on tasks requiring their expertise. Further, nurses reported that they were not able to fully use technology to communicate quickly with community providers and nurse administrators (e.g., email) or to utilize the internet to collect intellectual resources that could assist nurses in delivering care because they lacked timely computer and internet support. Communicating in a multi-lingual city was also a challenge for some nurses who reported difficulties in conversing with parents to help them to negotiate the health care system.

Nurses also reported that communication with community providers was often challenging, particularly in terms of follow-up; however both the community providers and nursing staff reported interest in improving their relationships. Nurses requested training in core areas, specifically mental health, public health surveillance, general health education, and assistance with referrals to health services.

Community health providers. Community health providers reported similar concerns as nurses regarding the challenges to completing referrals; and they indicated that they would like opportunities to engage the school nurses in their neighborhoods as a start to providing better continuity of care. Some providers reported that once they completed services in response to a referral from a school nurse, they were unable to make a referral back to the nurse for follow-up. Community health providers also shared an interest in receiving information on their clients' mental health or behavioral issues, follow-up information on services provided during school, and information of any chronic disease management that may be occurring during school hours. Providers reported that although they may not always be able to attend meetings such as Individualized Education Plan (IEP) sessions, they would like to submit recommendations or other input.

Recommendations

This assessment generated several recommendations in the areas of nursing service changes, facility upgrades, program awareness, nurse training and support, and other school health enhancements.

Nursing service changes or expansions

1. Support and encourage flexible lunch hours so that nurses' schedules correspond better with student demand.
2. Take advantage of nurse practitioners within the D.C. SHNP who are licensed to give medicines or rapid strep tests with a standing order from a doctor.
3. Reduce the number of forms that nurses must fill out throughout the day to those that are completely necessary.
4. Change medication renewal schedule to renewal on an annual basis and require only a note/letter from the doctor specifying use and expiration date.
5. If hiring a second referral coordinator, consider a bilingual applicant. Alternatively, encourage schools to identify a school staff member proficient in parents' native language as a liaison for students health needs.
6. Consider hiring two clerks who will be shared among the nursing staff group in order to help nurse managers with filing and other administrative tasks.

Facilities improvements

1. Continue to conduct regular quality assessment of the physical space, equipment and supplies of health suites; and include nurses in the design of new suites or the remodeling of existing ones.
2. Purchase kid-friendly manuals and handouts as well as modern videos/DVDs and multimedia materials on adolescent issues.
3. Closely monitor implementation of the information technology contract with OCTO/DCPS to ensure that all computers/fax machines/internet are properly set up and in working order.

D.C. SHNP awareness and communication with school staff members and community health providers

1. Increase school awareness about the D.C. SHNP, including explanations of the nurse role and responsibilities and information about services provided.
2. Ensure that parents are clear about the nurse role and services provided in schools.
3. Consider using email as well as face to face meetings to improve communication between nurse managers and principals
4. Focus initially on enhancing communication between nurses and community providers in the areas surrounding schools.
5. Conduct an in-depth assessment to determine the reasons for parental non-compliance with health requests for paperwork and referral follow-up (e.g., poor communication, lack of understanding about the value of the referral etc.).

Nurse training and related support

1. Support nurses in linkages with community health providers. Provide contact information for nurses and community health providers and a systematic process for introducing these professionals to their counterpart within each ward/neighborhood/area code.
2. Provide training for nurses in improving mental health skills and public health surveillance activities.
3. Provide additional training for nurses on how to deliver age-appropriate health education.

Other school health enhancements

1. Partner with community health providers to ensure that students obtain adequate well-child care.
2. Expand health education offerings, particularly in the areas of nutrition, mental health, and sexual health.
3. Engage school staff members and the nurse (e.g., during a staff meeting) in conversations about which priority health topics to address and additional opportunities to provide health education services.

1. INTRODUCTION

The health needs of children living in the District of Columbia (D.C.) are vast, a situation made worse because many of the children in the city have limited access to timely and appropriate health services even with adequate insurance coverage (95.5% with insurance, 47.2% privately insured, 48.3% publicly insured; NSCH 2003). Further, there are many areas of the city in which child health status is poor and health-related outcomes (e.g., school absenteeism) remain a problem.

D.C. is divided into 8 geographic Wards, and many civic and policy issues are discussed within the context of Wards. Analyses of child health need using data from the National Survey of Children's Health (NSCH) suggest that unmet health need varies by Ward; these data also support using Ward as a descriptor that is both statistically and policy relevant. We know from prior work (Lurie et al., 2008) that residents of Ward 3 have the highest incomes, and Wards 7 and 8 have the greatest percentages of residents living in poverty (22 and 33 percent, respectively) and the lowest median family incomes. Approximately one-third of residents of Wards 7 and 8 are children.

While we continue to grapple with understanding the myriad of factors that explain poor child health status in the city including the role of poverty and service availability, we know that health services provided in schools can fill a critical gap in children's health care. Schools can be effective places for youth to be screened for health conditions early and to receive some health services. Equally important, comprehensive school health programs can use prevention and education strategies to address the types of health issues that often impede student learning.

Currently, the main component of the school health program in D.C. is the School Health Nursing Program (D.C. SHNP), which is a core program of the D.C. Department of Health (DOH). The mission of the D.C. SHNP is to "enhance education by maximizing the health and well-being of youth and to minimize and eliminate health-related barriers to learning" (CNMC, 2007). The program is currently under contract with the Children's National Medical Center (CNMC) within the auspices of their office, Children's School Services (CSS). CNMC assumed operational responsibility of the program in 2001 under contract with DOH's Child, Adolescent, and School Health Bureau.

In 2006 the D.C. DOH conducted an analysis of options for developing a coordinated school-based health center model (Centers for Disease Control)¹. However, before the city proceeds with expanding school health services and progresses toward a coordinated school health model, it would benefit from an assessment of the current program. Currently, there is limited understanding of the status of the program, particularly with regard to the knowledge and perspectives of key D.C. SHNP stakeholders (students, parents, school staff members, and nurses).

¹ A coordinated school health program (CSHP) model consists of eight interactive components—health education, healthy school environment, mental health services, health services, nutrition services, physical education, family and community involvement, and health promotion for staff. School nursing mostly falls under health services, however does include some provision of health education and leadership in creating a healthy school environment.

There have been few opportunities to assess the current state of school nursing as the core element of existing school health services in D.C. Although there is some monitoring of school nurse activities on a monthly basis, the information collected is limited to documenting processes such as aggregate counts of services delivered. While this information provides a starting point for assessing the D.C. SHNP, a more in-depth analysis of how well the nursing program is currently operating is prudent before changes to the program are made. This analysis will inform any decisions about the most efficient and effective way to structure the D.C. SHNP to improve student health outcomes. For instance, we do not know if D.C. SHNP resources are being used in the most effective way possible to meet children's needs, and given the overwhelming needs of children in our city, how we can better care for this population. Further, a baseline assessment sets the stage for a more thorough analysis of how the D.C. SHNP fits into a comprehensive school health program as well as the larger system of child health care in D.C.

A comprehensive evaluation of the D.C. SHNP includes gathering information on: a) the services that youth access and whether the services used meet their health needs; b) the barriers and facilitators to care as articulated by students, parents, and other key stakeholders; c) the challenges confronted by school nurses to provide services; d) the perceived quality of the care that is offered as reported by students, parents, and school staff; and e) the resources that are invested in the program and how these resources map to improvements in youth health outcomes. A first step to this evaluation includes a thoughtful examination of stakeholder perspectives on gaps in student care and how the D.C. SHNP should contribute, the linkages between school nurses and community health services, and the essential features of a comprehensive school health program including the roles and responsibilities of school nurses.

It should be noted that an analysis of stakeholder views about school nursing is not common. Studies on school health tend to focus on school-based health centers; however, most schools are not equipped with this model due to limited resources and must rely on a traditional school nurse configuration. Further, in other community studies on nursing (e.g., preliminary data from Richmond, Baltimore), only brief satisfaction surveys have been conducted. However, these studies failed to delve more deeply into stakeholder perspectives on nursing services and to identify opportunities for program improvement.

1a. Background on the D.C. SHNP and Services Provided

CNMC assumed operational responsibility of the program in 2001 under contract with DOH's Child, Adolescent, and School Health Bureau. At the time of this study (Spring 2008), CNMC comprised most of the staffing of the D.C. SHNP, however there were two full-time DOH staff members involved in D.C. SHNP leadership. Funding for the D.C. SHNP in FY 2008 totaled \$20 million, of which more than \$19 million covered nursing services with CNMC. A sizeable portion of the budget from CNMC was donated (close to 60%).

Currently, school nurses provide health services to students in D.C. Public Schools as part of the D.C. SHNP. Services provided by the school nurses include 1) assessment and care for acute illness or injury, health education and counseling, medication administration, and treatment for students with medical conditions; 2) hearing, vision, and scoliosis screenings and referrals; 3) immunization surveillance; 4) promotion of a healthy school environment; and 5) liaison services

between school staff, parents, and community health providers. The immunization program has been a core indicator of D.C. SHNP success; as a result of the efforts, the immunization compliance rates for DCPS as of October 2008 were 97.9%. As described later, nurses report spending an average of 61% of their time on health service provision and 21% on administrative duties.

In elementary school, common services include vision, hearing, and scoliosis screening; immunization review; health education resources in the areas of nutrition, substance use, and human sexuality; and administration and monitoring of approved medication (i.e., only those prescriptions and over the counter medications with proper labels and administration directions). For secondary schools, services include similar screenings (e.g., vision and scoliosis), immunization monitoring; and medication administration and monitoring; but also include coordination of on-site sports screening; and health education on HIV/AIDS, pregnancy, and substance use.

1b. D.C. SHNP Staffing

Currently there is a nurse in each D.C. public school for either 20 hours (part-time) or 40 hours (full-time) per week. As of October 2008, all but seven public schools had a full-time nurse. . However, there is an ongoing effort to increase coverage so that eventually all schools will have a full-time nurse.

As of January 2008, the start of our data collection, there were 171 nursing staff members in the D.C. SHNP, the majority of whom (roughly 91%) were licensed nurses; the remaining nursing staff members were either nursing assistants, or health technicians. Of the licensed nurses, approximately 88% (FTE²=134.4) were registered nurses (RNs) and the remaining 12% were licensed practical nurses (LPNs). Seventy four of the nurses were from CNMC, and 82 were from contract agencies. Also, Ward 2 (79%), Ward 5 (56%), and Ward 6 (56%) had the largest percentage of RNs (of their total nurses). Table 1 summarizes the nurse distribution in D.C. Public Schools (DCPS) by ward, school level, and part-time vs. full-time status as of January 2008. Within DCPS, there were 98 elementary schools (54% with full-time nurse); 20 middle or junior high schools (60% with full-time nurse); and 16 high schools (100% with full-time nurse). The ratio of students to nursing staff was approximately 1: 263 elementary school students; 1:356 middle school students; and 1:778 high school students. The largest ratio of students to nurses (either 20 hr or 40 hr/week) was in Ward 3 (1:524 students), while ratios in other wards range from 1:218 (Ward 1) to 1:363 (Ward 6). Federal guidelines recommend that schools employ one nurse for every 750 students. However, statistics from the National Association of School Nurses (NASN), which were cited in the Associated Press on July 15, 2008, indicated that the national average is one nurse for every 1,151 students. The NASN recommends using a formula-based ratio of school nurse-to-students that considers the health and economic conditions of each district's population stating that "in a general population, a ratio of one school nurse to 750 students may be appropriate. However, in schools with a high population of students with chronic illnesses or developmental disabilities, a ratio of one school nurse to 125 students may be necessary." In addition, "School nurse-to-student ratios need to be set to ensure that each student is afforded appropriate preventative, health promotion, early identification and

² FTE = full-time equivalent in years

intervention services.”

**Table 1. Student enrollment and distribution of nurses by school level (as of January 2008)
(D.C. Public Schools only) Key: # = number of schools; N = # of students**

Ward	School Level															
	Elementary School (ES)				Middle School/Junior High (MS)				High School (HS)				Other*			
	#	N	40 hr.	20 hr.	#	N	40 hr.	20 hr.	#	N	40 hr.	20 hr.	#	N	40 hr.	20 hr.
1	10	382	3	7	2	637	1	1	3	2259	3	0				
2	7	1749	5	2	3	980	1	2	2	814	2	0				
3	8	3073	5	3	1	650	1	0	1	1512	1	0				
4	13	3877	4	9	1	312	1	0	2	1431	2	0	1	136	1	0
5	12	2984	5	7	2	564	2	0	4	2552	4	0	4	558	4	0
6	12	3666	5	7	4	1650	2	2	1	854	1	0	1	134	1	0
7	17	4611	15	2	4	990	2	2	1	872	1	0				
8	19	5442	11	8	3	1084	2	1	2	2155	2	0	3	326	1	2
TOTAL	98	25,784	53	45	20	7179	12	8	16	12,449	16	0	9	1154	7	2

*Other includes educational learning centers and schools that primarily serve children with special health care needs

In addition to the nurses placed in each school, there are nurse managers who are selected based on their seniority and nursing experience. They work out of the CSS central office and supervise nurses within the SHNP. Each nurse manager oversees approximately 40 schools. They are responsible for human resource activities such as conducting performance reviews as well as running the program based on the guidelines set by their administrator. At the time of the study, there was one nurse manager each for Wards 3 (along with public charter schools), 7, and 8. In addition, there was one nurse manager for the group of Wards 1, 4, and part of 5 and one for Wards 2, 6, and the other half of 5. Along with human resource management responsibilities, such as ensuring that nurses are properly licensed and competent, nurse managers also intervene on behalf of nurses to ensure that the relationships between principals and nurses are professional. They serve as advocates at the management level to protect students’ health and safety, if necessary.

1c. Organization of the Report

In order to lay the foundation for this comprehensive analysis of the D.C. SHNP, to describe what is working well, and to identify opportunities for improvement, RAND embarked on a partnership with DOH to conduct a baseline assessment of the program. The goal of the baseline assessment was to offer a first “snapshot” of the current state of the program as reported by stakeholders and to provide important groundwork for a more informed, longer-term evaluation of the program. School nurses may provide a number of different and potentially critical services (e.g., identifying children with undiagnosed conditions, giving direct treatment, and offering referrals for outside health services); and it is important to consider the range of these roles in the outcomes-based evaluation of the D.C. SHNP. A clear understanding of the D.C. SHNP is a critical foundation for policy decisions regarding the program.

This baseline assessment report is organized into the following sections:

- A brief summary of our approach/methodology (detail is provided in Appendices A and B)
- An analysis of current school nursing services needed and provided
- An analysis of stakeholder perspectives on the D.C. SHNP
- An analysis of facilitators and barriers to delivery and use of services
- Recommendations for D.C. SHNP and related school health program improvement
- Next steps for evaluation

2. STUDY OVERVIEW

In order to frame this baseline assessment, the subsequent evaluation, and the factors that should be assessed, we developed a preliminary logic model for the D.C. SHNP (Figure 1). A logic model is an ordered, visual approach to presenting a program's resources, services, and outcomes. In this model, we have outlined the following aspects of the D.C. SHNP and the expected outcomes:

Inputs: This includes the resources that have and continue to be invested in the D.C. SHNP program, including staff time.

Outputs: This refers to the services that are provided by nurses as part of D.C. SHNP and the stakeholders (e.g., students, parents, schools, and nurses) who are impacted or served by the D.C. SHNP.

Outcomes: This includes the outcomes that the D.C. SHNP may affect in the short to medium-term (e.g., student health status, D.C. SHNP knowledge and awareness, student uptake of services) and in the long-term (e.g., community-level health indicators). The longer-term evaluation plan seeks to assess these short-medium term outcomes, and provide a foundation within which long-term outcomes may be tracked (see Chapter 7).

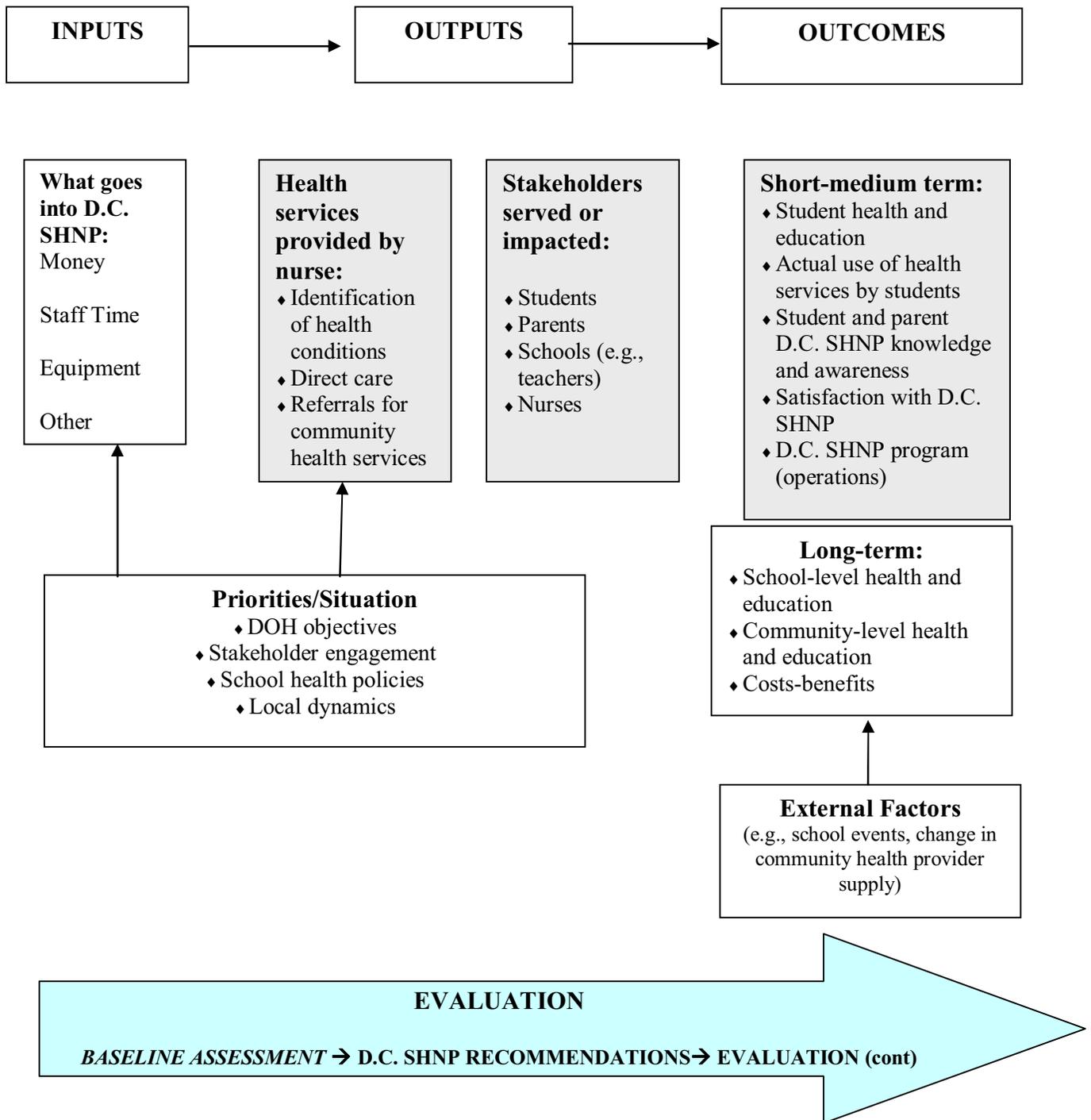
Priorities/Situation: This includes factors that guide the priorities of the D.C. SHNP including the objectives of DOH for the D.C. SHNP, school health policies, and local dynamics.

External Factors: This includes factors that may affect the D.C. SHNP's ability to have an impact on short and long-term health and related outcomes (e.g., the availability of health providers in a community).

Over the course of the baseline assessment, we sought to describe the D.C. SHNP's *inputs* and *outputs* and began to assess whether these activities and processes are perceived to improve child health and related short-term *outcomes*, accounting for the role of city *priorities* and *external factors* (see shaded boxes for focus points of this assessment).

The subsequent outcomes-based evaluation will inform DOH assessment of how the D.C. SHNP is being implemented (*inputs* and *outputs*) and how the D.C. SHNP is achieving perceived and actual *short and long-term outcomes*.

Figure 1. Logic Model for the School Health Nursing Program (D.C. SHNP)



2a. Key Research Questions and Overview of Remaining Report Chapters

Following the structure of this logic model, Chapters 3-5 of this report provide answers to several questions about the current state of the D.C. SHNP, with a focus on gaining a baseline understanding of its *outputs* and developing a menu of relevant *outcomes* (Table 2). Chapter 6 offers recommendations from these analyses for improving the program. Finally, Chapter 7 provides a plan to evaluate the D.C. SHNP over time. The findings presented in Chapters 3-5 should be interpreted within the context of a baseline assessment. As such, our findings are not intended to reflect a complete evaluation.

Table 2. Baseline Assessment-Key Questions and Data Source

Key Assessment Questions	Data Sources	Sample Sizes
<p>OUTPUTS Health Services Provided:</p> <ul style="list-style-type: none"> • What services are being provided? (CHAPTER 3) 	Existing school health data (CNMC)	CNMC Data (n = 134 schools)
<p>OUTCOMES</p> <p>Stakeholders served or impacted:</p> <ul style="list-style-type: none"> • How satisfied are stakeholders with D.C. SHNP's current services? (CHAPTER 4) ◆ What are the perceived impacts of the D.C. SHNP services currently having on students, families, the school climate, and the community? (CHAPTER 4) ◆ What are perceived barriers and facilitators to providing and obtaining D.C. SHNP services? (CHAPTER 5) 	<p>Written surveys sampling students, parents, nurses, and teachers</p> <p>Key informant interviews with stakeholders</p>	<p><u>Surveys:</u> Nurses (n = 92) Students (n = 679) School staff (n = 211) Parents (n = 113)</p> <p><u>Interviews:</u> Principals (n = 8) Teachers (n = 11) Nurses (n = 8) CSS staff members (n = 6) Community health providers (n = 7)</p>
<p>Short-medium/Long-term outcomes:</p> <ul style="list-style-type: none"> • What performance indicators can be used to assess the impact of D.C. SHNP on child health over time? (CHAPTER 7) 	Existing school health data (CNMC)	CNMC Data (n = 134 schools)

2b. Data Sources

The baseline assessment was comprised of three data sources: existing data on the D.C. SHNP using Children's School Services (CSS) information from the last two years of available data (2005-2006; 2006-2007), stakeholder interviews, and stakeholder surveys.

CSS Data

We reviewed the annual statistical reports of school health service provision that are developed by CSS. We analyzed these data to provide a description of services and the numbers of students who are receiving care by type of service using CSS categories (e.g., gastrointestinal, respiratory, or behavioral). We also used this information to map against other D.C. child health data in order to assess how the provision of school health service matches to child health need. This information offered some insight into recommendations about expansions to the program and service provision. These data also informed what type of measures may be useful to include in an outcomes-based evaluation. It should be noted that these data are based on nurse report, and there is no systematic method of validation, a concern we reference later in the report (Chapter 7). While the data have these limitations and potentially great variability by nurse, they provided an important starting point for outlining the current program context.

Stakeholder Surveys

The RAND research staff developed the survey instruments (for students, parents, school staff members, and nurses) in collaboration with members of DOH's School Health Advisory Board (SHAB) which included health care providers, community agency leaders, researchers, parents, and youth. These instruments also were informed by a review of existing school health surveys (see References). Further, the nurse instruments were reviewed by nursing staff at CSS. Parent and student surveys were pilot tested as well for face and content validity. Survey questions included items about use of nursing services, satisfaction with care, facilitators and barriers to obtaining or delivering care, and ideas for program improvement. Surveys were administered in English or Spanish. Further details on each survey and sample characteristics are provided in Table 2 and Appendix A.

Stakeholder Interviews

Key informant interviews provided a targeted, in-depth examination of how nurses and school staff view the D.C. SHNP, identified facilitators and barriers to delivering services, and offered recommendations for program improvement. The information collected in the interviews provided additional context to add to or in some cases to explain the survey results. Interviews were conducted at eight of our sample schools with nurses, teachers, and principals. In addition, we interviewed community health providers about their relationship with school nurses and their role in health service referrals. Further details on interview methodology and sample characteristics are provided in Table 2 and Appendix B.

2c. Study Sample

We used a two-pronged sampling strategy for selecting schools for participation (Table 3). Our projected sample for survey participation was 16 schools. The final *survey sample* included 12 schools, given that four schools did not return the surveys. Eight of the 16 schools were selected to participate in additional stakeholder interviews. Our survey sampling plan sought to balance two factors: 1) coverage by ward for the elementary grade level (the elementary level was chosen based on conversations with DOH about program priorities); and 2) comparability to the average level of students' usage of the school nurse in the same school level within a given ward. Our additional middle and high schools were selected for wards in which there are higher rates of unmet child health need³ based on data from the National Survey of Children's Health (NSCH), using the rationale that nursing services may fill a critical gap in care. By employing this approach for the larger survey sample, we hoped to analyze variation by grade level and ward for elementary schools. Further, this methodology provided a broad cross-section of schools in order to describe the D.C. SHNP's current activities across ward and grade level.

The eight schools in the *interview sample* were selected based on other factors: 1) a mixture of high and low usage of school nursing; 2) high and low numbers of student chronic care issues; and 3) the number of referrals for outside care. This approach offered opportunities to examine the role of the nurse in schools with potentially high and low nursing need and to analyze the referral and linkage process with community health providers. We cannot identify the location of the *interview sample* schools due to human subjects protection, but it should be noted that we included four elementary schools, two middle schools, and two high schools across the city.

Our analyses are limited to D.C. Public Schools and do not include public charter schools. Further, we did not include school-based or school linked health centers in this assessment. While nurses are positioned in public charter schools and in these health centers, we focused this assessment on schools that were representative of the majority of schools and the nursing structure in the city. Therefore, public charters and schools with health centers were excluded, since they do not represent the average experience of D.C. Public School students.

Table 3. Survey Sample (projected)*

Ward	ES	MS	HS
1	√	√	√
2	√		
3	√		√
4	√	√	
5	√	√	√
6	√		
7	√	√	
8	√		√

**We did not receive surveys from four wards (1 ES, 1 MS, 2 HS).*

³ Unmet need was determined based on NSCH questions about missing care when needing services for a condition.

3. STUDENT SERVICE NEEDS & D.C. SHNP SERVICE PROVISION

An initial step for this assessment was to describe the *outputs* of the D.C. SHNP by summarizing the services that nurses currently provided. In order to achieve this, we queried students and nurses about student health needs via survey and analyzed data provided by Children's School Services (CSS). CSS has provided data on the frequency and type of D.C. SHNP visits. While CSS provides these data by school and ward to DOH on a monthly and annual basis, there has been relatively little examination of trends by school level and geography. There also have been limited analyses that match the services that nurses actually provide with their perceptions of students' health needs or the health need of a given ward.

In the next sections, we briefly summarize the main student health needs as reported by our sample of students and nurses. Then, we describe the current activities of the D.C. SHNP with attention to types and numbers of services provided as well as education sessions delivered, using data from the last two school years where complete data were available (2005-2006, 2006-2007). Unless otherwise stated, most of our analyses focus on the data from the 2006-2007 school year. Our analyses are not intended to be evaluative, but rather to provide context for our findings and offer an additional picture of school nursing service provision. Further, these additional summaries highlight a potential way to analyze the data that are currently collected as well as identify other types of measures that could be implemented to track the D.C. SHNP's progress (see Chapter 7). While the data provide a useful starting point, there are a few limitations to note at the outset that are further described in this chapter. First, because the data are aggregated, we are unable to analyze individual health outcomes or link specific reasons for health suite visits with a particular disposition of care. Second, in some areas (particularly health education sessions), we learned that the data may be incomplete because of reporting irregularities. Thus, these findings should be interpreted with caution.

Our next sections summarize the following:

- Student health needs and access to health services
- Health suite visit rates by month, ward and school level
- Disposition of care, including referrals for community health services by ward

3a. Student Health Needs and Access to Health Services

An important component of this study was to understand the context of the D.C. SHNP with attention to students' health needs, their use of health services, and their access to care outside of school nursing. In the next section, we summarize survey findings on these topics.

In general, students rated their health as good, although a significant number reported not getting health care when they needed services.

Overall, the majority of students in our sample indicated that they are in good health. However, the percentage reporting only fair or poor health was sizeable and increased with grade (23% of ES; 28% MS; 40% HS). Chief health complaints over the prior month among the 5th graders included occasional headaches (65%), fatigue (56%), and stomachaches (50%). About 20% of

these students reported some difficulties with breathing. Chief health complaints reported by 5th graders were comparable to 7th graders. High school students (both 9th and 11th graders) reported problems with stress (29%), fatigue (25%), sadness (20%), weight issues (19%), and asthma (17%). Nearly 35% of 5th graders, 38% of 7th graders, and 41% of 9th and 11th graders had missed three or more days of school due to illness. Nearly 65% of these high school students reported engaging in physical activity three days or fewer per week, while 13% never engaged in exercise.

Unmet health need was fairly significant among students in our sample. Approximately 35% of 5th graders, 37% of 7th graders, and 54% of high school students in our sample reported not receiving health care when they needed services. Key reasons for not receiving care included not wanting to miss school (34% ES and MS, 26% HS) and parents not being able to take them for services (23% ES and MS, 18% HS). High school students also reported a reluctance to seek care (40%).

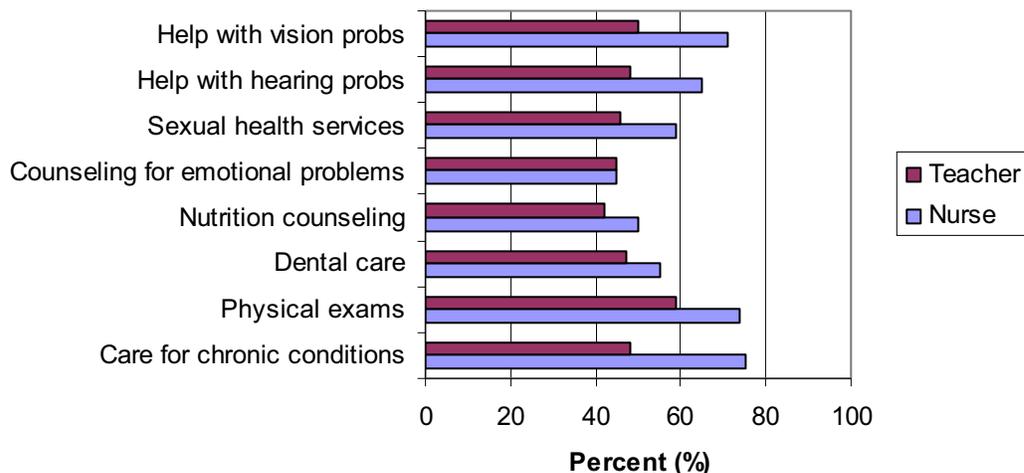
Consistent with city data, emergency department (ED) use was relatively high, with about one-quarter of the sample reporting at least one visit in the past year (22% ES; 29% MS; 29% HS). While most students reported visiting the doctor's office or the school nurse for their most recent illness, ED use was also preferable for some students because that was *where they always went* (38% ES/MS, 46% HS) and *they did not want to wait for care* (47% ES/MS, 26% HS).

Nurses and school staff reported that many students lacked access to adequate health services outside of school.

Approximately 40% of school staff members and 29% of nurses reported that a minority of their students had access to health services outside of school. Notably, more middle and high school staff members were concerned about student access to care than elementary school staff members, and high school nurses indicated greater access issues for their students compared with nurses working in the lower grade levels. Further, CNMC staff nurses identified greater need than agency nurses (35% vs. 21% report less than half of students have a source of care). At least one-third of nurses from all wards, with the exception of Wards 3 and 8, reported that a minority of their students has access to a source of health care outside of school.

Overall, these stakeholders reported that student access to adequate community health services (outside of school) for issues such as care for chronic conditions or dental care was less than optimal (Figure 2). However, nurses generally identified greater availability of community health services for children than school staff members. The largest discrepancies were found in care for chronic conditions, help with vision and hearing problems, and physical exams. It is unclear if school staff members' views about the lack of health services were guided by perceptions or actual experience with students and families. Given that health insurance rates for children are fairly high in the city, further discussion with nurses and school staff to understand the factors that guide their views about student access to care (e.g., other logistical barriers) is needed in follow-up analysis.

Figure 2. Nurse and school staff members’ perspectives on student access to adequate community health services (% reporting that students have good access)

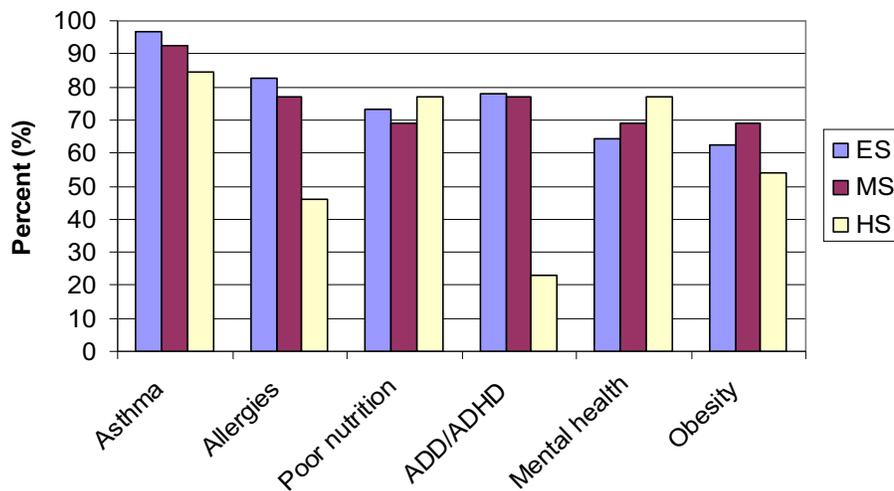


Nurses ranked respiratory and nutrition issues as high priority areas among the students in their schools.

Perhaps not surprisingly given city health trends, asthma and nutrition were identified as priority health issues (Figure 3). As noted, asthma and allergies were significant problems that elementary school nurses address (97%), while mental health (77%) and nutrition (77%) issues were greater concerns for high school nurses. Among all nurses, asthma ranked as the top health concern directly impacting academic performance (82%), however mental health issues were more influential (64%) than nutrition or obesity problems (46%).

In addition to the health needs reported in Figure 3, nurses shared during interviews that health issues that concerned them included mental health, vision problems, dental hygiene, and diabetes. Sexually transmitted diseases were mentioned as an important health need among high school nurses.

Figure 3. Nurse perspectives on the priority health needs of students by school level (% indicating yes)



Students' need for counseling was a consistent theme in the nurse, principal, and teacher interviews across grade levels. The interviews revealed a range of mental health support among the sample schools. Some school staff members reported that their school had social workers or other mental health professionals working part- or full-time. Others reported no mental health support apart from that provided by the nurse. One nurse remarked that unlike licensed practical nurses and staff who are unlicensed, registered nurses (RNs) receive more comprehensive education in psychiatric disorders, and are better trained to provide supportive counseling and to identify serious mental health conditions. In fact, most of the nurses were confident in their abilities to provide counseling services to support students' typical or moderate counseling concerns. However, they would prefer to have access to additional support for the more chronic or severe mental health cases.

Health need and nurse perceptions about need generally corresponded well for asthma, but less so for obesity and behavioral issues.

We also analyzed whether nurse identification of priority health conditions matched actual need as identified by D.C. child health data. Using data from the National Survey of Children's Health (NSCH) (2003 is the last available information), we tracked concordance for three sample conditions-asthma, obesity, and behavioral health. Asthma need was high in wards 7 and 8 (> 10% based on NSCH), and consistent with those findings, more nurses in these wards reported asthma as a health concern for their students (100% respectively) compared to other wards (average of 85%).

Overweight and obesity were major issues in most wards except for Ward 3, yet nurses from Wards 1, 2, 4, 5 and 6 reported that these problems were less concerning than nurses in Ward 3. Further, Wards 5-8 have the highest D.C. obesity rates among high school students (14% to 27% based on NSCH), but fewer high school nurses (53%) indicated that this was an issue compared with elementary and middle school nurses (63%).

For behavioral health, need was greatest in Wards 5-8 (greater than 8% of children needing treatment for a behavioral health issue based on NSCH), but nurses in Ward 8 did not cite these as issues as frequently as nurses in other wards. While elementary and middle schools have several high need areas based on the NSCH (Wards 5-8) relative to high schools (Ward 3 and 5 only), fewer elementary and middle school nurses compared to high school nurses cited mental health difficulties as a priority health issue (65% ES/MS vs. 78% HS).

3b. Health Suite Visits and Disposition of Care

Based on nurses' perceptions of their students' access to health care outside of schools and student and nurse perspectives regarding priority health needs, one may predict high health suite use for particular health conditions. In order to examine whether health suite visit rates correspond to perceived needs, we analyzed the health suite usage data for the 2005-2007 school years to examine health suite visits by time of year, ward, and school level. Table 4 provides an overview of rates of health suite visits, disposition of care, and health education sessions by ward and school level. In the subsequent sections, we describe any notable trends.

Table 4. Rate of health suite visits, types of care disposition, and number of health education sessions provided by school level and ward (school year 2006-2007)

	Health suite visits and education sessions (rate of visits per 100 students)						Disposition of care (% of total visits)								
	Total health suite visits			Health education sessions delivered			Return to class			Call to parents			Referral to provider		
WARD	ES	MS	HS	ES	MS	HS	ES	MS	HS	ES	MS	HS	ES	MS	HS
1	22.4	38.8	17.3	0.9	1.8	0.6	85%	84%	76%	24%	25%	24%	11%	10%	4%
2	29.2	25.1	20.4	1.3	0.1	0.1	91%	73%	89%	46%	45%	24%	6%	2%	1%
3	28.1	35.6	7.9	0.3	0.2	0.1	89%	75%	75%	19%	43%	22%	2%	3%	1%
4	20.8	12.6	9.4	0.9	1.4	0.5	89%	88%	58%	21%	17%	51%	6%	19%	5%
5	18.5	50.9	15.2	0.1	0.3	1.1	85%	89%	81%	27%	19%	28%	7%	3%	6%
6	26.0	17.4	6.8	0.3	0.3	0.8	90%	84%	97%	31%	38%	7%	3%	2%	10%
7	18.7	10.8	8.9	0.1	1.0	0.5	84%	84%	62%	40%	36%	41%	5%	10%	8%
8	15.6	34.4	14.1	0.2	0.6	0.4	87%	86%	49%	27%	26%	58%	7%	8%	3%

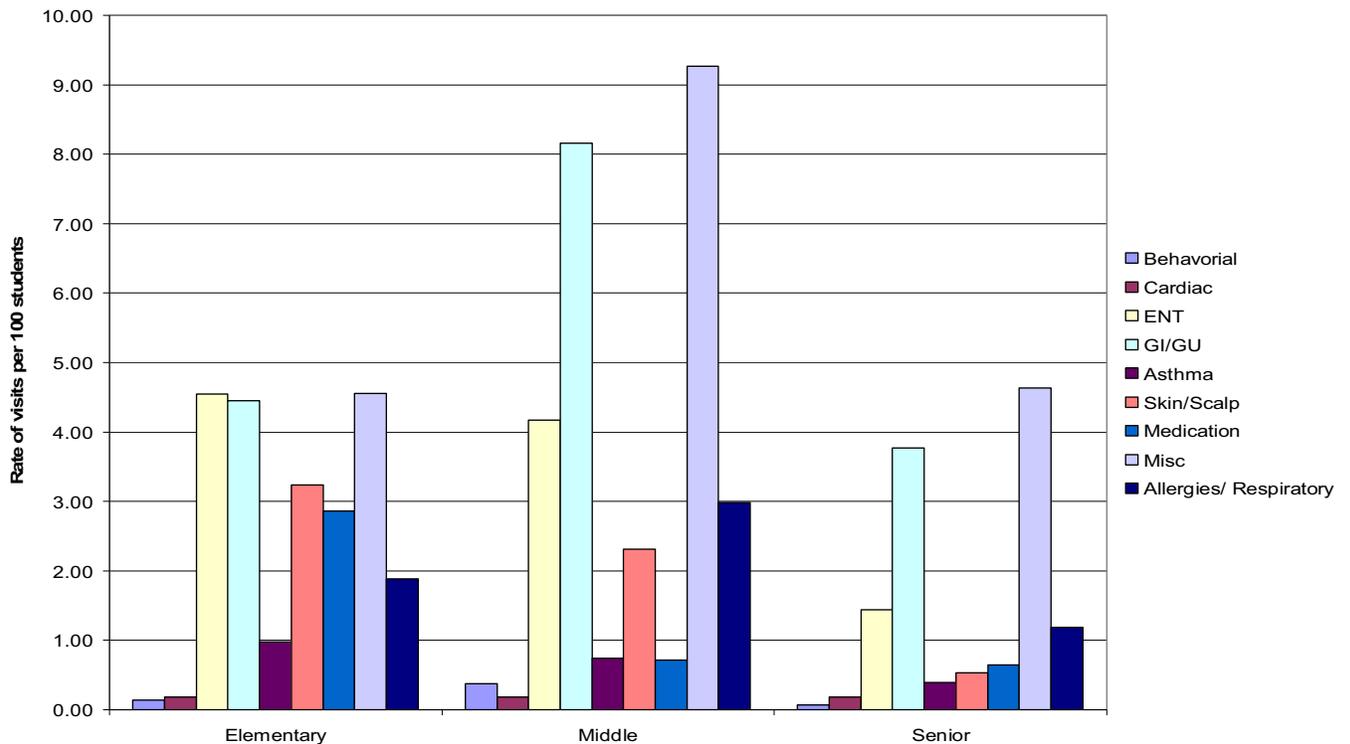
Overall, rates of health suite visits were lower among high school students compared to middle or elementary school students.

There was a slight decline in the rates of health suite visits for students over the last two school years (2005-2006, 2006-2007), but in general rates remained fairly steady. High school students were the least frequent visitors of the health suite (rate of visits per 100 students in 2006-2007 year = 13.2), while middle school students visited the suite the most (27.1) followed by elementary school students (20.7). Among elementary and middle school students, the highest use of suites occurred in March and April. On the other hand, high school students visited the

suites more frequently at the start of the school year, potentially due to sports physicals and related activities.

For elementary school students, common reasons for visits include ear, nose and throat (ENT) difficulties (rate = 4.3 visits per 100 students); gastrointestinal (GI) or urinary (GU) difficulties (combined in CSS data) (4.3), and skin issues (2.8) (Figure 4). Middle school students reported far more GI/GU issues (8.0), and high school students presented with issues that were diverse and were not categorized into existing groups (4.3). There were no significant differences by month in the illnesses presented, although October and November appeared to be months during which there were more frequent GI/GU related visits by high school students.

Figure 4. Health suite visits by reason for visit and school level (2006-2007 school year)



The rate of health suite visits varied by ward and school level, with elementary school use higher in Wards 2 and 3 and visits among older students higher in Wards 1 and 5.

There were some notable trends in health suite visits by ward and school level with differences in reasons for visit. Among elementary school students, health suite visits were more frequent in Wards 2 and 3, and less common in Wards 5, 7, and 8. Medication related visits were more common in Ward 3 elementary schools, while GI/GU visits were more frequent in Ward 6.

Among middle and high school students, the patterns of use by ward changed. Health suite visits were more common in Wards 1 (rate per 100 students = 38.8) and 5 (rate = 50.9). GI/GU and respiratory issues comprised many of the visits in those wards, explaining some of the variation from other wards. For high school students, health suite visits were more frequent in Wards 1

(rate = 17.3) and 2 (rate = 20.4). Consistent with Ward 3 elementary school students, many of the visits among high school students in Ward 3 were medication related. Further, a high percentage of visits in Wards 1 and 5 were GI/GU related.

In most instances, students returned to class after a health suite visit; however, parents were called in approximately one-third of cases.

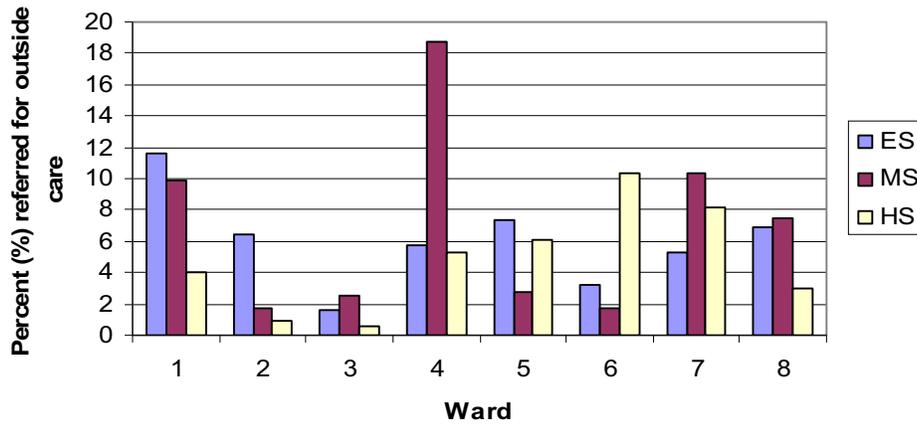
Unfortunately, the current available data did not allow analysis of disposition of care by type of condition. Further, dispositions were not mutually exclusive so it is unclear what the sequence of response may have been. Despite these caveats, these data show useful trends and variations in follow-up.

For elementary and middle school visits, most students were returned to class after visiting the nurse (88% ES, 83% MS). There were no major variations in this pattern by ward, although slightly fewer middle school students were returned to class in Wards 2 and 3 in comparison to other wards. Parents were called slightly more often in high schools compared with elementary and middle schools (29% ES, 31% MS, 35% HS). More high school students were sent home compared to younger students (12% ES, 17% MS, 27% HS). There were notable variations in the numbers of students sent home by ward, particularly among high school students. For example, 50% of all visits in Ward 8 *ultimately* resulted in a student being sent home compared with 11% and 19% in Wards 2 and 3, respectively.

In general, referrals for outside care were more common among elementary school students, yet there were significant variations across wards.

Overall, referrals for outside care were less common in Ward 3 compared with other Wards (Figure 5). The average percent of health suite visits that resulted in a referral to outside care was greater in middle schools (7%) compared with elementary (6%) and high schools (4.8%). Referrals for community health services were more frequent in Wards 1, 4, and 7, particularly for middle school students in Wards 4 and 7. It is unclear if the higher referrals represent more health issues that cannot be treated in the school context, or better linkages with community health providers in those wards.

Figure 5. Referrals for community health services by ward and school level



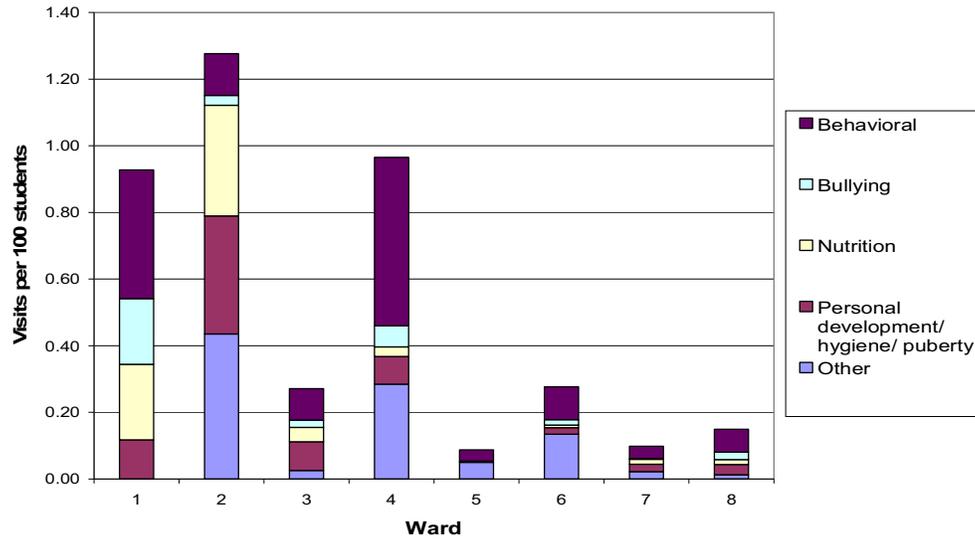
3c. Health Education Opportunities

Consistent with health suite visit trends, the number of health education sessions delivered varied by ward and school level.

The overall number of health education sessions that students received as part of the D.C. SHNP appears somewhat low, though requirements about a minimum number of health education sessions delivered are not well defined. Health education can entail one-on-one counseling in the health suite, classroom-based instruction, or an assembly based discussion of a health issue. Further, it is unclear whether data reporting issues may help to explain these rates (see Chapters 4 and 5).

Health education sessions were more common among elementary schools in Wards 2 and 4 (Figure 6). In Wards 1 and 4, many of these visits were mental or behavioral health related. Nutrition sessions were more frequent in Ward 2 elementary schools.

Figure 6. Health education sessions by ward and educational content (among elementary school students)



Behavioral health education includes counseling and education related to coping mechanisms, eating disorders, gender identification issues, grief management, self esteem, stress management, and substance abuse.

Among middle schools, the health education sessions were more frequent in Wards 1 and 4. Ward 8 schools spent more time on nutrition education. High schools in Wards 5 and 6 reported more opportunities for health education, with a greater focus on nutrition in the Ward 6 schools. Nurses devoted more time to family planning/sexual health issues in Ward 1 and 7 high schools.

4. PERSPECTIVES ON THE SCHOOL HEALTH NURSING PROGRAM

Another component of this assessment was to examine D.C. SHNP *outcomes* as they related to stakeholder knowledge, awareness, and perceived benefits of the program. In this chapter, we synthesize findings from the stakeholder surveys and interviews to describe perspectives on the D.C. SHNP, with attention to:

- overall experience and satisfaction with nursing services
- perceived impact of the D.C. SHNP on health and related outcomes

Where appropriate, we describe areas of consensus as well as divergence among stakeholders. In addition, we share any relevant differences by school level (ES, MS, or HS), ward (particularly for elementary school students given sampling strategy), and staff member role (teacher vs. other school staff member; agency vs. CNMC staff nurse). Recommendations for program improvement are offered in subsequent chapters.

4a. Experience and Overall Satisfaction with Nurse Services

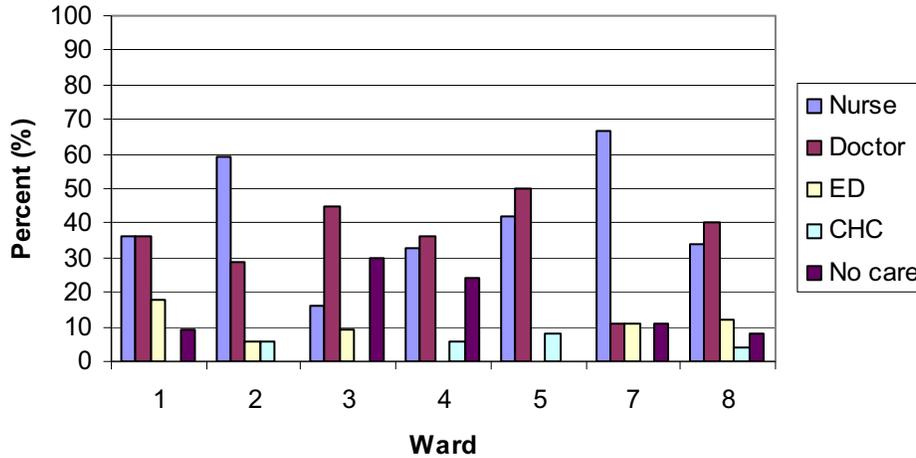
We queried students, parents, and school staff members about their experiences with the D.C. SHNP and their overall impressions of the program. Further, we asked nurses to discuss their perspectives on the program and their satisfaction with their ability to provide services to students. In the next sections, we summarize themes in these content areas as shared in the surveys and interviews from all four stakeholder perspectives.

4a.1. Student perspectives

Students generally reported good experiences with the school nurse and high satisfaction with the quality of care received, however some students would have liked access to additional resources.

Most students in our sample (N=679) visited the school nurse at least once, although visits to the nurse were more frequent among elementary (89%) and middle school (83%) than among high school students (65%). The school nurse was a main source of care among students for their most recent illness (compared with a doctor's office, emergency room, or community health center), particularly among elementary (31%) and middle school (40%) students (less so among high school students; 23%). There was great variation in the use of the school nurse by ward, with more elementary school students in Wards 2 and 7 using the nurse for their care (Figure 7).

**Figure 7. Student reported source of care for recent illness (n=156)
(Elementary school students by ward)**



*Note: Ward 6 school did not return surveys

In general, students reported high satisfaction with the quality of the care that they receive (88% of ES, 81% of MS, 71% of HS). Most elementary and middle school students indicated that they would refer a friend to the nurse if he or she was sick; however, this was less common among Ward 3 elementary school students (60%) compared to other students in our sample (average 85% across other Wards).

There were a few common complaints about services. First, many students shared frustrations that the nurse was unable to provide over the counter medicine (e.g., Advil, Tylenol). Second, several students requested space in the nurse’s office to rest but felt that cots or couches were sometimes not the appropriate size. This sentiment was also expressed by nurses (see nurse perspectives later in the report). Third, students suggested that toys and other items should be available for the younger students so that they would not be afraid of the nurse. Finally, students wanted more health information via educational materials (e.g., Food Pyramid) and health education sessions with the nurse. For example, 5th grade students in our sample overwhelmingly requested assistance on nutrition and sexual health issues, while older students asked for more help on nutrition and mental health concerns. In fact, 80% of elementary and middle school students, and 67% of high school students said that if the nurse talked to them about physical activity and good nutrition, it would help them to change their behavior.

One middle school student shared:

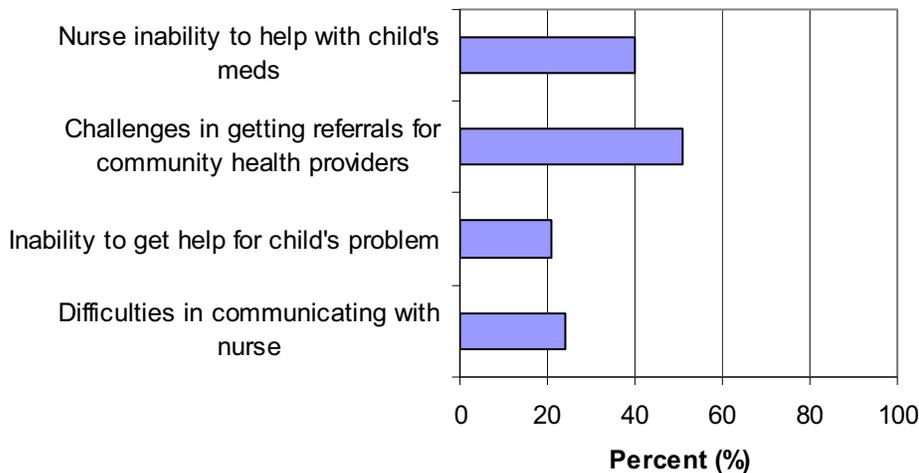
The school nurse should provide health services so she can talk to us about drugs and alcohol and safe sex and hygiene and the nurse can talk to the boys about boy stuff and the nurse can talk to the girls about girl stuff.

4a.2. Parent perspectives

Consistent with students, parents reported satisfaction with nursing services with the exception of referrals to community health providers.

As noted in Appendix A, all parent findings should be interpreted with greater caution given our small, non-representative sample size (one ES, one HS). However, these analyses provide some insight into parental perspectives on the nursing experience. Approximately 60% of parents in our sample reported that their children had seen the school nurse, and 92% believed that their children received good care. Reasons for visiting the nurse included the following: to receive help for an acute illness such as a cold (55%), help for an injury (30%), care for a chronic condition (20%), and help for an emotional issue (11%). Parents were asked to rate the D.C. SHNP on various dimensions including communication with the nurse and follow-up (Figure 8). While parents were generally pleased with their children’s care, they noted some dissatisfaction with the opportunities to obtain referrals for community health providers from nurses and the nurses’ abilities to help with their children’s medications.

Figure 8. Parent perspectives on dimensions of D.C. SHNP (% citing concern) (n=113)



4a.3. School staff perspectives

School staff members reported support of nursing services, however principals and teachers were unclear about the health services provided and reported some dissatisfaction with the overall program.

Most school staff members have referred a student to see the school nurse (92%), with approximately 30% reporting that they referred 11 or more individual students in the past year. Students frequently requested to see the school nurse (40% of staff members reported to have one or more students request to see the nurse each day or at least a few times each week), although teachers noted that some of these requests were likely opportunities to leave class rather than the need for attention to legitimate health concerns. In most cases (59%), teachers granted requests for students to see the nurse. In addition to referring students, most school staff

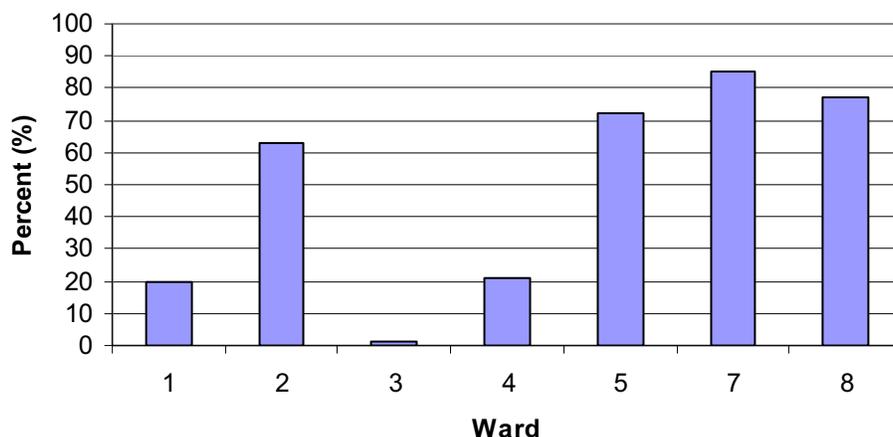
members indicated that they would advise parents to take their children to the school nurse (60%) for health care before going to a doctor's office (35%) or other health facility (5%); this advice was more frequently given among staff members in all wards with the exception of Wards 3 and 4. Reasons for referrals to the nurse were mostly for acute (89%) or chronic illness care (41%), however students were sent to the nurse for mental health or behavioral issues in some cases (23%).

Teachers reported the benefits of being able to send students to seek care from the school nurse when students were experiencing mental health or behavioral problems. Teachers also appreciated the fact that they could focus on the academic aspects of school knowing that the school nurse was handling other student needs. Referrals to the school nurse for behavioral, mild mental health issues, or typical youth concerns were instances when nurses were able to demonstrate their special contribution to the school apart from their skill in addressing physical conditions and injuries.

In fact, about half of the staff members who participated in the surveys gave a high rating to the quality of the health services that their students received, indicating that these students were "helped a great deal" by seeing the school nurse. Further, they reported support of the program (66% very supportive) and that most students were very comfortable with visiting the nurse (71% very comfortable). However, comfort with seeing the nurse decreased with increasing grade, as less than half of high school teachers reported that their students were comfortable with visiting the nurse. Reasons for discomfort as reported by teachers included not wanting other students to know (15%) and not knowing the school nurse (20%).

While staff members reported a need for the D.C. SHNP (88% reported *a great deal*) and satisfaction with services received by their students, approximately 40% rated the overall program as only fair or poor. The lower rating of the program was greater among high school teachers and staff members (65% fair or poor), compared with elementary school (40%) and middle school (26%) staff members. Overall, the lower rating of the overall D.C. SHNP was more pronounced among classroom teachers (55%) compared with counselors or administrative staff (24%). Further, we noted differences by ward in the staff ratings of the D.C. SHNP among elementary schools, suggesting wide variation in the perceived quality of the D.C. SHNP (Figure 9).

**Figure 9. School staff rating of D.C. SHNP among sample of elementary schools (by ward)
(n=211)
(% reporting excellent or very good quality)***



*Note: Ward 6 school did not return surveys

Service provision and health education

Some of this dissatisfaction was related to the perception that the scope of services provided by various nurses was too limited. Teachers reported interest in having nurses involved in more health education and promotion activities (62%). During the interviews, most principals who reported they did not feel that the school nurse was doing “well” in her job shared that their nurses did not serve as educators, particularly given the school setting and the school’s education mission. One principal shared:

I wish I had nurses who would come in and see themselves as educators. I have a nurse who does not see her role as being in a class, or being a nurse educator as far as prevention and health education.

While the range in possibilities for educational programming is wide, many teachers suggested that the school nurse should teach basic hygiene particularly to middle school students. Some principals also indicated that nurses could have a much greater impact on their students if health education sessions were held periodically.

While most of the staff respondents in this study reported visiting the nurse in their school (88%), fewer staff members have taken the opportunity to discuss the services that are provided (54%). Once again, more high school staff members report less clarity about the services offered and fewer discussions with nurses about the health services provided (51% had discussions), compared with elementary (60%) and middle school (61%) staff members. These results held true in the interviews as well, with principals and teachers who reported dissatisfaction with their nurses citing problems with the: 1) lack of nurse communication with parents and/or school staff members, 2) lack of outreach informing school staff members of school nurse services, and 3) lack of nurse visibility (e.g., not formal introduction to teachers).

Nurse performance evaluation and nurse manager contact with principals

One reason for principal dissatisfaction is that some principals have made a choice to pay part of the school's budget to cover half of their nurses' salaries⁴. Yet, many did not feel that they have adequate input into the services that their school receives or any platform for contributing to their nurse's performance evaluation. At the same time, only one principal in the sample of interviewees reported a true partnership with the nurse manager. Most felt that they only needed to talk with the nurse manager when there was a problem, yet they also desired regular contact. Some principals requested an annual visit from the nurse manager to talk about how the nurse could be utilized better.

4a.4. Nurse perspectives

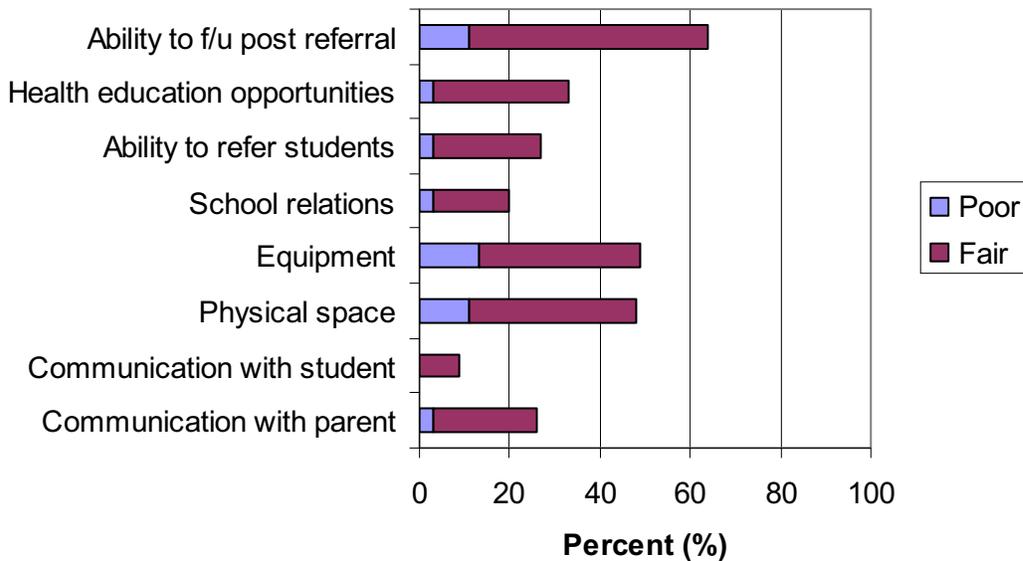
While nurses were overwhelmingly satisfied with their jobs, they reported some dissatisfaction with aspects of the current D.C. SHNP.

Job satisfaction was quite high among D.C. SHNP nurses (93% very satisfied or satisfied), with only slight differences in the level of satisfaction among agency (58% *very* satisfied) versus CNMC staff nurses (42% *very* satisfied). Nurses who only worked in one school were more satisfied with their jobs compared with those working in two or more schools. When asked during the interviews, few nurses reported negative factors related to their job roles or responsibilities. In general, nurses reported that school staff members were supportive of the nursing program in their school, although approximately one-third of nurses noted only moderate rather than high levels of support of the program.

Figure 10 summarizes nurse satisfaction on the quality of specific components of the D.C. SHNP. Overall, nurses reported concerns about their ability to follow-up with students after they are referred for community health services (63%), the quality of their equipment (48%) and physical space (43%), ability to communicate with parents (32%), and their opportunities to provide health education for students (31%). Several of these challenges are described in more detail in the next sections.

⁴ Note that this policy has changed since the time of our study, but initially, schools supplemented funds for full-time nurse coverage.

**Figure 10. Nurse satisfaction with components of D.C. SHNP
(% reporting poor or fair satisfaction, compared with good or excellent) (n=92)**



Health suite quality

There was substantial variation in the nurse suite facilities. Some new suites which appeared adequate were not functional from the nurse’s perspective, because they provided no privacy for students waiting or being treated. When asked, nurses reported that they had not been given any input into the design of their suite. Older health suites had no running water, no heat, and broken windows. While DOH conducts regular suite assessments, there are still some reported delays in addressing each suite’s deficiencies. Nurses also expressed their desire for more privacy for their older patients (e.g., middle school and high school students), who were often forced to use cots made for smaller students in an open room or did not allow for separate accommodations by gender. Some nurses attempted to solve the privacy issue by only allowing one student in at a time when a sensitive issue needed to be discussed. However, this solution was not always possible.

Health education opportunities

Interviews with nurse managers revealed that nurses are expected to provide some health related education to students. However, the actual number requirements are not clear to nurses. Our analyses (see also Chapter 3) indicated that this aspect of the nurse role was not implemented consistently and that there are no regulations about the number of health education sessions nurses were expected to provide. As shared by school staff members, nurses wanted more opportunities to provide health education including focusing on children with high risk of future health problems (e.g., children with high blood pressure, obesity, diabetes, etc.).

Other topics of interest included:

- Sustaining health over a lifetime
- Taking care of your body
- CPR training
- Care of cuts and scrapes

One possible challenge shared was how to schedule these educational events in the context of health emergencies that arise unexpectedly. Additionally, some nurses did not feel that they were well-trained to provide health education to students in a group setting. One nurse stated: “We haven’t received training on how to give a class.” Another consistent refrain from nurses was a lack of the types of materials that would be interesting to today’s students. Some nurses remarked on the outdated audio/visual materials and handouts, “when the kids see the clothing the actors are wearing, it is hard to get them to pay attention.” Additionally, nurses reported that limited access to TVs and DVD players hindered outreach efforts to students.

Nurses shared that they would like the overall school health program (and not simply nursing services) to expand in these areas as well, which may require additional support from outside consultants. For example, one nurse remarked:

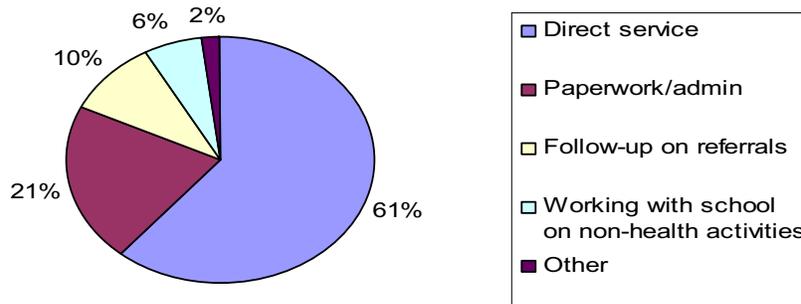
Nurses are being faced with providing services to children with acute/chronic complex health needs in a school setting...we are not expert in all areas especially when it deals with providing health teaching to students. The focus should be that the student is provided with the most recent data, discussed by an expert in that field.

These consultants or experts do not necessarily need to be physicians, since a nurse practitioner would be capable of compiling basic health education materials for any condition. Nurse managers could also assist the nurses to identify resources to fill these gaps.

Administrative duties

Another consistent concern about the D.C. SHNP was the level of paperwork, which nurses must complete to document their activities. Almost all nurses, who were interviewed, reported that there was too much paperwork and that it limits their ability to perform their job effectively. According to nurses in our survey, 21% of nurses’ time was spent doing paperwork and administrative tasks (Figure 11). Given the constant flow of students to see the nurse at many schools, some visits remained undocumented impeding the quality of data and monitoring of student progress. Administrative support for the paperwork and technical support to set-up their computers and upgrade their internet and email systems into operational order were requested. Nurse managers also indicated a need for administrative support and reported consistently working over 40 hours per week to maintain administrative duties. Nurse managers suggested the addition of two administrative staff members to cover the group of managers and offer filing and related support.

Figure 11. Average nurse time allocations (n=92)



Differences in experiences and D.C. SHNP satisfaction by nurse role and school level

There were some notable differences by number of schools that nurses work in, staffing role (agency vs. CNMC staff), and school level. Nurses who worked in two or more schools indicated greater difficulty communicating with parents (47% vs. 22% for those in one school reporting poor satisfaction), interacting with school personnel (35% vs. 15%), providing health education (45% vs. 28%), and offering referrals for community health services (40% vs. 23%). Future research should examine why these experiences are differential, and if variation relates to time availability or another reason.

CNMC staff nurses noted more problems than agency nurses in their relationships with school personnel (25% vs. 14% of agency nurses reporting poor satisfaction) and their ability to refer students to community health services (31% vs. 21%). However, slightly fewer CNMC staff nurses reported problems with follow-up for students post referral (58% vs. 70% of agency nurses). Additional information on nurses' experiences with referrals is reported in Chapter 5.

High school nurses reported more challenges than nurses working in elementary and middle schools in the following areas: communicating with parents and students, collaborating with school personnel, referring students to community health services and providing follow-up, and conducting health education. More middle and high school nurses indicated dissatisfaction with the adequacy and quality of their physical space than elementary school nurses (64% MS and HS vs. 43% ES).

4b. Perceived Impact of D.C. SHNP

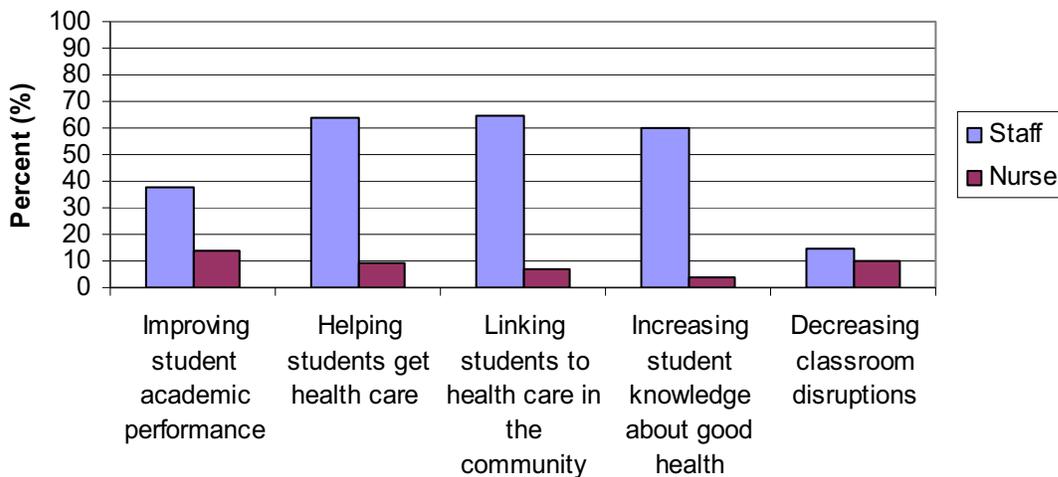
A key research question for this baseline assessment was to describe stakeholder perceptions regarding the role of the program in addressing child health and related outcomes. Our findings indicated some important discrepancies between nurses and school staff members in their expectations for the D.C. SHNP.

Nurses and school staff members were in agreement about the impact of poor health on school performance, but differed on the potential influence of the D.C. SHNP in shaping academic and health outcomes.

There was general agreement among school staff members (59%) and nurses (73%) on the influence of poor health on academic outcomes. Further, school staff members (85%) and nurses (83%) agreed that psychosocial problems including personal or family issues can have a significant impact on school performance. There were some notable differences by ward and school level. School staff members and nurses from Wards 7 and 8, compared with other wards, cited a detrimental impact of physical and mental health on school performance. High school nurses and teachers perceived a greater influence of poor health on school outcomes than staff members and nurses from elementary or middle schools.

While nurses and school staff members were in general agreement that health matters as it relates to academic and related outcomes, their expectations regarding the influence of the D.C. SHNP are vastly different (Figure 12). As described earlier, school staff members generally had more expectations regarding the health services that should be provided in the school setting. School leaders believed that the D.C. SHNP has a significant impact on a student’s academic performance, their ability to obtain community health services, and their general health knowledge. Nurses, on the other hand, were far more cautious about the role of the D.C. SHNP in shaping these outcomes. However, similar percentages of nurses and staff members agreed about the limited role of the D.C. SHNP in reducing classroom disruptions (15% school staff vs. 10% nurses).

Figure 12. School staff members (n=211) and nurse (n=92) perspectives on D.C. SHNP influence on student outcomes (% reporting a great deal of influence)



In the interviews, school staff members were mixed in their perceptions of the nurses' influence on the school culture and on academic outcomes. For example, one teacher shared:

The nurse's impact on the school depends on her personality and individual level of initiative she takes.

Others remarked on a particular nurse's connection with the community:

She knows the community health agencies. That is something we [school staff members] can't address.

Some staff members recognized the value that nurses play in reducing absenteeism, since illnesses are identified more quickly by the school nurse. Other segments of school staff reflected an appreciation that nurses are assuming some of the burden from teachers and principals by talking with students with mild behavioral and mental health issues. The overriding view was that nurses received appreciation and support for the physical and emotional care that they provide. However, increasing student education on health promotion/disease prevention and healthy lifestyle behaviors could have a broader impact.

Nurses and school staff members had varying expectations of the health services that should be provided in school.

Discrepancies between school staff members' and nurses' accounts of the D.C. SHNP's potential for impacting student care may reside in differences between these groups' expectations for which services school nurses should provide (Figure 13-15). For instance, more staff members than nurses indicated that there should be increased focus on nutrition services, counseling, and care for chronic conditions in the school setting. On the other hand, nurses were more supportive of providing contraceptive services than school staff members, even in elementary schools.

Figure 13. Nurse and school staff members' perspectives on health services that should be provided in schools (elementary school)

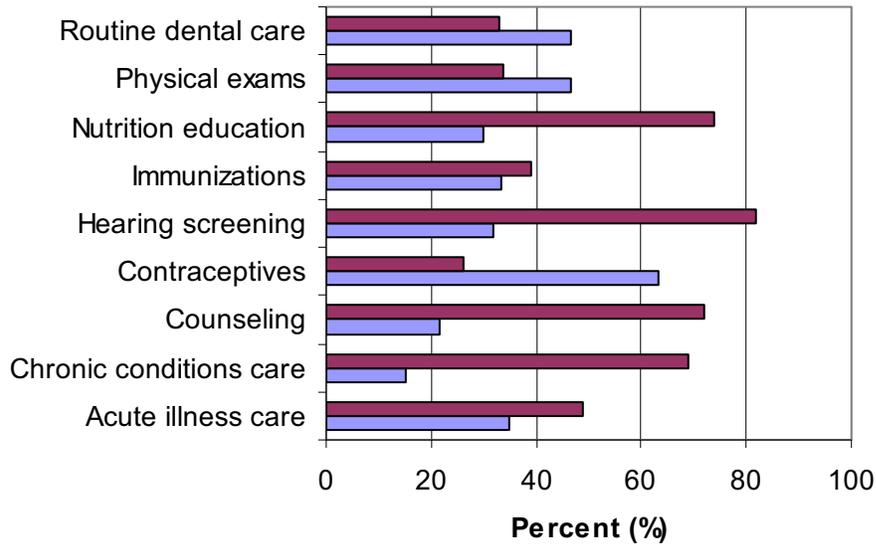


Figure 14. Nurse and school staff members' perspectives on health services that should be provided in schools (middle school)

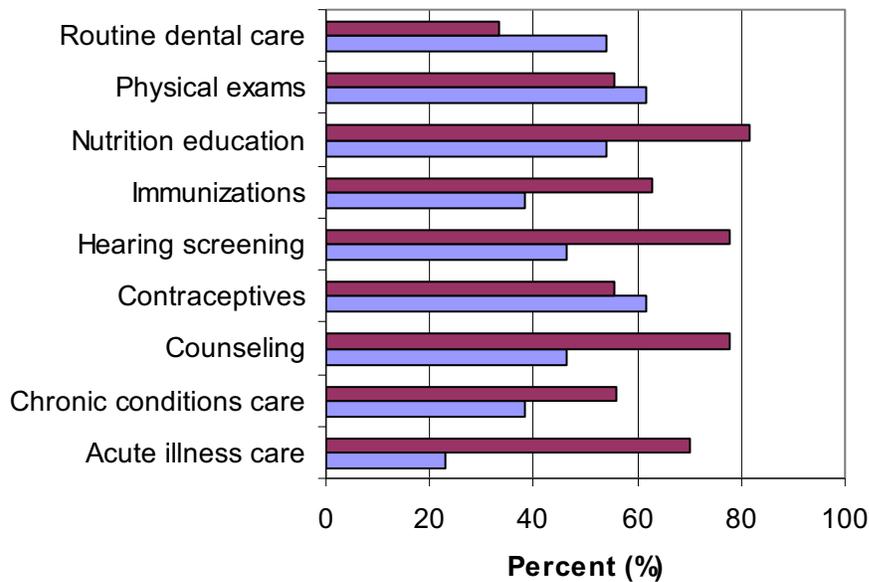
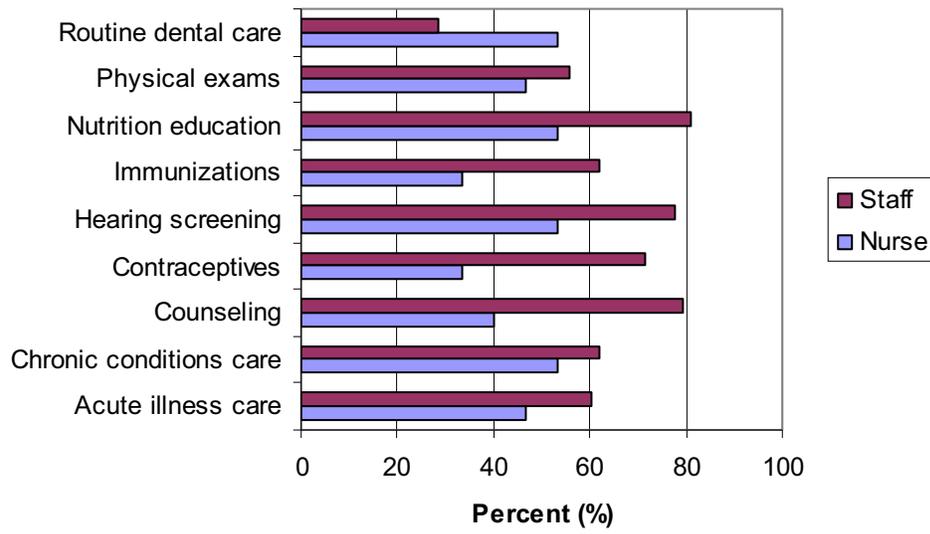


Figure 15. Nurse and school staff members' perspectives on health services that should be provided in schools (high school)



5. FACILITATORS, BARRIERS, AND CHALLENGES TO CARE

In this chapter, we integrate findings from the stakeholder surveys and interviews to describe additional *outcomes* of the program related to facilitators and barriers to care. These issues include:

- access to care and service delivery,
- linkages with community health services and referrals,
- and training needs.

As in prior sections, we describe areas of consensus as well as divergence among stakeholders-by school level, ward, and staff role (teacher vs. other school staff members; agency vs. CNMC staff nurse).

5a. Facilitators and Barriers to Access to Care and Service Delivery

We focused on the processes of service delivery with particular attention to factors that made visiting the nurse easier as well as barriers to care. Further, we asked nurses about their challenges to delivering care in the school setting.

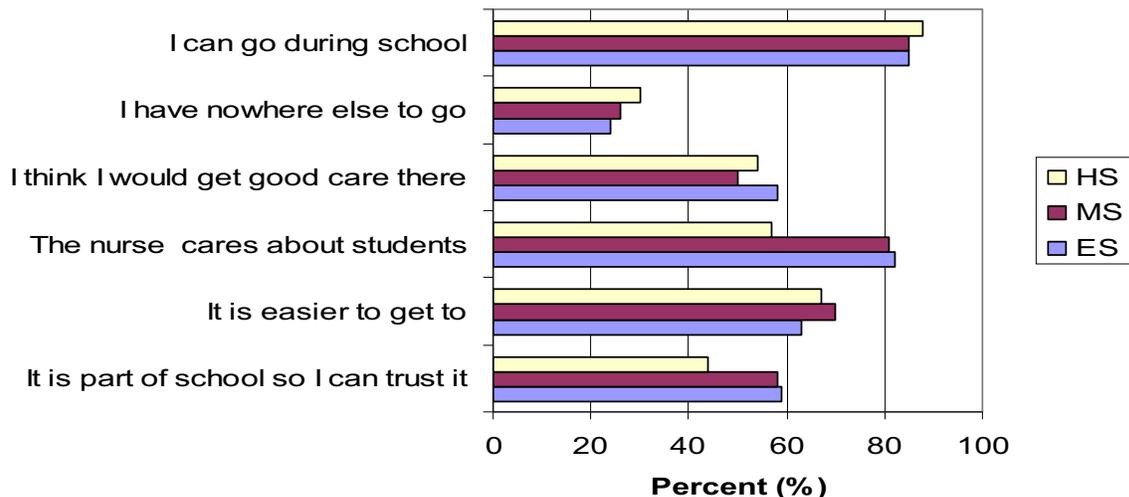
5a.1. Student perspectives

Students reported that easy access to the nurse and a positive experience when in the health suites were primary facilitators for visiting the school nurse, while the health suite schedule was a barrier for some students.

Most students indicated fairly good access to the nurse with few problems obtaining services. For example, very few students reported that teachers would not dismiss them from class to visit the nurse. As described earlier, most students had positive experiences with the school nurse. Facilitators for visiting the school nurse included being able to visit during school hours (85% ES; 85% MS; 88% HS) and a belief that the nurse cares about students (82% ES, 81% MS; 57% HS) (Figure 16). High school and middle school students reported that having the health suite on-site in the school made accessing care much easier. Elementary and middle school students reported that they trusted the nurse because she was part of their school community and that this was a major contributor to them seeking the nurse for care.

A sizable minority of students and in particular middle school students indicated problems when the nurse's office was closed (25% ES; 40% MS; 15% HS), suggesting that current hours may not be sufficient to cover student need for care.

**Figure 16. Student facilitators for seeking care from the school nurse (by school level)
(n=679)**



5a.2. Parent perspectives

Parents reported trust in nursing staff and school-time nurse suite hours as key reasons for having their children visit school nurses.

Parents appreciated that school nursing services are provided. They trusted the nurse because the program is part of the school (58%). In addition, parents cited location within the school (44%) and the fact that their children did not have to miss school to go to a doctor’s office in the community (49%) as important factors in service use. Few parents identified any barriers to care with only 9% reporting that they did not know about the nurse; 12% reporting that they did not think the nurse could help their children with their problem; and 15% reporting that they wanted their children to seek care outside of school.

5a.3. School staff members’ perspectives

Some school staff members reported nurse unavailability as a barrier to care.

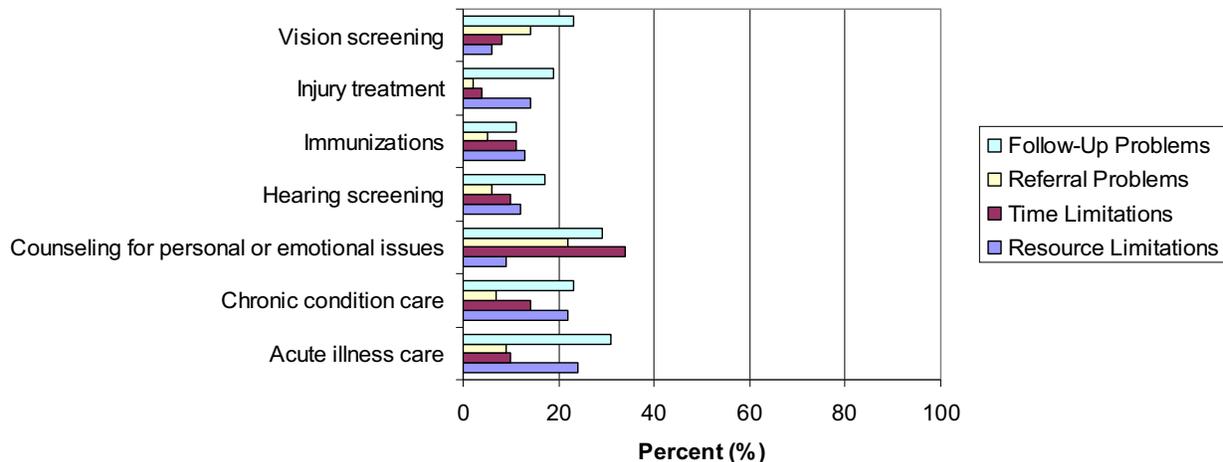
In the school staff member interviews, most principals and teachers responded that lunch-time and during after-school activities were difficult times for students seeking health/medical attention. Most school staff members cited specific instances during which health emergencies had occurred during the nurse’s scheduled lunch hour or outside of regular school hours (e.g., during school-related events). Those who did not report a coverage problem had nurses who did not consistently take a consecutive hour for lunch.

5a.4. Nurse perspectives

Nurses reported difficulties in providing health services, particularly resource problems in providing acute and chronic illness care and overall challenges in follow-up on service referrals.

Approximately one quarter of nurses identified a lack of resources to provide acute illness care and chronic illness care (Figure 17). Specifically, nurses responded that they needed better access to contact information for area physicians and mental health professionals and more callbacks from community providers. For students who were referred to community health services for an acute condition, 31% of nurses reported challenges in following up with that child post-referral. Difficulties in providing follow-up on referrals was a significant problem among all health services, including emotional counseling (29%), vision screening (23%), and chronic disease care (23%). Although not a core function of nursing services, many nurses reported that they are often addressing students' psychosocial issues (83%). However, time limitations precluded (33%) nurses from providing the ongoing counseling students needed with these personal or emotional problems.

Figure 17. Nurse challenges in providing health services (% reporting difficulties) (n=92)



Nursing staff reported that those nurses licensed to administer/dispense medicines outside of school were not permitted to administer medication within the school, which they felt denied students basic services.

In some interviews, questions were raised about nurses' authority and permission to administer or even dispense medications (e.g., pain medication for menstrual cramps) or to provide basic diagnostic services (e.g., tests for strep throat). Although nurses demonstrated sensitivity to the potential safety issues such as unknown allergies or potential student abuse, they voiced their concern that an inability to provide basic over the counter medications without prior authorization from a physician was not logical. Further, children were often sent home from school or kept out of class for illnesses that could be remedied or at least diagnosed without a lengthy delay, if these types of permissions were granted.

All nurses in our interview sample reported that heavy paperwork loads took time or attention from care.

Notation and record-keeping are essential to monitoring program quality and impact. However, many nurses described the paper-work load as onerous when considered in the context of providing care and health education services. Further, nurse managers shared the perception that their paperwork responsibilities were overly burdensome. Based on our observations and the interviews, it appears that nurse managers had large caseloads of nurses for whom they are responsible. The tasks of managing the nurses in their charge coupled with the responsibility of monitoring and making improvements in the program were major time demands. Additionally, nurse managers were required to document their activities and maintain health suite records captured by their nurses, which takes away time from their school health suite visits.

Parental non-compliance with D.C. SHNP policies produced extra work for nurses that in some cases did not improve student care.

Parental non-compliance (e.g., responding to nurse requests for information) was commonly mentioned as a barrier to student care. For example, nurses reported that parental non-compliance was a serious hindrance to maintaining current medication permission and administration records. Nurses shared that these records are to be updated twice per school year. Updating this information requires parents to return to the student's doctor to have the form completed mid-year regardless of whether or not the original prescription was still valid.

Communicating in a multi-lingual city was reportedly a challenge for nurses; and there are difficulties in conversing with parents to help them to negotiate the health care system.

Language barriers also presented difficulties in serving students. In our survey, 20% of nurses reported have difficulty communicating with those whose primary language was not English. Fifteen percent of nurses reported having Spanish language skills, and 14% spoke a second language other than Spanish. This was particularly important because of the growing number of Spanish speakers in the DCPS. Additionally, a few nurses mentioned language barriers for parents when they tried to assist them in applying for health insurance or benefits for their children. These nurses reported assisting parents in navigating the system, but cited challenges in this process due to language gaps.

Some nurses were hindered by inappropriately outfitted or located facilities.

As per policy, school health suites are to be assessed based on the standards set by National Association of School Nurses (e.g., availability of private counseling area, locked file cabinet for records, sink). Though our evaluation did not monitor whether or not these assessments were up to date, nurse concerns about this issue further emphasized that regular assessments are critical. Additionally, the location of the health suite within the building and the condition of furniture and other supplies were issues that emerged during our school observations and discussions with nurses. Some nurses and school staff members shared that there are other rooms in their schools that are suitable to house health suites but that were not utilized because of regulations stating that the suite must remain where it was originally placed.

The lack of developmentally appropriate health education materials limited the delivery of quality health education services.

Several of the students discussed their interest in having more health education materials that are appropriate for their age. Further, students and nurses described how outdated many of these materials are and how challenging it was to use them. Many nurses suggested the need for a TV/DVD player for use in education sessions and as a resource for more current and engaging health education materials.

The lack of timely computer and internet support hampered utilization of time-saving communication methods and access to intellectual resources that could assist nurses in delivering care.

Many nurses reported that they have new computer equipment, which was not properly connected to the internet or did not work properly. In the interviews, nurses described wasting valuable time making phone calls to reach their nurse manager or having to leave the suite to fax documents. Many reported that they had requested technical support to set-up or fix their systems but that help had either not arrived or had taken a long time to address their needs. Consequently, many nurses who were using the automated data system reported sending work-related emails from home or taking D.C. SHNP records home to enter data because their office systems were not functional.

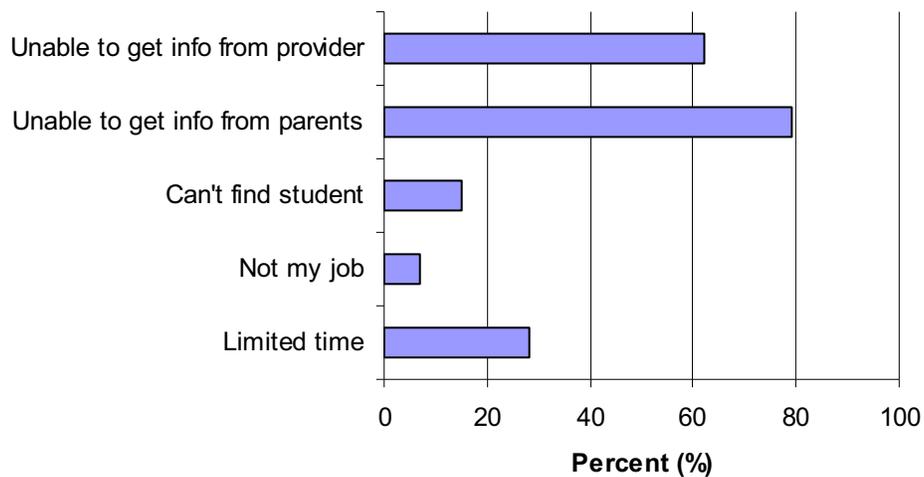
While DOH made a one-time donation of computers, faxes, copiers to nurse suites with the understanding that the principals would not allow the equipment to be used outside of the nurse suites, this arrangement was not well implemented. The agreement with the former DCPS administration was that the DCPS Information Technology (IT) department would be responsible for maintenance of the hardware. Software and software upgrades would be provided through DOH or its contractors. This year, the city's technology office (OCTO) took over computer maintenance and setup services for the schools. These personnel changes and changes in roles and responsibilities between DCPS and OCTO have led to sluggish responses for nurses in need of IT support. It appears that OCTO was not made aware of their responsibilities during the transition to a new DCPS administration. DOH, DCPS, and OCTO have been in negotiation to clarify who is responsible for hardware and software support. At the time of the writing of this report, DOH has been and will continue to be responsible for providing software to the suites and providing hardware to equip the health suites. OCTO is responsible for wiring the fax and internet connections to the nurse suites.

5b. Facilitators and Barriers to Linkages with Community Health Services and Referral Issues

One of the key themes that emerged in this baseline assessment was the difficulty with providing referrals to community health services and conducting follow-up with students once they were referred for care. As described earlier, nurses spend about 10% of their time per week following up on referrals for children (Figure 11).

Given these time allocations, only 38% of nurses reported that they are able to follow-up with referred students consistently. This problem was more pronounced among nurses from Wards 1, 4, 5, and 7. Further, more elementary school nurses were able to follow-up with students in most cases (48%) versus middle (29%) and high school (6%) nurses. While most nurses agreed that the referral process was part of their job, they provided several reasons for difficulties in follow-up (Figure 18), specifically an inability to obtain information from the health care provider (62%) and from the parent (79%). Challenges with completing referrals were heard throughout the interviews with nurses as well. The main barrier that nurses faced in completing a referral was parental compliance. This finding was particularly important given parent concerns that they were unable to obtain referrals for community health providers (51%) from nurses.

Figure 18. Reasons for lack of nurse follow-up (n=92)



5b.1. Nurse perspectives

Nurses reported that although the referral coordinator was useful for health insurance enrollment, they were reluctant to use the referral coordinator's aid for linking students with community health services.

To address the referral problem, a referral coordinator was added during this last academic year to work with parents to link them to health care in the community. The relative recency of the position at the time of our interviews limited an analysis of the true impact of the coordinator. However, to date, the nurses reported a hesitancy to use the referral coordinator until the end of the school year when all attempts to contact parents had failed. Most nurses noted that they have a rapport with the families and thus were better suited to inspire a referral. Additionally, some nurses shared a fear that their families had language and cultural barriers to which the referral coordinator may not have sensitivity. Nurses noted that the referral coordinator was helpful as a navigator for reducing barriers to health insurance enrollment.

Nurses reported that communication with community providers can be challenging, particularly in terms of follow-up; however there is interest in improving the relationship.

After a child is reported to have a communicable disease, the school nurse sends home a form that must be completed by a community health care provider. The child cannot return to school until the nurse receives the completed form documenting that the child has been cleared to return to school. Nurses reported that this documentation routinely comes back since it is required before the child is allowed to return to school. Other information from referrals that were not related to these types of issues that keep children out of school, however, was reportedly more difficult to retrieve. Nurses reported having to rely on parents and even students to inform them of whether or not follow-up care was received.

In addition to increasing communication, nurses and community health providers expressed dissatisfaction with the quality of the communication about student health issues. For example, both nurses and community health providers shared that they did not have accurate and up-to-date information about a student's health problems, their treatment regimens, and medication plans. One nurse noted:

The health certificate is inadequate. Most doctors will not list any diseases the children have including asthma. I have seen students with asthma and a doctor checks 'no problems.'

5b.2. Community provider perspectives

Community health providers indicated that they would like opportunities to engage school nurses in their neighborhoods.

Interestingly, community providers reported similar concerns that once they receive a referral from a school nurse, they are unable to make a referral back to the nurse for follow-up care. Additionally, community providers shared an interest in receiving information on their clients' mental health or behavioral issues, follow-up information on services provided during school (e.g., speech therapy), and chronic disease management that may be occurring in school. For example, community providers indicated that they are not included in Individualized Education Plan (IEP) meetings. Although providers may not always be able to attend, they indicated that they would like to be able to submit recommendations or other input. If some providers did not obtain this information or were not included in these types of meetings, they relied on parents for the date and results of these meetings and often parents were unable to provide these answers. Community health providers reported that nurses rarely contact them. In some circumstances, a parent will come in with a child who has been out of school for three or four days, with a slip indicating that the child should see a doctor. Providers shared that if the nurse had called the office, the process may have been expedited. These providers reported an interest in building communication between their offices and the school nurses in their area. Many community providers did not even know the school that children attended within a short distance of their offices. While Children's School Services has created brochures about the D.C. SHNP, none of the providers interviewed in this study had seen that resource.

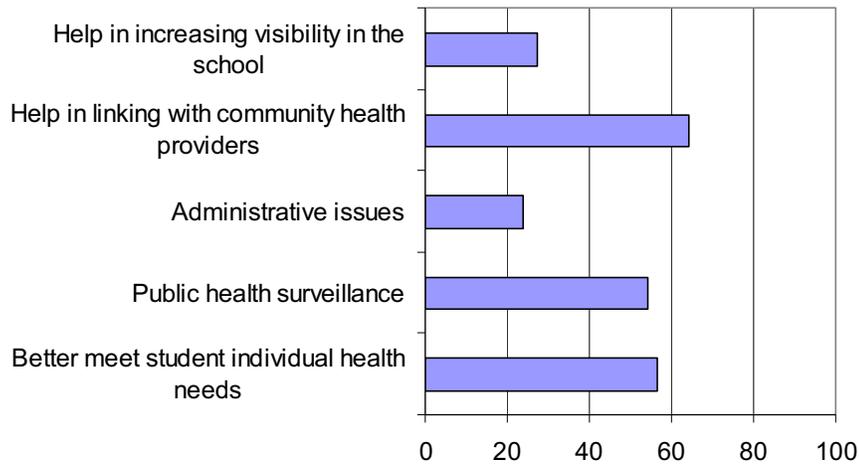
Community providers indicated they would like to talk with school nurses about student behavior problems, counseling needs, and/or developmental issues. They also discussed the option of obtaining a baseline assessment to track their client's life, since parents are not always able to tell providers what was going on in the school, where children spent the majority of their day. These providers noted that the school nurse was needed to fill in the gaps. In some cases, providers simply needed to verify with the school nurse whether or not a service was occurring. For example, a parent may have claimed that his/her child had gone for a speech therapy and audiological evaluation, yet he/she may be unable to provide specific information regarding who was seen, where, and the outcome.

Some of the challenges that community providers related to a lack of clarity about the health structure at schools. Namely, they did not know with whom to speak (e.g., psychologist, counselor, nurse). Community providers voiced a common frustration of calling the school and asking to speak to the school nurse, the receptionist not knowing if the nurse was in that day, and leaving a message they were not sure would reach the nurse. Similarly, nurses reported a need for a concise resource with contact information connecting them to the community providers in their area.

5c. Training and support needs

During interviews and via surveys, nurses identified specific areas in need of more training or support. As reported earlier, nurses noted that support was needed to improve relationships with community health providers (64%). They also requested training to better meet individual student health needs and unique specific health conditions (56%) as well as training in the processes of public health surveillance (54%) (Figure 19).

Figure 19. Areas in need of nurse training or support (n=92)



More middle school nurses requested support to address individual health needs of students compared to their elementary and high school counterparts (77% MS vs. 50% ES and 67% HS). More agency nurses requested public health surveillance process training (60% agency vs. 45% CNMC staff), and slightly more high school nurses asked for this type of training than other nurses (65% HS, 52% ES, 53% MS). CNMC staff members requested more support with administrative tasks than agency nurses (31% staff vs. 16% agency). More middle school nurses identified a need for assistance regarding how to better link with community providers (77% MS vs. 60% ES, 60% HS).

6. RECOMMENDATIONS FOR THE SCHOOL HEALTH NURSING PROGRAM

This baseline assessment also highlighted areas for D.C. SHNP improvement, and generated recommendations for expanding services, upgrading facilities or providing additional resources, improving communication, and increasing training and D.C. SHNP awareness. Further, while the focus of this assessment is the school nursing program specifically, our conversations with stakeholders identified other areas for enhancing school health activities in order to move towards a comprehensive and coordinated school health model. The recommendations presented in this report were generated through synthesis of multiple sources of data.

In the next sections, we outline recommendations in the following areas:

- Nursing service changes or expansions
- Facilities improvements
- D.C. SHNP awareness and communication with school staff members and community health providers
- Nurse training and support
- Other school health enhancements

These recommendations are intended for DOH leaders to consider as potential changes to the D.C. SHNP in partnership with CSS and DCPS. Where appropriate, we identify specific places where principals and school staff could increase their involvement as well.

In Chapter 7, we discuss opportunities for evaluating the health and related outcomes for the D.C. SHNP.

6a. Nursing service changes or expansions

In the following sections, we summarize recommendations related to nurse service expansions and staffing changes regarding administrative and referral support.

Support and encourage flexible lunch hours so that nurses' schedules are more consistent with the school context.

Many principals suggested that the nurse adhere to a lunch schedule that does not coincide with the school's recess and lunch periods. While nurses are assured 60 minutes of lunch, school staff suggested a 30 minute lunch with two 15-minute breaks at other points during the school day. The goal for this change would be to have smaller blocks of "un-covered" time during which the nurse was unavailable during the school day. This is particularly relevant in elementary and middle schools where the length of uncovered time presented a problem for student care. This change may also require rethinking when other designated "medication givers" are available to cover the time when nurses are on break.

Take advantage of nurses within the D.C. SHNP who are licensed to give medicines (for cramps, sore throat, etc.) or rapid strep tests with a standing order from a doctor.

In light of limited resources, it may be useful for the D.C. SHNP to consider taking advantage of their nursing staff's expertise and qualifications more fully such as allowing those school nurses who are licensed to use basic diagnostic tests and administer and dispense medication. Further, policies for garnering parental permission for specific dosages of commonly used over the counter medications should also be explored. At the time of this report's publication, changes to these policies were underway, but it is critical to continue to maximize nurse skill in providing health services to students.

Reduce the number of forms nurses must fill out throughout the day to those that are completely necessary.

As part of this baseline assessment, we reviewed the data that are currently tracked. Our exploration supports the need to reassess the purpose of the data that are collected. The forms should be scaled back to the minimum number necessary for tracking the program's success and planning improvements (see Chapter 7 on core measures that could guide this reduction). Computerizing forms as well as developing care maps and treatment protocols/guidelines are helpful methods for streamlining administrative duties. Additionally, electronic methods for entering the data once rather than transferring information from paper to a data system should be explored once the computer system issues are resolved. The caution here should be to ensure that the electronic process is not cumbersome or onerous.

Change the medication renewal schedule to require only an annual letter from the doctor specifying use and expiration date.

The current policy stating that medication renewal schedules should be updated twice per year should be re-examined. For example, this policy could be changed to a provision for an annual letter from the doctor with the specifications for administration and a clearly stated expiration date for the medicine and the period of its use. Nurses could be required to check regularly to ensure that the period of use has not expired. However, additional validation from the doctor would not be necessary. This policy change would not impact students' safety but would remove the need for parents to schedule an additional doctor's office visit to update a form that is already in hand at the school.

If hiring a second referral coordinator, consider looking for a bilingual applicant. Alternatively, encourage schools to identify a school staff or community member proficient in parents' native language to advocate for students health needs.

As we reported, 1 in 5 nurses reported have difficulty communicating with those for whom English is a second language. While we would also support the need for bilingual training or hiring additional bilingual nurses, if these options are not feasible, we suggest that D.C. SHNP consider second language proficiency as a qualification if an additional referral coordinator is hired. We expect that focusing its attention on hiring an additional referral coordinator who speaks Spanish (for example) and offering that coordinator to parents across the city would allow

more parents to have a resource that can facilitate connections to community providers. Another option would be to consider other ways to improve communication with parents with English language issues. For example, school staff members or community members who are proficient with the language/culture may be able to assist in reaching these families. Anecdotally, this method has been successful in hospital settings (e.g., partnering with churches).

In addition to hiring bilingual staff, our findings indicate that many of the nurses are somewhat reluctant to rely on the referral coordinator for help. Given that our study was conducted early in the introduction of the referral coordinator, further evaluation is needed to understand whether nurses are clear about the coordinator's role and to track the impact of the coordinator on referral rates and linkages with care over time.

Consider hiring two clerks who will be shared among the nurse managers to help with filing.

While nurse managers' experience and expertise is needed to perform their core responsibilities, filing could be delegated to someone else so that managers can spend more time in schools and in working directly with their nurses. For this reason, we suggest hiring two filing clerks who can maintain the filing system housed at the CSS central office, freeing the nurse managers to focus on the program and its nurses.

6b. Facilities improvements

In the following sections, we summarize recommendations related to quality of nurse suite facilities, including computer access, as well as the appropriateness of health education resources and furniture.

Continue to conduct regular quality assessments of the health suites' physical space, equipment and supplies; and include nurses in the design of new suites or the remodeling of existing health suites.

Nurses, particularly those who have been working with a particular population for a period of time, should be involved in designing their workspace. Their experience and expertise provide critical information to ensuring the environment will be conducive for their own success. While the nursing suites are assessed for facility quality, stakeholder concerns about this issue further emphasize that regular assessments are critical. Some issues that arose in this study that would be valuable to include in an assessment are the size and number of cots/beds/chairs; proper computer equipment; privacy for students who are ill and the presence of a private area to talk about health issues or administer shots; and running water and heat.

Purchase kid-friendly manuals and handouts on adolescent issues.

Appropriate and engaging materials and presentation media are critical components of health education. If nurses are to take a more proactive role in providing health education to students, there must be provisions to meet these resource needs. If possible, each suite should be provided a TV/DVD player for nurses to use in education sessions. This particular resource would also be a time-saver to allow the provision of health information without the nurse needing to leave her

post in the health suite or her clinical care duties. Other dynamic and engaging media should also be used to transfer health information. Consider including computer-based health education that engages the students as well as more traditional movies, videos, and handouts.

Closely monitor implementation of the IT contract with OCTO/DCPS to ensure that all computers/fax machines/internet are properly set up and in working order.

While the initial gaps in communication between DOH, OCTO, and DCPS have been addressed and the plan for providing IT services for the school health suites is now in place, there are still significant delays in obtaining services as reported by nurses. Since communication capabilities and data access are critical to monitoring the core functions of the D.C. SHNP, we recommend that this process is monitored closely to ensure success. For example, monthly computer maintenance updates (logs of suites requesting and receiving support) could help to track upgrades and ensure timely response. At the same time, the process for moving from paper to electronic-based system is likely to be difficult for some nurses. SHNP may want to consider developing a phased approach to making this shift.

6c. D.C. SHNP awareness and communication with school staff members and community health providers

One of the key findings from our interviews and surveys is the lack of understanding and clarity regarding the school nurse role. In the next sections, we offer recommendations that would build awareness and improve communication among stakeholders.

Increase school awareness about the D.C. SHNP, including explanations of the school nurse role and responsibilities and information about services provided.

A possible source for the inconsistency between school staff member and nurse expectations and the dissatisfaction among some school staff members with nursing staff is the lack of understanding about the school nurse's roles and responsibilities. While there is a plan for principals to meet annually with their nurses, our analyses revealed that these meetings regularly do not occur. In order to increase awareness and improve communication, the following steps are recommended for consistent implementation across all schools:

- Develop a multi-faceted plan for clarifying the school nurse's role and responsibilities and also for increasing communication and interaction between school nurses, teachers, principals, and other school staff.
 - Provide principals and teachers with a list of the school nurse's role and responsibilities.
 - Provide a template for the annual one-on-one meetings between the principal and the nurse during which the nurse would:
 - Discuss the nurse's role and responsibilities
 - Present the nurse's plans including possible outreach efforts and educational offerings
 - Present potential community building efforts that focus on health concerns

- Obtain principal feedback on performance, expectations, and their concerns about student health and wellness
- Bi-monthly meetings should also be held to continue the interactions and encourage regular communication
- Nurses should involve the school staff in some interactive and creative ways to increase knowledge and understanding of the nurse's role as well as to increase communications and staff/nurse interactions. For example, hold a health suite 'open house' at the start of the school year for school staff and the nurse (and nurse manager, if possible).

Ensure that parents are clear about the nurse role and services provided in school.

Given that most parents are appreciative of school nursing services but are somewhat unclear about connecting with nurses and following through on referrals, identifying ways to communicate with parents about the nurse's role and services is critical. This may be achieved by sharing information with all parents via school orientation packets and back-to-school nights. This information may include the nurse's direct contact numbers and hours available. In addition, a link to the school nurse could be included on the school website. The health suite could be opened during parent-teacher conferences as an opportunity for the nurse to meet with parents of students with health needs. The nurse could coordinate with the teachers to identify those students in advance.

Improve the communication among nurse managers and principals through email as well as face to face meetings.

Principals reported some frustration with the lack of opportunity to communicate with the D.C. SHNP about their schools' needs and provide feedback on nurse performance. **Nurse managers** should visit each school at the start of the school year to meet with principals, discuss principals' needs, and provide a document listing the nurse's roles and responsibilities. This step will improve principals' knowledge of the services the D.C. SHNP provides and offer them an opportunity to ask questions.

Principals also should be encouraged to call nurse managers when they have questions or concerns about the nurse in their school. This will enhance the involvement of principals in school health activities, which is critical to ensuring that students receive needed health services. Principals could also be engaged in evaluating the nurse via a service satisfaction survey.

Enhance communication between nurses and community providers in the areas surrounding schools.

An important step for creating healthy communities for children is to improve the relationship between school nurses and community health providers in the neighborhoods served by particular schools. When asked where their students go for care, nurses in lower-income wards were more likely than those in higher income areas to respond that students received care from providers close to their homes/schools. Therefore, the approach presented in this report focuses on creating linkages with school nurses and community providers within a targeted catchment area. According to the American Academy of Pediatrics (AAP) Council on School Health, the

school nurse is a liaison between school personnel, family, health care professionals, and the community. In addition, the AAP recommends that pediatricians forge working relationships with school nurses to support school health service delivery. However, as shared in surveys and interviews, poor communication between nurses and community providers is an area of concern. In order to enhance communication and the referral linkages, the following suggestions are offered:

- Develop a resource guide for providers and nurses which lists the direct phone numbers of nurses and providers in a given catchment area (by ward, neighborhood, school zone). This resource guide should be regularly updated each year, and could be made available on the school, DOH, and Children's School Services websites.
- Conduct an orientation session at the school, during which providers visit the schools in their neighborhood and meet with nurses. In order to reduce burden, this session could be held at one school in a neighborhood and convene nurses from schools at all grade levels in that neighborhood. Topics of discussion may include: connecting with nurses, engaging in preferred referral and follow-up processes, obtaining information about student health and behavior during school, communicating with parents, and enhancing health education with community provider involvement.
- Hold additional outreach efforts to community providers in the form of visits to providers' offices at the start of the school year. One of the benefits to this approach is that the school nurse could introduce herself to the office staff members, who are the key to getting the physician to fill out forms and respond to calls, etc. This would also be an opportunity to disseminate school nursing program materials for the office staff and for distribution to parents.

In other communities, this type of approach has worked in enhancing linkages. In Maine, school nurses from school-based health centers created primary care provider packets about the services available and then did presentations about the program. While no formal evaluation has been conducted of this effort, early reports indicate that this initiative has increased awareness and improved relationships.

In addition to increasing communication for the purposes of introduction and continued contact, nurses and community health providers expressed dissatisfaction with the quality of the communication they receive related to student health issues. For example, both nurses and community health providers shared that they did not have accurate and up-to-date information about students' health problems, treatment regimens, and medication plans. One nurse noted:

The health certificate is inadequate. Most doctors will not list any diseases the children have including asthma. I have seen students with asthma and a doctor checks 'no problems.'

One recommendation is to engage nurses and community health providers in reviewing the current cadre of forms used to determine which data are most critical and how they can facilitate the exchange of student information. This may be another strategy to foster collaboration.

Although this baseline evaluation did not include a large number of parent surveys or interviews, evident gaps in parental knowledge of the D.C. SHNP suggest that it will be important to enhance communication with parents in the future in order to raise their levels of awareness of the program, its purpose and the array of services. Further, support for the program may also be increased through efforts to better educate the public and public officials. These are areas that can be explored further in the larger evaluation.

Conduct a more in-depth assessment to determine the reasons for: 1) parental non-compliance with health requests for paperwork and referral follow-up (e.g., poor communication, lack of an understanding of the value of referrals etc.) 2) difficulty engaging community providers.

Parents and providers are two critical links to providing students with seamless care. Problems in these linkages were reported at every level during our surveys and interviews. However, solutions for these gaps were not as easy to find. This report has presented a starting point for addressing the gaps in communication and follow-up for parents and providers, but further analysis is merited.

6d. Nurse training and related support

Support nurses in linkages with community health providers. Provide contact information for nurses and community health providers and a systematic process for introducing these professionals to their counterpart within each ward/neighborhood/area code.

As shared in both interviews and surveys, nurses identified a need for additional support to follow-up and communicate with community providers. For referrals, access is key to communication between providers. Many nurses reported in the interviews that they did not know how to reach the providers who provided services to their students. Further, they responded that guidance on how to approach community providers would be helpful to them.

Provide training for nurses, in improving mental health skills and public health surveillance activities.

As shared in surveys, nurses identified a need for additional training to improve mental health clinical skills and in public health surveillance monitoring. The move to electronic health files (e.g., Health Suite) may help to enhance opportunities for tracking disease incidence within schools and across households. Health department leaders and local public health professionals (including local public health researchers) should provide additional training in epidemiology and methods of disease surveillance.

Provide additional training for nurses on how to deliver age-appropriate health education.

A frequently cited reason for not holding health education sessions was that nurses did not feel confident in their abilities. All of the nurses that were interviewed reported that they needed or would benefit from additional training in how to present health education to their students. Particularly, nurses were interested in learning how to make the information entertaining and interesting to children and youths.

6e. Other school health enhancements

As described in Chapter 1, school nursing is merely one component of a coordinated school health model. Stakeholders identified other aspects of school health services that are needed.

Partner with community health providers to ensure that students obtain adequate well-child care.

Many nurses mentioned the backlogs of out of date physical examinations and instances in which students were treated continuously for particular injuries in the health suite because their parent delayed or would not take the child to a doctor. While there is one school-based physician, this is inadequate for addressing the need in all schools. A doctor or nurse practitioner who is either able to come into the suite twice or even once per month would have a powerful impact on reducing or eliminating the backlog and would help students get care more quickly. Alternatively, strengthening the connection with local health providers and engaging doctors as consultants to nurses on difficult cases would help to address some of these issues. As part of ongoing evaluation, it will be important to determine where youth are going for referrals so that nurses can strategically link with appropriate providers who see the majority of students in a given school or cluster of schools.

Expand health education offerings, particularly in the areas of nutrition, mental health and sexual health.

As described in Chapter 3, health education is inconsistently offered across school level and ward, and there are particular areas of the city that have significant health needs but where schools are not providing health education on the relevant topics. Further, students, nurses, and school staff members would like more prevention efforts and health education, but there are limited opportunities to expand these activities. In order to augment health education services, three approaches are needed. First, as part of the initial meetings with principals, **schools** should develop a strategic plan for providing education that is consistent with the perceived needs of students in the school. An annual student survey and discussing the topic at a staff meeting early in the school year (see Chapter 7 as a proposed methodology of the evaluation) could provide insight into the high priority areas requiring more education. Given that we have limited, current child health data in the city, this type of information is needed to ensure that services are truly matching student needs. Second, since nurses have minimal time to provide education services, support from community-based organizations, provider partners, and universities (e.g., graduate students), who could offer expert consultation and fill in gaps in services, could be helpful. However, bringing in outside experts should not be perceived as a way to decrease the school nurse's responsibility for conducting health education. School nurses are uniquely positioned to provide health education when a student comes in for a visit regardless of the reason and this opportunity should be captured. Third, nurses need standard information particularly for high need issues (e.g., nutrition, sexuality, mental health) that they can easily share with students both in classroom and one-to-one settings. In schools in which behavioral health issues are common reasons for visits (e.g., in middle schools), assisting nurses to obtain behavioral health certifications may be one solution. This approach has been implemented in other school districts

(e.g., New Orleans area). Alternatively, ensuring that nurses and DMH staff work together on an annual training in mental health or behavioral issues is important.

Engage school staff members and the nurse (e.g., during a staff meeting) in conversations about priority health topics to address and opportunities for service provision.

While school staff members consider the nurse as a first source of care for students, nurses and school staff members differ in their views regarding the types of health services that should be provided in schools (see Figures 13-15). Given the lack of clarity about nurse roles and responsibilities and interest in more health education, discussions between **school staff members** and **nurses** about the broader expectations for health services in a particular school is merited. In addition, nurses could meet with individual teachers early in the school year to review classroom rosters and discuss any students with specific chronic health issues, for which nurses should be aware.

Principals should consider inviting nurses to staff meetings on a monthly or quarterly basis. These conversations could serve as a springboard for strategic planning and evaluation in order for schools to monitor whether they are meeting particular health objectives at the end of an academic year. If nurses and staff members begin by addressing the health education concerns that they have in common, they may be more open to working together on some of the other more contentious areas once they have developed ideas and had some successes. An example from the Department of Mental Health may prove useful here. Each year, DMH utilizes an annual needs assessment with key school stakeholders to derive needs and plan for interventions including topics for prevention. Clinicians then present the plan to the principal for signature and buy-in to the program. This model could serve as a helpful template for the SHNP.

7. AN EVALUATION PLAN FOR THE SCHOOL HEALTH NURSING PROGRAM

This baseline assessment offers insight into the issues nurses face in delivering care and highlights service changes that stakeholders believe will better meet students' health needs. As a plan is developed to address these challenges, it will be important to study the program's administration and to monitor the impact that program changes have on student health outcomes.

The fundamental goal of the evaluation is to determine the effectiveness (e.g., nature and magnitude of impact) of the D.C. SHNP on outcomes of interest. The basic idea is to analyze variation in the D.C. SHNP and variation in outcomes of interest, controlling for other factors that may influence outcomes.

7a. Overview of Evaluation Plan

We are proposing a two- or three-year outcomes-based evaluation design, which follows the logic model presented in Figure 1. This multi-year plan will allow for analysis of short- and longer-term changes in student health and related (e.g., educational) outcomes. Further, our evaluation design will establish a process for tracking measures in three domains: 1) use of services; 2) direct health outcomes (e.g., management of asthma symptoms); and 3) indirect health outcomes (e.g., attendance rates and use of community health services). The selected domains were drawn from the Child Health Action Plan developed by DOH as well as the D.C. Health Needs Assessment that RAND conducted at the request of the Mayor. In addition to these areas, we propose continuing to document process indicators related to the implementation of D.C. SHNP. These process indicators include resources (e.g., personnel and time) involved in running the program, stakeholder perspectives, and changes at the school and community levels.

The proposed evaluation plan includes two components to assess processes and outcomes. The first component focuses on assessing the program's administration and impact. The second component focuses on monitoring stakeholder perspectives towards the D.C. SHNP. Each of the two prongs combines quantitative and qualitative approaches, primarily record review, staff time logs, user surveys, and stakeholder interviews. In the next section, we will outline these two approaches with attention to outcomes measured and data collection strategies.

Our baseline study provided critical information relevant to D.C. SHNP program implementation. However some issues highlighted in this initial investigation require longer-term follow-up. For example, health suites have undergone a transition from 20 hours to 40 hours of coverage per week, which is becoming the norm for the majority of schools in the district. Analyses of the baseline interview data, suggest that 40-hour coverage is most desirable by school staff who, as a group, value having a nurse to handle health related issues freeing up other school staff to focus on academic, behavior, and management issues. However, preliminary baseline results were less consistent when participants were asked about the level of education and licensure the school nurse position required (e.g., RN vs. LPN). Additional information is also needed to make an informed recommendation on the depth of coverage needed (i.e., the number of nursing staff required to service a school given the school's population). Clarity related to the level of education and licensure needed and staffing needs are important in the current climate in which RNs are in short supply. Further, the current practice

of achieving 40 hour coverage by scheduling a split shift between an RN and an LPN has yet to be studied for efficiency and continuity of care.

To address these types of issues, this evaluation design includes quantitative and qualitative approaches. These approaches will be utilized at 6-month and 12-month intervals to observe shorter and longer term changes as well as to offer data for continuous quality improvement (CQI). As an additional value, our design introduces demonstration pilot projects based on findings from the baseline assessment that may improve school health service delivery (See Section 7c.).

7b.1 Data Collection Samples and Strategies

Data will be collected from either the *general sample*, which includes all schools, or the *intensive sample*, which comprises a subsample of schools. Our intensive sample from the baseline assessment included elementary, middle, and high schools (i.e., grades 5, 7, 9, and 11). The schools included in the intensive sample for the baseline assessment were selected to have comparable characteristics to control for potential confounds to the assessment of D.C. SHNP's impact. The same intensive sample could be followed during the course of the 2 – 3 year evaluation. The proposed sampling strategy would provide maximum representation for a core set of measures, while also allowing a cost-effective means for gathering a larger set of measures in a representative sub-group of schools.

Specifically, the *intensive sample* will afford us three unique opportunities not captured in the general sample:

- We will be able to conduct more thorough tracking of a sample of students who use the D.C. SHNP-whether they received satisfactory care, whether they were able to access services via school nurse referral, etc.
- We will be able to assess health-related outcomes (e.g., school absenteeism) at an individual level.
- We will add qualitative information from stakeholder interviews that help to inform D.C. SHNP recommendations and ideas to test in shorter CQI cycles.

7b.2 Assessing Program Administration and Impact: Quantitative Approaches

The goal of this component of the evaluation is to track the implementation of services (*inputs* and *outputs*) and link those to the impact of the D.C. SHNP (*outcomes*). Table 5 summarizes the key evaluation questions, sample measures, and data collection strategies for the quantitative component.

Table 5. Evaluation questions, measures, and data collection methods for quantitative component

Evaluation Question	Example Measures	Data Collection Methods	General or Intensive Sample only	Timing of Data Collection
Inputs: Resources invested in D.C. SHNP				
How do nurses spend their time?	-Expenditure of time on direct care, non-clinical demands, training -Policy changes - Investments in nurse training	-Nurse Survey	-General sample	Every 6 months
Outputs: Activities of D.C. SHNP				
How efficiently and effectively are the components of the program being implemented?	-Rate of usage -Number/ type of educational sessions -Number/ type of health-related issues discussed by non-nursing staff -Number of vision screenings relative to student pop eligible	-Logs of services delivered (aggregate) -Services delivered for those with chronic conditions (individual)	-General sample	Annually
Outcomes: Health and related outcomes				
Is the program making a difference in children's <u>health</u> outcomes?	-Rate of asthma complications -Rates of obesity -Pregnancy Rates -Use of primary care services	-Disposition data (aggregate level)	General sample	Annually
		-Disposition, follow-up, and quality data (individual level)	Intensive sample	Every 6 months
What effects are the D.C. SHNP services currently having on students, families, the school climate, and the community on <u>health</u> related outcomes?	-School absenteeism -Suspensions, disciplinary referrals	-Individual data on subsample of D.C. SHNP users (Health Suite software)	Intensive sample	Annually

Measures

Inputs: Resources invested in program.

It will be important to continue to track the resources allocated to the D.C. SHNP. These data provide context for assessing changes in health outcomes and determining whether variations in staffing, service delivery time, and expenditures contribute to differences in the program's impact. In particular, more information is needed on:

- nurse time providing direct services including health education,
- nurse time completing administrative tasks,
- coverage of health-related issues during “off-time” (e.g., nurse sick days, lunch, after-school activities)
- funds allocated to facility upgrades and maintenance per health suite,
- in-kind resources, if any, provided by school, and
- relevant policy or protocol changes (e.g., medication administration),
- time invested in nurse training.

Outputs: Activities of D.C. SHNP

In order to describe D.C. SHNP activities, we propose tracking two types of process measures: 1) service delivery at the aggregate level to examine general trends by school level, zip code, and ward; and 2) service delivery for individual students by health condition (e.g., asthma). Ideally, the output measures would be guided by a set of core competencies that nurses must meet in accordance with NASN, including standards around managing health emergencies in schools, addressing acute health needs, public health surveillance and techniques, and health education.

Service delivery (aggregate)

CSS tracks summary counts of services delivered by school on a monthly, semi-annual, and annual basis. These data can be useful to assess general trends in service delivery by school level (elementary, middle, and high) and location. As described earlier, nurses spend a significant amount of time recording visits in several categories, but this list should be revisited to distill the most important variables that provide a clear picture of where resources may be needed. The team making these determinations should include a cadre of interested nurses, preferably those with more education and some understanding of quantitative methods and/or sensitivity to the importance of standardized data collection.

Measures related to health services delivered include:

- Services delivered for acute issues
- Services provided for children with chronic health issues (e.g., # with medication plans)
- Services delivered for non-physical issues (e.g., behavioral concerns in classroom)

Currently, health education and counseling data are not well-tracked and are difficult to analyze because there are no common categories for recording data. In order to obtain a consistent and accurate accounting across schools regarding the types of education services delivered, the data gathered should match the guidelines used for D.C. Health Education Standards (developed by

Office of the State Secretary of Education, OSSE). For example, categories may be used with an indicator for tracking one-on-one, classroom, or school assembly educational sessions in these content areas:

- Hygiene (includes developmental changes, puberty)
- Mental or behavioral health (includes substance use)
- Nutrition
- Sexuality or reproductive health
- Peer and family relationships

Service delivery (individual)

Currently, the data that are collected on a monthly basis for the D.C. SHNP track overall processes (e.g., numbers screened for vision problems, numbers who are seen for GI problems), but not individual use of services. In order to assess outcomes for students who are “frequent fliers” or common users of school nursing services, it is also critical to track the services delivered for a sample of these students across schools. Using Health Suite software, services provided for a smaller sample of children with chronic health conditions (e.g., asthma, behavioral issues such as ADD/ADHD, obesity) or needing monitoring (e.g., pregnant students) would serve as a subset of this analysis and could be linked to the outcome measures described in the next section. This would allow some tracking of visits vs. users, in order to determine who is using the services of the nurse and why. Health Suite software for electronic tracking of student health service use, disposition of care, and other outcomes is in development and is set to begin Fall 2008. We may be required to modify our plan depending on the actual launch date for this software.

Outcomes: Health and related outcomes

The process data on service delivery should be coupled with outcomes data at both an aggregate and individual level. These outcomes data can be categorized into health and health-related (e.g., absenteeism) outcomes.

Disposition data (aggregate)

While CSS currently tracks disposition of care data, we are currently unable to link those data to the types of health conditions seen in the suite or the services delivered. Consistent with the analysis of service delivery trends by school level and location, we recommend tracking disposition data by the categories listed earlier (acute, chronic, and non-physical issues). These data will provide an important picture on the follow-up on particular types of cases (i.e., how often are acute cases returned to class).

Health and educational outcomes (individual)

We do not have complete data on the follow-up on individual cases nor on the disposition of certain illnesses. In order to improve the monitoring and evaluation of the program, it is essential that we are able to determine the quality of services for individual student outcomes.

To that end, tracking disposition, health quality, and educational data on the selected subset of students (described in the service delivery-individual section) is important.

Disposition data includes the types of follow-up data currently collected with a couple of additions to assess whether there is continuity of care:

- Return to class, follow-up with parents, referral to outside care (*currently collected*)
- Follow-up with parent post receipt of community health services (*suggested additional measure*)
- Update to health care plan provided to nurse by the community health provider *OR* nurses' attempts to obtain the update to care plan from provider (e.g., nurse sends f/u letter to provider requesting update of care plan) (*suggested additional measure*)

The Health Suite software, which allows some analyses by individual record and ward, represents an important first step in achieving this objective; however, it will be important to link these data directly to an action plan (i.e., a process of immediate program improvement which can be tested).

Health quality data are not collected currently, but would offer insight into whether student needs are effectively addressed by the D.C. SHNP. Two to three data fields could be added to the D.C. SHNP student database for an assessment of health outcomes. For example, a field could be included reflecting whether or not a student is having complications in terms of managing daily school activities as a result of his/her health condition. These questions could be asked directly of students following a nurse suite visit (via short written survey) or could be added to the Health Suite software as a check box when health suite visits are recorded for usage counts.

Health related outcomes data include educational variables that can be impacted by poor health. For example, school absenteeism, discipline referrals, and suspension rates could be analyzed for the sample of students who are frequent D.C. SHNP users.

Data collection methods

The following sections briefly describe the three data collection methods outlined in Table 5.

1. CNMC Staff Time Logs. Information on staff time spent providing services will be logged and collected every 6 months. The data on health services delivered and student health outcomes will be combined with staff time logs (as well as other resources expended to the extent possible) to assess D.C. SHNP benefits relative to resources used for the *intensive sample* analysis.

2. CNMC Service Use Data and Student Record Review: Service use data will be gathered annually from all school nurses/CNMC to describe service delivery and disposition of care (*general sample*) and child health outcomes (*intensive sample*). The performance metrics dashboard (see later) may serve as a tool for summarizing D.C. SHNP service delivery and outcomes data.

3. Educational Outcomes Data: Education data related to child health (e.g., absenteeism rates) will be gathered for the sample of students in our *intensive sample* to track how D.C. SHNP service use relates to improvements in health and education.

7b.3 Stakeholder Perspectives on the D.C. SHNP: Qualitative Approaches

The second component of this evaluation uses qualitative methods to capture stakeholder perspectives and satisfaction with care. Table 6 summarizes evaluation questions, measures, and methods for this component.

Table 6. Evaluation questions, measures, and data collection methods for qualitative component

Evaluation Question	Example Measures	Data Collection Methods	General or Intensive Sample only	Timing of Data Collection
Outputs: Activities of D.C. SHNP				
What is the state of the D.C. SHNP? What are operational issues?	-Operational challenges	-Stakeholder interviews (nurse, student, parent, teacher)	-Intensive sample	Annually
		-Protocol review	-General sample	
Outcomes: Participant perspectives/experience				
How satisfied are stakeholders with D.C. SHNP'S current services?	-Satisfaction with availability of services	-Short surveys with students (users and non-users)	-General sample	Annually
What are perceived barriers and facilitators to providing and obtaining D.C. SHNP services?	-Barriers to obtaining referrals	-Stakeholder interviews (nurse, student, parent, teacher, community providers)	-Intensive sample	Annually
Outcomes: Health and related outcomes				
What effects are the D.C. SHNP services currently having on students, families, the school climate, and the community?	-Perceived benefits of D.C. SHNP	-Stakeholder interviews	Intensive sample	Annually

Measures

Outputs: Activities of D.C. SHNP

In addition to the service use data to describe D.C. SHNP activities, it is important to examine any operational issues confronting the program. These data provide a richer picture of how the D.C. SHNP is running, and where improvements can be made. In the short-term, these data can inform small changes to the program, which can be assessed early to determine impact and whether these modifications should be retained. Specifically, we are interested in any challenges in the following domains:

- Nurse suite facility-physical space
- Medical supplies
- Health education resources
- Information technology
- Access or linkages to community health services
- Other operational issues

Outcomes: Participant perspectives/experience

In order to assess stakeholders' experiences with the program, annual surveys and interviews with CSS staff as well as within a sample of schools will gather information from nurse managers, nurses, students, parents, and school staff on the following:

- Barriers and facilitators to delivering services (nurse managers, nurses)
- Barriers and facilitators to obtaining services (students and parents)
- Satisfaction with services (students, parents, nurses, school staff)
- Experience with health education (students, parents, nurses, school staff)

Community providers may be surveyed about barriers and facilitators to follow-up care. The baseline assessment questionnaires provide most of the questions needed to collect these stakeholder data for the longer-term evaluation.

Our baseline assessment revealed some important differences in nursing experiences by the number of schools worked in as well as staffing role (agency vs. CNMC staff). In the upcoming academic year, it may be important to continue to track how these nurses are faring and what barriers continue to be experienced. For example, agency nurses and CNMC nurses reported varying degrees of difficulty in linking students with community health providers and in their interactions with school personnel. Moving forward, it will be useful to address these challenges and subsequently to assess whether improvements can be made that will benefit all school nurses. In addition, our baseline assessment suggested the importance of reassessing the referral coordinator roles and responsibilities at the beginning of the coordinator's second academic year of service.

Outcomes: Health and related outcomes

In addition to nursing service experience, stakeholders would be queried regarding the perceived benefits of the D.C. SHNP, including views on health education services that are provided by the nurse.

Data collection methods

1. Protocol Review. Any D.C. SHNP protocols or policies that are introduced or revised over the course of the evaluation period will be reviewed. These documents include regulations, statutes, standard operating procedures, and training materials. These data will assess the changes in program outputs or activities and will allow for accurate interpretation of health and related outcome findings.

2. Short Surveys with D.C. SHNP Users and Non-Users: Short surveys with students served by the D.C. SHNP will be administered at all schools (*general sample*) and reviewed once per school year to assess program improvements and satisfaction with services. This is a key part of continuous quality improvement. Satisfaction and service use questions asked in the baseline surveys will be used over the course of the evaluation. In order to ensure adequate input, D.C. SHNP users will be oversampled. This method could also provide information for planning purposes in subsequent years (e.g., types of health education to offer).

3. Stakeholder Interviews: A sample of stakeholders (students, parents, teachers, and nurses) will be interviewed annually at each of the *intensive sample* schools. Stakeholders will be interviewed to gather more depth about the D.C. SHNP services and where improvements can be made. In addition to these stakeholders, selected community health providers who serve the student population will be interviewed to document any changes in practice that may be attributed to the D.C. SHNP.

7b.4 Performance Metrics Dashboard

As described in prior sections, this evaluation design will address key questions by gathering data on student use of services (process or *outputs*), health *outcomes*, and indirect health *outcomes* (e.g., absentee rates). The selected measures will comprise a performance “dashboard” for the D.C. SHNP (Table 7) to establish a set of metrics that assess the D.C. SHNP’s performance across multiple dimensions and from various stakeholder perspectives across schools. A dashboard allows for “quick” analysis of the current state of the SHNP, and where there are gap areas by distilling to a relatively simple set of core indicators of the status of the program and its impact. The dashboard’s major dimensions follow the outputs (e.g., process measures) and outcomes of the logic model and include performance from the perspective of:

1. student health status
2. student health education
3. student school performance (e.g., absenteeism)
4. student access to health care in the community
5. satisfaction with health services
6. D.C. SHNP operations

Many of these data are already tracked by the D.C. SHNP; while other information is not currently part of the D.C. SHNP's data collection process (e.g., cost per student). In Table 7, we have organized the dashboard measures by their potential sources (described earlier in Section 7b.2 and 7b.3)—D.C. SHNP aggregate data (service delivery and outcome data at the aggregate level across schools), D.C. SHNP individual level data (service delivery and outcome data for the individual subsample of students), school record, and student survey.

Table 7 presents our suggestion for metrics to be included in the dashboard. While this list takes into consideration a desire not to overload nurses with onerous data collection burdens, this dashboard can be broadened with other child health metrics to inform strategic planning for school health service provision. Further, we believe that it will be critical to begin to integrate data on child health from multiple sources, namely school nursing (D.C. SHNP), more frequent annual child health surveys that currently do not exist for D.C., and school records to track the link between health and education. This process would aid in our understanding of where gaps in child health services truly exist and could link with DOH's existing Child Health Action Plan.

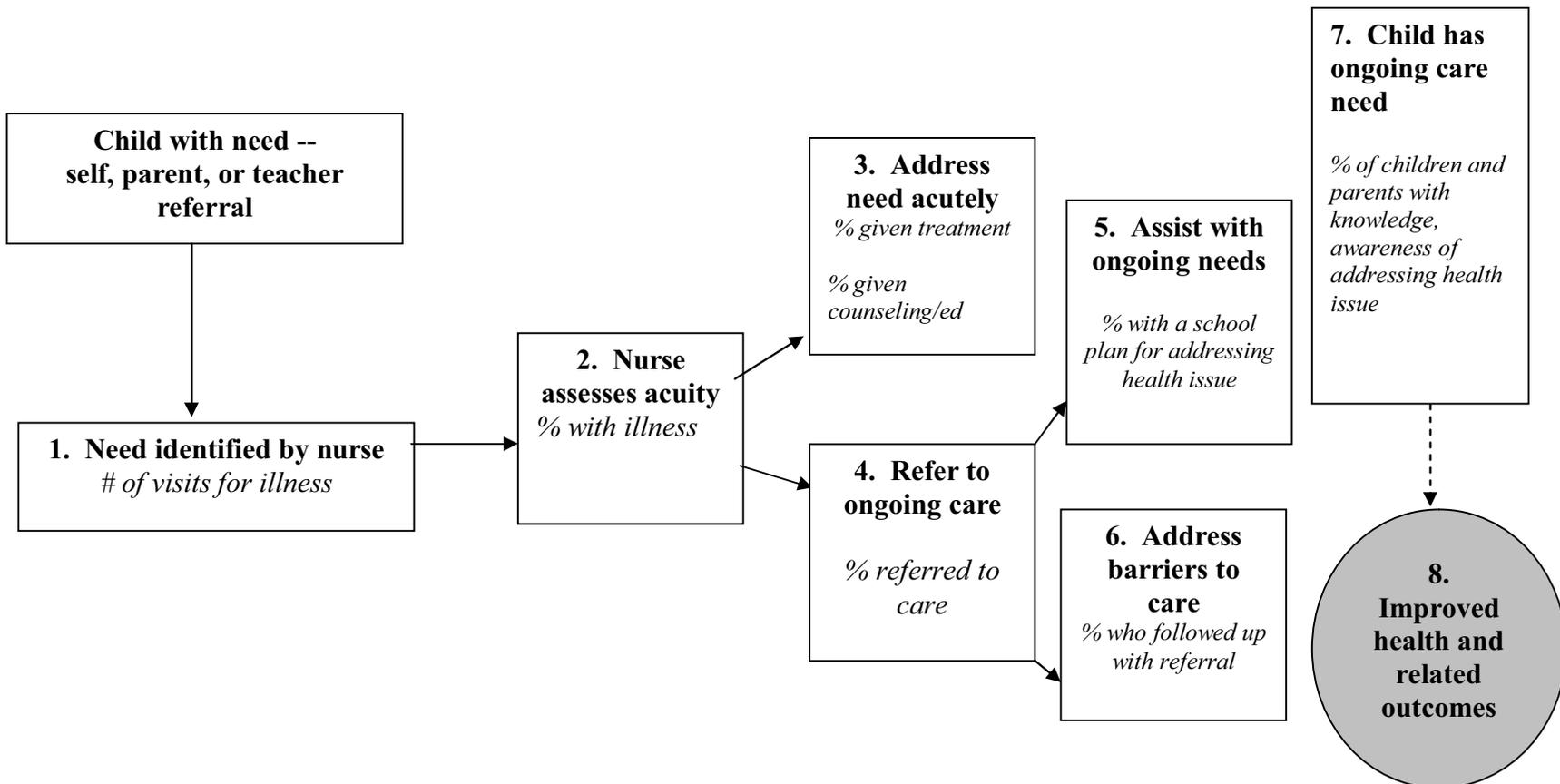
Table 7. Example Performance Metrics Dashboard

Domains	Example Performance Metrics	Potential Source(s)			
		D.C. SHNP-Aggregate	D.C. SHNP-Individual	School record	Student Survey
Health status	% of children with up to date immunizations	√			
	% with moderate or severe asthma	√			
	% of students with asthma experiencing complications during school		√		
Health promotion	% of schools completing a health needs assessment to identify education priority areas	√			
	% of students receiving vision screening	√			
	% who participate in a nutrition education session	√			
School performance	# of days missed due to asthma			√	
Access to health care	% who use the school nurse frequently (frequent fliers)	√			
	# of referrals to community providers	√			
Satisfaction with health services	% students who report that nursing services were of good quality				√
D.C. SHNP operations	# of visits/nurse/100 students	√			
	top five reasons for nurse suite visits by school level and ward				
	Dollars spent per student by school				

Process maps

A process map can be used to visually depict the linkage between the process and outcomes measures of the performance dashboard in the context of how an individual student uses nursing services. One example of a process map is provided below for acute health needs. We have also included sample measures that could be used to track progress. This map is one strategy for ensuring that only the most critical data are being collected and can streamline evaluation activities. Further, given the baseline assessment findings, we know that steps 5-8 are the most challenging.

Figure 20. Sample process map with measures for assessing the care received for an acute health issue



7c. Demonstration Pilot Projects

In addition to the core evaluation design described in the previous sections, we propose a series of small demonstration projects to pilot ideas for improving the D.C. SHNP. These demonstration projects build on findings from the baseline assessment, with particular attention to areas needing improvement –communication with providers, behavioral health, and nutrition issues. These “testable” intervention strategies are grounded in recommendations articulated by stakeholders. Further, this process of piloting and rapidly assessing interventions is a cornerstone of continuous quality improvement (CQI) and could serve as a template for building evaluation capacity among DOH leaders. Below, we briefly describe three potential ideas for demonstration projects. If these suggestions are deemed to be useful approaches to complementing the evaluation plan, we will provide more detail as needed. In general, these demonstration projects could last 6 months to one year.

1. *Increasing connectivity among school nurses and community health providers.* One of the key findings from the baseline assessment is the limited communication between nurses and community health providers. In many instances, nurses indicated that they do not have sufficient information about the health services provided in neighborhood community health centers. Similarly, community providers reported that they do not know what health services are provided in schools. In this demonstration project, we will develop a resource directory that will be provided to school nurses and community health providers in a given jurisdiction (e.g., listing school nurse and community provider names with direct contact information) and conduct a few networking/orientation sessions to introduce school health nurses to providers (and vice versa). We will assess whether or not there are increases in knowledge and awareness of the D.C. SHNP, improvements in linkages with local health providers, and better follow-up and care coordination for children with chronic health issues.

2. *Improving linkages between school nurses and school mental health providers.* Another theme from the baseline assessment was nurses’ interest in mental health training as well as school staff members’ interest in addressing student mental health issues. We will test a model in a school (or schools) to improve the coordination of services among school nurses and school mental health clinicians (representing a partnership of DOH and DMH). This will include engaging school mental health clinicians, training school nurses in mental health triage strategies (including adding behavioral health certifications for a sample of nurses) and improving communication between these health professionals in terms of best practices for addressing student mental health issues.

3. *Addressing child nutrition and obesity issues.* In addition to mental health, a key health concern articulated by all stakeholders, including students, was poor nutrition and obesity. To that end, we will engage school leaders, community health providers, and proximal community-based organizations (CBOs)/youth serving organizations in a given neighborhood to develop and test an obesity prevention strategy (e.g., creating healthy kid zones or clusters). This might include engaging these CBOs to conduct educational sessions around healthy eating at their partner schools and involving students, school staff,

and school nurses in developing wellness efforts to improve school climate. Considering the principals' and teachers' requests for a broader educational approach to health, we may also explore ways to create a 'culture' of overall health within each school – promoting healthy lifestyles for students, staff and families. Since this program is under the auspices of the DOH, there should be strong support for a broader public health focus.

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APPENDIX A: SURVEY METHODOLOGY AND SAMPLE CHARACTERISTICS

For both the surveys and interviews (Appendix B), strict protocols were followed to ensure 1) that participants knew the purpose of the study and of their right to withdraw from participation; 2) that participants' anonymity would be preserved; and 3) and that no harm would come to staff members or students as a result of their participation in surveys or interviews. Our policies were reviewed and approved by the following human protection committees:

- RAND Human Subjects Protection
- DOH Institutional Review Board
- D.C. Public Schools (DCPS) Research Review

A1. Student Surveys

Students' perceptions and experiences with the D.C. SHNP are critical to understanding the program's utility and effectiveness as well as the barriers and challenges to increasing utilization of these services. Students can inform many areas of the school health process including how components of the program currently are being implemented, their barriers and facilitators to using health services, and their perceived benefits of the program.

We conducted a brief student survey to assess student knowledge and perspectives regarding D.C. SHNP and their experiences with the D.C. SHNP. For the baseline assessment, we selected those students in grades 5, 7, 9, and 11 so that we could cover the breadth of services that are offered in our elementary, middle, and high schools. The student surveys were administered in the classroom by school staff members and collected immediately after completion and returned to RAND via prepaid mail. Surveys were anonymous and only included a school ID number. Given the number of students we hoped to survey, we provided schools with a small stipend (in appreciation of their time for aid in survey administration) that could be used for purchasing equipment or other resources.

We used measures that cut across all schools, and we also tested additional items that were related to the grade level or types of health services typically provided at that school. General questions assessed student knowledge of the D.C. SHNP, their use of services, their satisfaction with services if applicable, their perspectives on the program, and their suggestions for improvements in the program. To the extent possible, we used items from school health surveys used in other communities (e.g., Seattle, see Barkan et al., 2003).

Student Sample Characteristics

We received surveys from 679 students (n=156 5th graders; 106 7th graders, 194 9th graders; 214 11th graders) across 12 schools (see Table 2). Approximately 49% of our sample was male, and 73% was African American. Twelve percent spoke Spanish at home.

A2. Nurse Surveys

The purpose of the nurse surveys was to obtain the perspectives of D.C. SHNP staff members who are working in the schools. These surveys included items on their satisfaction with the current services that they provide through the D.C. SHNP; their perceptions of the usefulness, effectiveness, and reception of students and parents to these D.C. SHNP services; and their barriers and facilitators to providing D.C. SHNP services. This information provided a picture of variation in services across schools and described the extent to which nurses who are agency versus CNMC staff members differed in their experiences or perspectives

We administered the surveys with the assistance of the nurse managers. However to ensure that nurses felt comfortable to respond honestly and comprehensively, each nurse was instructed to mail their survey separately using RAND pre-paid envelopes. Surveys were anonymous with an ID differentiating agency versus staff nurses.

Nurse Sample Characteristics

We received surveys from 92 (of the 171 nurses) (47% agency, 53% CNMC staff members). This included 24 nurses from Wards 1, 2 and part of 5; 24 nurses from Wards 2, 6, and part of 5; 12 nurses from Ward 3; 13 nurses from Ward 7; and 11 nurses from Ward 8.

All of the nurses were female, and most were African American (76%). Nearly 90% of the nurses were 45 years or older. Approximately three-quarters of the nurses worked in only one school. Approximately 75% of respondents were RNs; of the RNs, 26% held an associate degree in nursing, 61% held a baccalaureate degree in nursing and 13% held a master's degree. The remaining respondents (25%) were LPNs. The average number of years licensed to practice nursing among these respondents was 28 years (29 years among agency vs. 27 years among CNMC staff members). Approximately one-fifth of the respondents reported a period of nursing inactivity (average time=6.7 years). On average, nurses have worked in schools for 7 years with longer tenures among nurses from Wards 7 and 8. The average length of time as a D.C. school nurse was 6.3 years, with longer periods of work among CNMC staff nurses (7.2 years vs. 5.3 years for agency nurses). Nurses with more years experience were more likely to be placed in one school versus working across schools.

A3. Teachers and other School Staff Member Surveys

The purpose of the school staff surveys was to assess the effects of D.C. SHNP services on the school from the perspective of a key gatekeeper to school health services. Teachers, particularly in the elementary grades, are the school staff members who permit or refer students to visit the school nurse during the school day. As such, their perspectives are important to understanding utilization of these services. Specifically, these surveys asked teachers about their satisfaction with the current services provided by the D.C. SHNP; their perceptions of the usefulness, effectiveness, and reception of students to D.C. SHNP services; and their perceived barriers and facilitators for helping students to obtain D.C. SHNP services.

We surveyed teachers and other school staff (counselors, front office staff) at all schools that were part of the survey sample. Surveys were anonymous and contained a school ID only.

School Staff Sample Characteristics

Our school staff sample (n=211) included a mix of teachers (69%) and other staff (counseling and administrative roles) (31%) from school in all Wards (57% ES, 13% MS, 30% HS). Our sample was predominately female (75%) and African American (71%). Approximately half of our respondents were 45 years or older. Nearly 65% of the sample had worked in D.C. Public Schools for more than five years, and 41% had worked in their current school for more than five years.

A4. Parent Surveys

We also attempted to conduct parent surveys at the sample of schools that we select for the student survey analysis. These parent surveys were approximately 15-20 minutes in length and queried parents on their knowledge of the D.C. SHNP, their service needs with respect to meeting the health issues of their child, their satisfaction with the care their child received if applicable, their perceived barriers to the receipt of school health services for their child, and key demographic variables such as child insurance coverage and child grade level.

We had hoped that the parent surveys were included in the packet of materials to be returned upon the start of the school year (e.g., emergency medical information, yearly physical examination forms, etc.). According to RAND research experience, forms requested at this time of year have the highest likelihood of being returned completed by parents. However, the final study start date was delayed and precluded this approach. Thus, we used a convenience sample and ultimately had two schools participate—one elementary and one high school. While not comprehensive, these data provide a preliminary picture on the viewpoints of parents towards the program.

Parent Sample Characteristics

Given the challenges in obtaining parent participation, we had one elementary school (27%) and one high school (73%) represented in our final parent survey sample (n=113/150; 87% response). Our sample was mostly female (67%), 53% Hispanic/Latino, and 42% African American. About half of the sample conversed in Spanish at home. About 22% of parents had a child with a chronic health condition, and nearly 48% of the parents used Medicaid for their child's health care. Most parents reported that their child visits a doctor's office for their primary source of care (57%), however 40% indicated that they visited the ED one time or more for their child in the past year.

A5. Analysis of Survey Data

We coded and entered data into Excel, and these data were then analyzed in SAS Version 9.1. We conducted analyses to describe stakeholder perspectives about services and use of services

and assessed how this varied by school level and ward. In addition, we analyzed if there were differences in nurse perspectives by agency vs. staff status, or hours worked per school.

APPENDIX B: INTERVIEW METHODOLOGY AND SAMPLE CHARACTERISTICS

B1. Stakeholder Interviews

The questions addressed participants' perceptions of whether or not the D.C. SHNP is achieving its goals and objectives; problems and challenges which prohibit the program from reaching its goals; and possible solutions to challenges. Each protocol was tailored to the particular respondent group. Domains of interest were included or excluded based on relevance to a particular respondent group. Wording was crafted to reflect the respondents' roles, responsibilities, and relationship to the school nurse or to the D.C. SHNP. Multiple respondent groups were asked about each domain of interest to gather various perspectives on that issue. These issues included:

1. Current functioning of D.C. SHNP from stakeholder perspectives
 - What is the state of the current D.C. SHNP?
2. Stakeholder satisfaction with the current services provided by the D.C. SHNP
 - How satisfied are stakeholders with D.C. SHNP's current services?
3. Current functioning of D.C. SHNP from stakeholder perspectives
 - What are operational issues of the school health suites?
4. Stakeholder perceived barriers and facilitators in D.C. SHNP services
 - What are perceived barriers and facilitators to providing and obtaining D.C. SHNP services?
5. Resources available, resources used, and additional resources needed
 - What are resource needs and gap?
6. Perceptions of gaps in student needs and services provided
 - What are the gaps between child health needs and school health service use?
7. Perceptions of effects on students
 - What effects are the D.C. SHNP services currently having on students?
8. Perceptions of effects on families
 - What effects are the D.C. SHNP services currently having on families?
9. Perceptions of effects on the school climate
 - What effects are the D.C. SHNP services currently having on the school climate?
10. Perceptions of effects on the community
 - What effects are the D.C. SHNP services currently having on the community?
11. Suggested performance indicators -What performance indicators can be used to assess the impact of D.C. SHNP on child health over time?

Interviews were held either in the respondents' office or other private room or in a private location on school grounds typically in staff members' offices or the nurses' suite. All interviews lasted approximately one hour except for teacher interviews which were closer to 20 minutes in length.

B2. Interview Sample Characteristics

Our interview sample included school staff members from the intensive sample- principals (n = 8), teachers (n = 11), school nurses (n = 8) as well as other CSS staff members (n = 6) (e.g., nurse managers), and community health providers (n=7). All participants were interviewed individually except for community health providers who participated in either a focus group (n = 5) or individual interviews (n = 2).

B3. Analysis of Interview Data

We reviewed interview notes for patterns and contrasts across informants and sources using a grounded theory approach. Grounded theory analysis is an iterative process by which the analyst becomes increasingly “grounded” in the data and develops increasingly richer concepts and models being studied. This approach allowed us to systematically identify key themes and patterns of responses. In addition, by incorporating new themes into interview questions, we validated findings and confirmed perceptions. In order to increase reliability in our data analysis, we used two reviewers to determine if our theme coding was consistent. As is common in grounded theory analysis, data analysis began after the initial data collection, so that these findings informed subsequent data collection. Therefore, the protocol was followed for each interview; however latter interviews also included additional probe questions based on prior responses or discoveries. We used grounded theory techniques to analyze the narrative interview data because this approach is a particularly powerful and sensitive technique for elucidating the experiences and perceptions of participants (rather than testing pre-existing hypotheses).