The Role of School Health Services in Reducing Health and Educational Disparities: Examining Usage Rates of Student Health Services in the Seattle School District

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Abstract

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As public schools become increasingly populated by immigrant children, poor children, and children of color, determining how school health services may contribute to health status and subsequent academic achievement should be explored and analyzed.

In an effort to contribute to this knowledge, this mixed-method study enumerates, describes, and analyzes individual-level school health usage rates of middle and high school students in Seattle Public Schools (SPS). Quantitative data included 51,767 student encounters with school nurses, and 35,971 encounters with school-based health providers. The data sets were disaggregated by race, poverty, ethnicity, and immigration status to determine whether such variables may be associated with increased use of school health services. Qualitative data was obtained through surveys completed by school nurses, and by a focus group. These data helped to interpret the quantitative findings.

Findings revealed that poverty was heavily associated with increased use of school health services. African American, Hispanic, immigrant, and some subpopulations of Asian students had the highest rates of visits to both types of school health providers. The study also revealed that school nurses saw far more children than did school-based health center (SBHC) providers. Primary reasons for visiting school nurses were for physical health, and the top reasons for visiting a SBHC were for mental or reproductive health. Because this study shows that many children who seek health services in higher amounts are the same ones who are at academic risk, better collaboration between school health and educational systems may be warranted.

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CHAPTER ONE

Introduction

Educating children in the United States (U.S.) today is a fractious, complicated undertaking that continues to be tested by a multitude of shifting population, programmatic, and policy elements. These features provide a contextual background for a needed examination of the links among transforming population changes occurring in the U.S. and in U.S. public schools, and the often overlooked role of school health services in addressing health and educational inequalities. As immigrant, ethnic minority, and poor children populate the nation's public schools in ever-increasing numbers, finding ways to promote and improve their health and academic outcomes becomes increasingly urgent.

This dissertation enumerates, describes, and analyzes clinical and educational health services provided to middle and high school students in the Seattle School District, which serves nearly 46,000 children. It provides information on quantity and quality of student health visits, disaggregated by individual-level variables, including ethnicity, immigrant status, and poverty. Discerning which students are seeking out and using particular health services may provide insights into health usage patterns specific to particular groups of students. This may ultimately help to reshape school-based health services in ways that better promote the health and academic achievement of these vulnerable populations. Information about the numbers and characteristics of students

seeking health services in schools also may be helpful in laying a foundation for subsequent analyses to determine how or whether schools may be suited to help address larger issues pertaining to access to health care for millions of poor and ethnic minority children.

The central themes guiding this research are: The relationships between health status, access to health care, and academic achievement; shifting population demographics that are increasing the numbers of ethnic minority, immigrant, and poor children in U.S. public schools; and the increased amounts and acuity of health problems presenting in public school students. Detailed discussion of these themes is explored in the literature review section, beginning on page 8.

Research Problem

Causes of academic failure and underachievement are complex and multitudinous. A large body of research literature has identified inter-related social, health, political, cultural, economic, familial, individual, and educational explanations for contributing to achievement inequalities.[1] Despite these well-known connections, interventions and investments used to close the academic achievement gap have taken an unbalanced approach, focusing almost exclusively on the roles and responsibilities of schools and of educators (Rothstein, 2002;

[1] For more information on these topics, see Banks, 2002; Contreras, 2002; Foley, 1991; Fuligni, 1997; Hernandez, 2004; Knapp and Wolverton, 2004; Ladson-Billings, 2004; Ogbu, 1994; Ogbu and Simons, 1998; Portes and MacLeod, 1999; Portes and Zady, 1996; Stritikus, 2003; Suarez-Orozco, Suarez-Orozco, and Doucet, 2004.

Walsh and Murphy, 2003). For example, large investments to desegregate schools, to improve teacher quality, and to reduce class sizes, have dominated approaches used to address student achievement. While these interventions are worthwhile in many respects, serious concerns still exist concerning their overall effectiveness in closing the achievement gap (Brewer, Krop, Gill, and Reichardt, 1999; Xin, Xu, and Tatsuoka, 2004). In addition, policy mandates such as the No Child Left Behind legislation have prompted schools to consider non-educational alternatives to improving academic outcomes (Lear, 2007). It makes sense, therefore, to explore whether investments in other areas known to affect academic achievement might have equal or greater effects as do some education-specific interventions in narrowing and eliminating the academic achievement gap. Because the research literature suggests that health status and access to health care affect academic engagement and achievement, an investigation into the offerings and usage rates of school health services for vulnerable children could contribute to greater knowledge of ways to reduce health and educational disparities. An assessment of school health services that are offered and used, disaggregated by ethnicity, immigration status, and income, provides a foundation from which deeper exploration of their role in reducing disparities in health and educational outcomes may begin.

Research Purpose and Questions

Health status and the provision of health services are associated with mediating improved academic outcomes. To understand more about how school health services may influence academic achievement – as well as provide larger public health and social benefits – it is necessary to provide a baseline measurement of current school health usage rates, and to disaggregate them by ethnicity, immigration status, and poverty. This is particularly appropriate for addressing the achievement gap, since academic achievement as well as health status among immigrants is linked with generational status, and because poor students and U.S.-born students of color under-perform academically, and suffer poorer health, compared to their white, U.S.-born peers (Blake, Ledsky, Goodenow and O'Donnell, 2001; Flores and Brotanek, 2005; Hernandez, 2005; National Research Council, 1995). Which health services are offered in schools, and how they are used – or not used – by various student groups can contribute to foundational research, as well as possibly yield insights from which further research and analysis may better address questions regarding more efficacious investments aimed at narrowing both academic and health disparities.

The research took place in the Seattle School District; the questions asked are thus guided in part by local geographic, demographic, and administrative contexts. Central questions guiding this study are: What clinical and educational health services were offered in the district in the 2005-06 school year? Who used

them? How often? Did usage rate patterns of school health services exist that were specific to ethnicity, poverty, and immigration status? How are these usage patterns alike or different? What might account for these differences?

Secondary questions seek to identify health usage patterns by intra-group and inter-group student populations, to determine potential cultural, social, and economic influences on these patterns.

Definitions of Terms

Health is a frequently used term that is central to the areas of investigation in this study. Health is conceived in this study not just as the absence of disease, but more broadly, as a complete state of physical, mental, and social well-being.

Comprehensive health services and *coordinated school health services* are used interchangeably to refer to school-based health programs that use as a model for their conception and delivery the eight core components of integrated and comprehensive services articulated by Allensworth and Kolbe (1987).[2] The school district in this study adopts this framework for its health operations.

School health services is a term used to encompass services provided by school nurses, by nurse practitioners and mental health counselors working in school-based health centers, and by other ancillary health service providers, such

[2] The services identified by Allensworth and Kolbe (1987) as necessary to provide complete and integrated school health services are: health services; nutrition services; counseling, psychological and social services; healthy school environment; health promotion for staff; and parent/community involvement. Fuller explanations of these categories are provided in the review of the literature.

as drug and alcohol counselors, family support workers, and health educators that are located in schools.

People of color are those who are identified (either by themselves or by institutions which assign such categories) as those who are not white. *Immigrants* refer to people who were not born in the U.S.; when speaking collectively about immigrants, the term may be used to encompass second or later generation immigrants – those children whose parents or grandparents were not born in the U.S. This distinction is important, and will be made clear throughout the dissertation, due to different health and educational risks associated with generational status. At times, the terms *people of color* and *immigrants* (along with poor children) also are used collectively to suggest a broad category of students who are at risk for poor health and/or academic failure.

Terms given to peoples pertaining to their ancestral heritage are referenced in this dissertation as follows. People of European ancestry are referred to as white, and people who were born in the U.S. of African origin are referred to as black. Sometimes the term African American is used to differentiate between black people who were born in the U.S. and those who were not. Names of colors are not capitalized; thus references to white people and black people are presented in lower case. Names originating from named countries are capitalized; thus references to Hispanics, African Americans, and Asians, are presented in upper case. My preference in referring to people of Latin American origins is to refer to

them as Latinos because it embraces both Spanish and indigenous lineages. However, many research studies and reports referenced in this dissertation refer to Latinos as Hispanics. To accurately reflect this literature, and to provide thematic consistency, the term Hispanics is used to refer to Latin American populations in this dissertation.

CHAPTER TWO

Literature Review

The literature is reviewed in three key areas to provide background for this study, as well as a context in which efforts to deliver and improve health services in schools are situated. First, the relationship of health status and access to health services to academic achievement is explored. Second, influences on the scope and delivery of today's school health services are discussed. These include the health statuses and needs of a changing student population composed mostly of "majority-minority" children, new threats to child health, and increasing severity and numbers of chronic and acute health problems that interfere with academic functioning. Finally, studies that have explored student health usage rates of the populations under study, both in and outside of schools, are examined.

Before delving into these major themes, a brief background on the evolution of health services in schools is presented to provide context for today's scope and delivery of school health services.

A Historical Perspective

Health services in U.S. schools began in New York in 1902 with the presence of school nurses who were hired to reduce rampant absenteeism by quelling contagious outbreaks (Brainard, 1922; Dilworth, 1944; Igoe, 1980; Newmayer, 1906; Passarelli, 1993; Randle, 1944; Shipley Zaiger, 2000). The nurses were enormously successful at meeting this goal – so much so that school

nursing rapidly spread throughout the rest of the U.S. While school nurse practice evolved to address a broader array of needs of children, families, and communities, the original public health function of school nursing remained the core component of the practice for nearly 60 years (and does to this day).

School Nursing and the Introduction of School-Based Health Centers: 1960-present

By 1960, sweeping demographic, social, and legislative changes, added a new dimension to school nurse practice. Increased demands for activities traditionally viewed as primary care were part of the impetus leading to specialization of the school nurse role, and to the birth of the school-based health center. During the 1960s, the first appearances of nurse practitioners occurred in the school health setting as part of a broader health system developing in response to a burgeoning baby boomer population. This population brought with it increasing complexity in health risk factors related to changing social mores, as well in as government mandates for accommodating students. These developments strongly influenced the direction of school nurse practice, the appearance and growth of advanced clinical nursing roles in schools, and the development of school-based health centers (SBHCs).

By the early 1980s the grassroots movement to add primary care in schools to its public health core led to the establishment of about 30 SBHCs delivering primary care and comprehensive health services, mostly in high schools, in communities throughout the U.S. (General Accounting Office, 1994).

While there is not a national database that tracks SBHCs, it is approximated that there are more than 1,000 of them operating today in more than 41 states (Button and Rienzo, 2002; General Accounting Office, 1994).

The dramatic growth of SBHCs in the 1980s and 1990s – they rose in number from 150 in 1989 to 1,498 in the 2002-02 school year – was due to the growing public awareness of the high poverty rates and deteriorating heath status of youth, economic considerations, and concerns about lack of access to health care (Button and Rienzo, 2002; The Center for Health and Health Care in Schools, 2003).

Despite the growth of SBHCs, their presence was – and is – modest in comparison to that of school nurses, 56,000 of whom continue to play the dominant role in the provision of school health services. A significant factor in the dominance of school nurses relative to SBHCs is that school nurses cost little in comparison. School nurses are underpaid relative to nurses in other practices, and infrastructure costs for their services at school are minimal compared to those associated with operating a clinic. In addition, school nurses assess and treat more children at less cost compared to SBHC providers, physicians, and health care providers located in community clinics. For example, 93 school nurses in Boston during the 2001-2002 school year had 721,300 encounters with children aged 6 to 17 (Schainker, O'Brien, Fox, and Bauchner, 2005). Based on the 1996 Medical Expenditure Panel Study (MEPS), the authors estimated that collectively

had these children's health issues been addressed by primary care providers, it would have translated to about 90,000 visits during a 10-month period, at a cost of more than $17.4 million.

Influences on the Scope and Delivery of School Health Services

The social, health, political and demographic complexities that surfaced in the 1960s have only become more complicated today. School based health providers still address the "usual" issues of drug and alcohol use and abuse, sexual activity and its sequelae, communicable disease treatment and prevention, case management, and health screenings. Added modern-day challenges include record numbers of immigrant students and "majority-minority" populations in schools – many of which have no health insurance or usual source of care – and increased numbers and severity of chronic and acute physical and mental health problems. The next sections discuss these issues.

Shifting Population and Changing Health Care Needs

Immigrant Children

In discussing immigrant children, it is important to keep in mind that the elements of ethnicity, skin color, immigration status and poverty that are assigned to the newcomer child all are independent factors that relate to health status and outcomes, and to academic accomplishment. These factors, however, also interact and overlap in complex ways that make it sometimes difficult to discern their individual influence on health and educational success. It is important,

therefore, to keep in mind the dynamism of these factors during the following discussion. I will now discuss the health statuses, and the factors affecting health status (poverty, access to health care, ethnicity, and immigration status), of groups of children – "minorities" who are fast becoming the majority in the nation's public schools – long known to suffer health and educational disparities.

Immigrant Population Growth

The U.S. is undergoing a population transformation that is fundamentally altering its economic, political, and social fabric. The most powerful force driving this change is unprecedented numbers of immigrants. In 2003, the U.S. Census reported that 33.5 million foreign-born people represented nearly 12% of the U.S. population (not including approximately 12 million undocumented immigrants). That representation is even higher among the school-aged population, where fully one-fifth of children (nearly 11 million) enrolled in grades K-12 are foreign born or have at least one foreign-born parent (Hernandez, 2005; Schmidley, 2001). Of the 10% of students who have at least one foreign-born parent (Jamieson, Curry and Martinez, 2001), 65% are Hispanic, and 88% are Asian or Pacific Islander.

The population of immigrant children in schools is expected to rise substantially over the next decades (Hernandez, 1999), in part due to higher birth rates. These are evidenced in part by the higher proportion of immigrant children of school age (16.4%) to native-born peers (30.6%). From 1990 to 1997, for

example, the number of children in immigrant families grew by 47%, compared to 7% for children of native-born parents (Hernandez, 1999). This portends increased numbers of second and third generation students (discussion of the health and educational implications of generational status begins on page 49).

Nearly 17% of immigrants live at the poverty level, compared to 11.5% of the native-born population (Larson, 2003). The most populous immigrant group, Latin Americans, also represent the poorest; 21.6% of them live in poverty. Foreign-born children under the age of 18 represent nearly 9% of the U.S. population in this age group, compared to 27.8% of U.S. born children. In addition to the vast numbers of immigrants, the majority of them, unlike previous large waves of immigrants who arrived in the late 19th and early 20th centuries, are people of color. According to the U.S. Census (2000), most of these newcomers are from Latin America (53.3%) and Asia (25%). An additional 8% arrive from Oceania, Africa, and Northern America. The remaining 13.7% are European.

Brown and Poor: The State of Health Disparities

It is well established that people of color in the U.S., whether native-born or immigrant (80% of whom are people of color) (U.S. Census, 2000), -- with the exception of some Asian populations – are poorer, suffer poorer health, have less access to health care, higher rates of being uninsured and underinsured, higher rates of incarceration, and have lower-paying jobs than members of the fading white "majority".

While the overall poverty rate in the U.S. hovers around 12%, it is disproportionately allotted: 8% of whites are poor, compared to 11% of Asians and Pacific Islanders (P/I); 23% of Hispanics; 24% of African Americans; and 26% of native Alaskans and American Indians (DeNavus-Walt, Proctor, and Lee, 2006).

Poverty and poorer health are consistently linked in the research literature: According to Bloom and Cohen (2007), less than half of the nation's poor children reported being in excellent health. Almost twice the number of Mexican-American children (30%), and 26% of black children reported that they were not in excellent or very good health, compared to 16% of white children.

Part of the reason for lower self-reported health ranking may be due to higher rates of asthma and disproportionate asthma-related hospitalizations experienced by Hispanic and black populations (Boudreaux, Emond, Clark, and Camargo, 2003).

While nearly 6% of children with special health care needs have an unmet vision need, black, Hispanic and multiracial children were 2 to 3 times likelier to go without needed glasses or eye care than white children (Heslin, Casey, Shaheen, Cardenas, and Baker, 2006).

Low-income and minority children also are likelier to have dental caries, and to see the dentist less often than white children and children in higher income brackets (Huang, Yu, and Ledsky, 2006; Modifi, Rozier and King, 2002; Macek,

Edelstein and Manski, 2001). Further, parents of poor and ethnic minority children reported that their children missed school because of difficulties imposed by transportation to get to an appointment, and because of appointment restrictions imposed by the dental system (Macek, Edelstein, and Manski, 2001).

Obesity, which is linked to higher rates of diabetes, cardiovascular disease, and certain cancers, is higher in African American and Hispanic children than in white or Asian-American children (Haas et al (2003)). In people 18 years of age or younger, Liese et al (2006) found whites to have the highest rate of Type I diabetes, and ethnic minority children to have the highest rates of Type II diabetes.

Children of color from poor families also have lower rates of immunization than white children (Children's Defense Fund, 2006). This disparity puts ethnic minority children at greater risk of illness and school absenteeism due to the increased potential for preventable outbreaks that can occur in their communities.

The Resegregation of Public Schools

The increasing population shift in the nation's public schools to higher concentrations of ethnic minority and immigrant children means greater numbers of children at health and academic risk. One of the effects of increased ethnic minority and immigrant enrollment concentrated in urban areas is rising school segregation (Fix and Passel, 2003). Table 1 illustrates the trends of increased

public school enrollment of Hispanics and blacks, and a concomitant decrease in white enrollment.

Table 1. Public school enrollment changes, 1968-1996 (in millions).

	1968	1980	1994	1996	Change 1968-1996
Hispanics	2.00	3.18	5.57	6.36	+4.36 (218%)
Anglos	34.70	29.16	28.46	28.99	-5.71 (-16%)
Blacks	6.28	6.42	7.13	7.68	+1.40 (12%)

Source: DBS Corp., 1982, 1987; Gary Orfield, Rosemary George, and Amy Orfield, "Racial Change in U.S. School Enrollments, 1968-84," paper presented at National Conference on School Desegregation, University of Chicago, 1968, OCR data for 1980, NCES Common Core of Education Data for 1994 and I996. From Orfield and Yun, 1999.

Orfield and Yun (1999) posit that increasingly segregated inner-city schools have higher numbers of students of color, most of whom are poor. The increased concentrations of children of color and the correspondingly high poverty rates associated with them are linked both to poorer health status and outcomes and to lower academic achievement (Ryabov and Van Hook, 2007).

While increased segregation and rising numbers of ethnic minority and poor children in the nation's public schools converge to threaten both children's health and academic achievement, there are other factors unique to influencing the health and academic status of immigrant children. These factors are now discussed.

Health and Educational Risk Factors of Immigrant Children

Despite some political and social similarities shared by immigrant groups that contribute to health status and academic engagement, it is important to note

that they constitute a great diversity of cultures, with wide individual and familial variability both within and between those cultures. In addition, immigrants share some characteristics with their U.S.-born, English-speaking counterparts of race, ethnicity, and poverty that also are discrete factors affecting a child's reception into, and participation in, academic, economic, and social environments (Suarez-Orozco and Suarez-Orozco, 2001). While these individual level variables are related to health status and academic achievement, it is important to realize that the complex interplay between them may produce synergistic effects that make it difficult to trace an individual attribute to health or educational status. The following information is presented to highlight key areas that research literature has identified as important in considering and evaluating risks affecting the health and educational success of immigrant children.

To begin, many immigrant children are poor: According to U.S. Census 2000, poverty rates for children in immigrant families are 21%, compared to 14% of U.S.-born children. An additional 36.2% of immigrant families earn 150% of the official federal poverty level, and another 34.8% live in relative poverty[3]. Forty-nine percent live at double the poverty level. This means that while more than 90% of immigrants live near the poverty level, only 21% of the very poorest – and of those, only refugees – are eligible for government social or health assistance programs.

[3] Family income is less than one-half of median family income

Low parental education is associated both with academic underachievement and lower health status in children (Campbell, Hambo, and Mazzeo, 1999). Parents of immigrant children are much less educated than their native-born counterparts, with 46.1% of foreign-born household heads lacking a high school diploma, compared to 14.4% of native-born parents (Lugalia and Overturf, 2004). Fuligni (1997) posits that parental attitudes and expectations toward their children's involvement with school overrode parental educational attainment in terms of immigrant students' academic achievement, and that such expectations and attitudes differed according to ethnicity.

Immigrant children also tend to be linguistically isolated (Fix and Passel, 2003; Hernandez, 2005), reducing the social capital that can improve health care access and health status (Kawachi and Berkman, 2000). Linguistic isolation also appears to be directly associated with income: A survey conducted by the Urban Institute revealed that roughly 60% of adult immigrants who are Limited English Proficient (LEP) have incomes less than 200% of the federal poverty level, but only one-third of their English proficient peers were in poverty (Fix and Passel, 2003).

Immigrant children also are likely to attend racially segregated schools (Orfield and Yun, 1999) marked by higher teacher turnover rates and lower teacher quality (Peske and Haycock, 2006). They also tend to live in

communities that have fewer health care providers than children who are white or who live in families with higher income (Stoddard, Back and Brotherton, 2000).

Health Status of Immigrant Children

In terms of physical health, immigrant children are much less likely to have a regular source of medical care and to have health insurance (Callahan, Hickson, and Cooper, 2006; Guendelman, Schauffler, and Pearl, 2001; Guendelman, Angulo, Weir, and Oman, 2005; Huang, Yu and Ledsky, 2006). Guendelman, Schauffler and Pearl (2001) found that 52% of foreign-born children were uninsured, and that 66% of them had a regular source of health care, compared to 20%, and 92%, respectively, of U.S.-born children. Use of emergency departments for primary care and acute illnesses (some of which could have been prevented with regular primary care visits) are much likelier to occur among uninsured and poor people (Begley, Vojvodic, Seo, and Burau, 2006). The rates of use of emergency departments are even higher for undocumented immigrants. A sub-class of immigrant children – children of migrant farm workers – are at much higher risk than even the poorest pediatric populations of pesticide poisoning, serious injury, parasitic infestations, respiratory diseases, and dietary deficiencies (Huang, 1993). In addition, most of them have no source of regular health care due to the transient, seasonal nature of their parents' work. Another sub-group of immigrant children – refugees – were found to have higher rates of mental health disorders, including post-traumatic stress disorder, anxiety,

and depression, than both non-refugee immigrants and U.S.-born peers (U.S. Department of Health and Human Services, 2001).

Immigrant Children and the "Epidemiological Paradox"

Despite these powerful predictors of poor health, newly arrived immigrant children paradoxically enjoy better health than their U.S.-born counterparts on a number of important indicators according to some researchers (Flores and Brotanek, 2005; Hernandez, 1999; Hernandez and Charney, 1998). Data describing this so-called "epidemiological paradox" applies mainly to Hispanic families, particularly those with Mexican origins, who have been the subject of numerous studies examining this conundrum. Explanations that have been given for this apparent resilience in the face of numerous risk factors include cultural and social strengths that temporarily "immunize" families from ill effects of U.S. policies and culture. Another possibility is that the higher rates of two-parent households in new immigrant families serve to protect health. Other researchers dispute this theory, however, finding that immigrant children arrive with higher rates of parasitic and other helminthic[4] infections that U.S. doctors are unfamiliar at diagnosing and treating (Entzel, Fleming, Trepka, and Squicciarini, 2003; American Academy of Pediatrics, 1997), increased numbers of dental and hearing problems (Pollick, Rice, and Echenberg, 1987) and nutritional deficiencies (Miller, Kiernan, Mathers, and Kleinn-Gitelmann, 1995) than U.S.-born children. Yu et al (2002) found that Asian adolescents whose home language was not

[4] Helminths are classes of free-living or parasitic worms belonging to 4 different classifications.

English (first generation), and who were less acculturated to the U.S., were more likely to experience adverse health outcomes, to report feeling helpless, and to be lacking in confidence than their peers who reported English as the primary language spoken at home. Burgos et al (2005) found, in comparing new immigrant Mexican children with second and third generation Mexican-American children that the newcomers had the least health care access and utilization, and reported poorer health, then their later generation counterparts, even after controlling for health insurance and socioeconomic status. The authors contend that their research questions the existence of an epidemiological paradox.

If such a resistance does exist, however, it appears to be short-lived. Increasing acculturation is associated with poorer health, higher risk-taking behaviors, and poorer educational outcomes (Antecol and Bedard, 2006; Hernandez, 2005; Flores and Brotanek, 2005).

Changing Threats to Child Health and Challenges for School-Based Health Providers

Emerging health and educational threats for today's children include increasing numbers of students with more severe chronic and acute health problems, exposure to increased amounts of violence (both in schools and communities), an obesity epidemic, and record numbers of students with mental health disorders affecting children of all ethnicities and colors. In addition, numbers of children with potentially life-threatening health conditions, such as anaphylactic allergies, asthma, and diabetes, are on the rise. These threats to child

health, which contributed to the loss of more than 53 million school days (440,000 children did not attend school at all due to illness or injury) (Bloom, Dey, and Freeman, 2005) are now discussed more fully.

Violence and Child Health

Violence and its subsequent impacts on children's mental health is a growing threat. The most common forms of violence experienced by children, in order, are exposure to media violence, physical fighting, carrying weapons to school, experiencing or witnessing domestic violence, and being bullied at school (Brown and Bzosteck, 2003).

The American Academy of Pediatrics (2001) reports that more than 1,000 studies have confirmed a link between witnessing violence on television and subsequent aggressive behavior, and that, by the age of 18, the average child has witnessed nearly 200,000 acts of violence on television.

In terms of fighting, 1 in 3 U.S. high school children reported being in a physical fight at school during the past year (Brown and Bzostek, 2003); 28.8% of 10^{th} grade student respondents in the Washington state Healthy Youth Survey reported being in a physical fight at school during the school year (RMC Research Corp., 2006), and 35.5% of students reported witnessing adults engaged in physical altercations. An additional 22.7% reported being physically abused by an adult.

Nearly 10% of 9,036 10th and 12th grade respondents to the same survey reported carrying a weapon to school in the past 30 days (RMC Research Corp., 2006). On a national scale, that number is larger: More than 17% of high school respondents reported carrying a weapon to school within the past 30 days (Brown and Bzosteck, 2003).

Indicating either growth in, or increased reporting of, domestic violence, Brown and Bzosteck (2003), reported that one in 20 children under the age of 18 was exposed to or witnessed domestic violence in 1979, compared to one in 6 children in 1985. In terms of dating violence, 12.3% of respondents in the Healthy Youth Survey (RMC Research Corp., 2006) reported feeling unsafe or threatened by a boyfriend or girlfriend, and 9.9% of respondents reported being physically hit.

Like other health risks, the threat of violence does not affect ethnic groups in a proportionate manner. Although homicide is a rare event in comparison to other forms of violence, black children between the ages of 15 and 19 are almost twice as likely to be murdered as Hispanic teens, and are more than 12 times as likely to be murdered as white teens (Brown and Bzosteck, 2003). Black youth also are more likely than other groups to report being victims of assault. In addition, 62% of black students reported watching four or more hours of television per week, compared to 22% of white students, presumably increasing their level of exposure to media violence (Brown and Bzosteck, 2003).

Hurt, Malmud, Brodsky and Giannetta (2001) found in a longitudinal study that 7-year-old children who had witnessed violence had subsequent increased symptoms of depression and anxiety, lower grade point averages and poorer school performance, and lower self-esteem.

Increased Severity and Prevalence of Chronic and Acute Health Problems

In the school district under study in this dissertation, children with potentially life-threatening conditions rose from 235 in 2000 to 782 in 2005; those with diabetes more than tripled from 58 in 2000 to 112 in 2005; children with asthma grew from 2,353 to 3,805 in the same time period, and students with seizures rose from 256 to 380. The increase in total health concerns swelled 163%, from 8,865 in 2000, to 18,396 in 2005 (Lewis and Vetro, 2006). Written health concerns do not represent the total population of students who have health issues, as they include only students whose conditions have been identified. In addition, during the time period of these increases, total enrollment in the school district decreased by 267 students.

Health conditions that are increasing in both numbers and severity, and that contribute to the most lost school time are asthma, severe allergies, and mental health concerns. Because many health disparities have their origins in childhood and worsen over time, these illnesses, if not well managed, directly interfere with a child's ability to learn, and have potential for long-lasting effects

on health status and educational attainment (Halfon, DuPlessis, and Inkelas, 2007).

Asthma and Allergies

Rising asthma rates are reflective of a disturbing upward trend in national childhood morbidities caused by this disease. Between 1980 and 2005, asthma rates reached, and remain at, historically high levels: In 1980, 3.6% of children aged 17 and under had asthma, compared to 8.9% in 2006, representing 6.5 million children (Akinbami, 2006). Asthma is the leading cause of school absence, causing a loss of 10 million school days per year, and accounting for the highest number of childhood hospitalizations than any other chronic illness (E-Medicine Health, 2006). As mentioned earlier, the morbidities and mortality rates associated with asthma are significantly higher for black, Puerto Rican, and Hispanic children, and lowest for Asian and white children, causing proportional rates of lost school time.

Allergies also affect a significant portion of the pediatric population: In 2005, Bloom, Dey and Freeman reported that 11.7% of the nation's children suffered from potentially life-threatening respiratory allergies, 10.6% experienced hay fever or allergic rhinitus, and 12.5% had other allergies, such as atopic dermatitis. These numbers are up in 2 categories from seven years earlier, when prevalence of these allergies, was, respectively, 12.2%, 10.5%, and 10.2% (Blackwell and Tonthat, 1998). White children, and those whose parents have attained higher educational levels, have higher incidences of allergies than black

or Hispanic children, or than children whose parents have not completed high school. A study by Goldsobel (2006) found that one potential reason for the apparent increased rates of allergies in more affluent populations is that ethnic minority children are being either underdiagnosed or undertreated for anaphylactic allergies.

Mental Health

Mental health is defined by Satcher (2000) as "the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity." Sound mental health is necessary, therefore, for children to engage in, and to succeed at, academic endeavors.

The following discussion of prevalence, risk factors, and common mental health illnesses affecting school-aged children presents research literature that, both in scale and quality, is sometimes shocking to absorb. While mental health illness in children is of serious social, economic, and educational consequence, it is important to resist the inclination to "pathologize" some behaviors in children that may mimic symptoms of mental health disorders, but are not, in fact, actual diagnosable illnesses. For example, active 6-year-old boys are often "squirmy" in educational settings where there is an expectation that they sit attentively for long time periods. Suspecting ADHD in such situations is probably not warranted without the presence of other diagnostic criteria and consistency of such behaviors over an extended period of time and in multiple types of settings.

Likewise, being sad is not necessarily indicative of depression, and feeling anxious before taking a test or participating in a performance, are certainly commonplace behaviors that are not necessarily indicative of a diagnosable illness.

That said, 21% of U.S. children have been diagnosed with a mental health disorder, and 79% of them are not receiving treatment for it (National Institute for Health Care Management Research, 2005), compromising the academic success and social relationships that enhance their life chances.

The most common mental health conditions affecting the health and school performance of children – and that will be discussed here – include mood, anxiety, and disruptive disorders, including attention-deficit disorder with or without hyperactivity (ADD or ADHD) (U.S. Dept. of Health and Human Services, 1999).

In general, both biological and environmental factors contribute to the relatively indiscriminate onset and course of mental health problems in children of all ethnicities, races and income levels (U.S. Dept. of Health and Human Services, 2001). While the biologic contribution to development of mental health disorders tends to be consistent among populations, environmental influences vary among cultures and economic classes, resulting in culturally bound understandings and meanings of mental health and illness, and also in the way it is treated (U.S. Department of Health and Human Services, 2001; Fadiman,

1997). Although some disorders are more prevalent among particular populations, there is little information available on the prevalence of mental health disorders among different ethnic groups of children. Discussion concerning the accessibility and variability of treatment depending on race, culture, and immigration status, is explored more fully on the section highlighting access to health care.

Mood Disorders

In children and adolescents, the most common mental health diagnoses are for depression and dysthymic disorders, and anxiety disorders (U.S. Dept. of Health and Human Services, 1999). While prevalence of major depression in children is estimated at around 5% of the population, it is predicted that between 10% and 15% of the child and adolescent population has some depressive symptoms at any one time (U.S. Dept. of Health and Human Services, 1999). Diagnosing and treating depression in teens is of paramount importance, as it is a factor in the predisposition of suicide, which is the third leading cause of death for this age group (CDC). In the Washington Healthy Youth Survey (RMC Corp., 2006), 30.3% of respondents reported that during the preceding year they felt so sad or hopeless for a sustained period of at least two weeks that they limited usual activities. Another 15.1% reported feeling suicidal, an additional 11.9% developed a suicide plan, and 4.6% reported attempting suicide. More disturbing, and perhaps contributing to the suicidal ideation, is students' apparent feelings of alienation from adult support: More than 15% of respondents stated that there

were not adults they could turn to for help if they were feeling suicidal, and an additional 15.6% of students were unsure if adult assistance would be available for them. 42.2% of respondents reported being from somewhat to very unlikely to ask for adult help if they were feeling suicidal. This survey did not gather the sociodemographic variables – ethnicity, poverty or immigration status – that are central to this study.

Evidence from multiple studies indicates that major depression is a less heritable condition than some other mental health disorders. This means that the onset of major depression may be more influenced by social and cultural factors, including poverty and exposure to violence, which affect greater percentages of people of color. Roberts, Roberts, and Chen (1997) surveyed 6400 students representing 9 ethnicities in grades 6 through 8, and found that prevalence rates were higher for those reporting lower economic status. Adolescents with the highest prevalence of major depressive disorder (MDE) were Mexican-Americans (6.6%), children of mixed ancestry (5.6%), and females from all ethnic groups (5.0%). Black and white children had the same prevalence rate of 3.9%, and Vietnamese children had a prevalence rate of 3.0%. The ethnic group with the lowest prevalence (1.9%) was Chinese children.

Anxiety Disorders

It is estimated that the 1-year prevalence of anxiety disorders in children ages 9-17 is 13% (U.S. Dept. of Health and Human Services, 1999). Anxiety

disorders include generalized anxiety marked by excessive worrying, separation anxiety, social phobias, and obsessive-compulsive disorders.

Because of the high prevalence of anxiety disorders and the relationships between anxiety, physical health, and school functioning, it is important for educators and health providers to be cognizant both of symptoms and appropriate interventions to help alleviate the impact that anxiety can have on children's physical and academic health.

Muris and Meesters (2002) found a statistically significant relationship between anxiety symptoms and decreased school functioning. Strauss, Frame, and Forehand (1987) found that anxious children were likelier to show impairment in peer relations, to have higher levels of depression, self-esteem, and school performance, compared with non-anxious children. In addition to poorer academic performance, anxiety disorders are independently associated with poorer physical health. Sareen et al (2006) found that the presence of an anxiety disorder was significantly associated with thyroid disease, respiratory disease, gastrointestinal disorders, migraine headaches, arthritis and allergies.

Like other mental health disorders, research has identified a combination of biologic and environmental factors contributing to disease onset (National Institute of Mental Health, 2007). While these features are present in the onset of disease in people of all cultures, there are ethnocultural variants in emotional expression and responses to different types of life events that can result in

misdiagnosis – or missed diagnosis – based on U.S. psychiatric diagnostic criteria. Using an etic model, Ritsher, Struening, Hellman and Guardino (2002) sought to determine whether symptoms of anxiety could be accurately diagnosed among people representing five different ethnicities. While the authors found that "groups of symptoms that we think of as anxiety disorders represent a set of constructs that seem to be about equally viable across these five American ethnic groups," they elaborate that their model is merely one acceptable way – and imperfect, at that – to categorize symptoms across cultures. I was unable to find any statistics on prevalence rates of mental health illnesses among children categorized by ethnicity. However, refugees coming from war-torn countries experience higher rates of post-traumatic stress disorder than U.S.-born people, and the stress of immigration itself can lead to acute anxiety and/or depression, although this usually resolves for most groups after 2 or 3 years (U.S. Department of Heath and Human Services, 2001).

ADD/ADHD

Attention-deficit disorder (ADD) and attention-deficit hyperactivity disorder (ADHD) are one class of the most common of the conduct disorders affecting children.[5] Nearly 8% of children aged 4 to 17 years were reported by their parents ever to have been diagnosed with ADHD, with boys affected at a rate nearly 3 times that of girls (Pastor and Reuben (1997); Visner and Lesesne (2005)). ADHD presents challenges over self-regulation of behavior, and is

[5] Both ADHD and ADD are referred to collectively as ADHD for purposes of simplification.

marked by impulsivity, inattentiveness, and hyperactivity (U.S. Dept. of Health and Human Services, 1999). Such behaviors interfere both with a child's ability to concentrate on academic work and to build and sustain social relationships. Without treatment (both behavioral and/or pharmacologic), children with ADHD may fail to reach their academic potential, and may become socially isolated (U.S. Dept. of Health and Human Services, 1999). These outcomes in turn may further erode a child's health and her/his quality of life by leading to problems with self-esteem, anxiety, depression, and substance use or abuse (CDC, 2005; U.S. Dept. of Health and Human Services, 1999).

The cause of ADHD is thought to be neurobiological in origin, stemming either from a genetic predisposition, and/or from exposure to environmental toxins, such as cigarette smoke and alcohol during pregnancy (National Institute of Mental Health (NIMH), 2006). While ADHD appears to be "hard-wired," environmental and/or sociocultural influences on children may exacerbate symptoms in children who do have AHDH, or may mimic symptoms of the disorder in those who do not have it (Dwivedi and Banhatti, 2005).

Using information from the National Health Interview Survey, Bloom and Tonthat (2002) found that white children were diagnosed with ADHD at the highest rate: 6.5% of the population of white children. Black children were diagnosed at 6%, and 3.7% of Hispanic children were diagnosed with ADHD. Children of Asian heritage were not included in the data. What seems a bit

counterintuitive is that, while higher percentages of blacks and Hispanics are poor than are their white counterparts, poor children, and those whose parents had less education, had higher rates of ADHD (Bloom and Tonthat, 2002). Children whose parents had public insurance, who were eligible for food stamps, and who had at least one family member who received welfare benefits, had much higher rates (14.9% vs. 5.9%) of being diagnosed with ADHD.

These findings may help to support evidence of environmental influences on the prevalence of ADHD and/or of the severity of symptoms (Dwivedi and Banhatti, 2005; Schneider and Eisenberg, 2006). In their review of 50 studies worldwide, Dwivedi and Banhatti (2005) found that rates of diagnosis were similar across countries. However, certain cultural groups, such as Chinese and Indonesians, were less tolerant of behaviors associated with ADHD. In addition, children who live in poverty – who are disproportionally children of color – and who fear for their safety in their communities and/or their schools, may have stress-induced hyperarousal or vigilant characteristics (Barbarin and Soler, 1993). Such a state of chronic stress may alter neuroendocrine chemistry, potentially resulting in cognitive and behavioral changes and contributing to hyperactivity (Barbarin and Soler, 1993). Schneider and Eisenberg (2006) found that diagnosis rates were higher for children who had older teachers, and non-white teachers. Thus, cultural values regarding expectations of child behavior, as well as

environmental and socioeconomic influences, may help to shape the development and severity of what is believed to be a condition that is genetically predisposed.

Because of the high prevalence of ADHD, its impact on learning and social behaviors, and its high rate of comorbidity (i.e. its presentation in concert with other disorders), its relevance to school-based health professionals and to educators is important.

Substance Use/Abuse

Substance use and abuse often presents as a co-morbidity (i.e. occurs along with), either as a precursor to a mental health disturbance, or used as a way to help alleviate symptoms for those suffering from mental health problems. For example, in youths aged 12 to 17, a major depressive episode (MDE) was linked with drug abuse; nearly 20% of youths with MDE used illicit drugs, while 7% of students reporting a drug dependency did not.

Licit and illicit drug and alcohol use (from here on referred to as drug use) by adolescents and teenagers has declined over the past decade, but still involves significant percentages of this population. Some statistical information on the most common drugs used, possible reasons for student drug use, effects of drug use on academic achievement and health, and use of drugs by ethnicity, where found in the literature, will be provided.

It is important to preface this information with the contextual psychosocial development of adolescents that lend complexity and insight into to the issue of drug use. While drug use among teens is widely considered to negatively affect

academic achievement and health, it is important to distinguish between drug abuse and experimentation, the latter of which has been found to be positively associated with healthy development (Shedler and Block, 1990). In a longitudinal study that followed 101 children from kindergarten through age 18, Shedler and Block (1990) categorized the subjects into groups representing frequent users, experimenters, and abstainers. The authors found, as many would expect, that frequent drug users were maladjusted, exhibiting alienation, poor impulse control, and emotional distress. Abstainers, or children who had never used drugs, were found to be relatively anxious, lacking in social skills, and emotionally constricted. The authors found that the experimenters were the best adjusted. The authors theorized that experimentation, as part of an acceptable peer culture, allowed the children to accomplish the important developmental milestone of forging an independent identity. The authors state (p. 625):

> Given these factors--the ubiquity and apparent acceptability of marijuana in the peer culture and the developmental appropriateness of experimentation and limit-testing during adolescence, it is not surprising that by age 18, psychologically healthy, sociable, and reasonably inquisitive individuals would have been tempted to try marijuana. We would not expect these essentially normal and certainly normative adolescents to *abuse* the drug (and it is crucial to distinguish between experimentation and abuse) because they would have little need for drugs as an outlet for emotional distress or as a means of compensating for lack of meaningful human relationships--but we should not be surprised if they try it. Indeed, not to do so may reflect a degree of inhibition and social isolation in an 18-year-old.

Statistics on drug use are provided by student surveys that indicate frequency of use. Inasmuch as drug use is considered to reflect emotional distress

and maladaptive behavior, it is a concern to both educators and health care providers. Therefore, students indicating daily or monthly use of drugs over time (as opposed to yearly or lifetime use) will be considered in this discussion to be at risk for negative educational and health sequelae associated with drug abuse. It is important to note that students reporting past-month use indicates current, but not necessarily frequent or consistent, use of drugs.

As part of its annual Monitoring the Future (MTF) national survey, Johnson, O'Malley, Bachman, and Schulenburg (2006) reported that 8% of 8th grade students reported use of an illicit substance during the past month; 17% of 10th graders did so, as did 22% of high school seniors. These numbers all have declined each year since 2003. The most frequently used drug used on a daily basis by students was tobacco, with nearly 5% of 8th graders, 13% of 10th graders, and 14% of 12th graders using cigarettes or smokeless tobacco daily. Inhalants, used by 4% of the 8th grade population, was the second most popular daily drug used, although, contrary to the patterns of most other drugs, the percentages of students using inhalants declined with increasing age. In order of frequency, tranquilizers, cocaine, and marijuana were the drugs reported most used on a monthly basis by students. With increasing age, alcohol was favored by seniors, 3% of whom reported drinking on a daily basis, and 45% of whom reported drinking during the past month.

Respondents completing the Washington State Healthy Youth Survey (2006) generally reflected national trends, with 15% of 10th graders reporting daily use of cigarettes during the past month, and 33% of them reporting alcohol consumption with the same frequency. 18% reported smoking marijuana or hashish, and 19% reported use during the past month of any illegal drug.

Reported lifetime use of drugs by ethnic group in children aged 12 to 17 is lowest among Asians (17.3%), and is similar for children of white (27.6%), Hispanic (27.3%), and biracial (27.9%) ethnicities. Lifetime use of drugs, at 24.5%, was slightly lower for black children (Substance Abuse and Mental Health Services Administration, 2001).

Because substance abuse is often associated with, or preceded by, other mental health problems – problems which often surface in childhood (Shedler and Block, 1990) – early detection and intervention for children and families may be useful in reducing the negative educational, social, economic, and public health consequences that result from mental health problems and substance abuse. School nurses and other school-based health personnel – as "front-line" providers who frequently interact with and assess troubled youth – are in a unique and advantageous position to address such problems early on. Without early intervention, it is reasonable to assume that children with mental health and substance abuse problems who go untreated will become part of the 5.2 million adults who suffer with mental illness and drug dependency. More than half of

these adults will go without treatment, 34% will receive treatment only for mental health problems, 4% will receive treatment only for drug dependency, and about 8% will receive combined treatment (U.S. Dept. of Health and Human Services, 2005).

Reproductive Health

Rates of Teen Sexual Activity

Despite declining pregnancy rates and initiation of sexual activity at later ages, nearly half of teens aged 15 to 18 are sexually active, and teen pregnancies and rates of sexually transmitted disease (STD) infections outpace those of other industrialized nations (Abma, Martinez, Mosher and Dawson, 2004). From 1988 to 2002, never-married males and females between 15 and 18 years of age who reported having sex at least once dropped from 51% to 46% (Abma et al, 2004). 25% of white teens aged 15 to 17 years reported sexual activity, compared to 43% of Hispanic teens, and 53% of black teens in the same age group (Abma et al, 2004). Although Asian American and Pacific Islander (API) teens are a fast-growing segment of the population, their current size, at 3% of the total teen population, makes it difficult to obtain reliable statistics on their sexual activity (National Campaign to Prevent Teen Pregnancy, 2006). However, in an analysis of national survey data collected in 1991, 1993, 1995, and 1997 by the Centers for Disease Control (CDC), Grunbaum, Lowry, Kann, and Pateman (2000) found that 28% of API female teens and 29% of API male teens reported ever having sex.

Pregnancy and Sexually Transmitted Diseases

A growing body of research literature suggests that declining teen pregnancy rates may be due to a combination of both increased abstinence and contraceptive use (Santelli, Lindberg, Finer, and Singh, 2007). Live births, abortions, and pregnancies in girls aged 15 to 19 peaked in the 1970s and 1980s and have dropped significantly since then. From 1986 until 2002, these rates respective fell from 5.02% to 4.3% of this population; abortions declined from 4.4% to 2.2% of the population; and pregnancies dropped from 10.7% to 7.5% of the population (Guttmacher Institute, 2005).

Although pregnancy rates decreased 40% for black girls, 34% for white girls, and 19% for Hispanic girls, both pregnancy and birth rates continue to be disproportionally experienced by black and Hispanic girls. Table 2 below shows the pregnancy and birth rates of these populations nationally and in Washington state.

Table 2. National and state pregnancy and birth rates per 1,000 population by race of girls and women aged 15-19.

	National pregnancy rate	National birth rate	Washington state pregnancy rate	Washington state birth rate
White	65.0	39.4	Not available	30
Black	134.2	66.6	Not available	56
Hispanic	131.5	83.4	Not available	101

Data for this table from The Guttmacher Institute (2006).

Sexually transmitted diseases (STDs) are another potentially life-altering consequence of sexual activity, and teens account for a disproportionate number of them relative to their percentage of the population of sexually active people

(Centers for Disease Control (CDC), 2000). As with pregnancy, many STD rates among teens have declined, yet remain unacceptably high, with adolescents of color and females shouldering an unequal share. Table 3 below illustrates rates of two common STDs by gender and ethnic group.

Table 3. Reported cases of chlamydia and gonorrhea in people aged 15-19 by race and gender in 2005.

	Chlamydia		Gonorrhea	
	Female	**Male**	**Female**	**Male**
White	84,240	9,636	13,079	2,679
Black	123,563	30,214	43,602	22,563
Hispanic	43,698	8,526	5,165	2,134
A/PI	3,115	646	430	176
American Indian/Alaskan Native	5,082	882	650	196

Data obtained from the Centers for Disease Control STD Surveillance Report (2005).

In addition to these widespread diseases, more than 23 others are spread primarily through sexual contact (Centers for Disease Control, 2000), with two of the most common (and incurable) being genital herpes and human papillomavirus (HPV). Because case reports for these diseases are not available, data is limited to estimates given by physician's office practices to the National Disease and Therapeutic Index (NDTI). In 2005, there were nearly 300,000 visits reported for genital herpes, about 350,000 for genital warts, about 200,000 for trichomoniases (a sexually transmitted infection that causes vaginal inflammation), and nearly 4 million visits for other vaginitis (sexually transmitted vaginal inflammation not caused by a single organism) (CDC, 2006). Human immunodeficiency virus (HIV), and Acquired Immune Deficiency Syndrome (AIDS), its eventual outcome, remains an incurable and lethal threat. The following table estimates HIV/AIDS rates, and the racial and gender disparities that accompany them.

Table 4. Estimated rates of HIV/AIDS per 100,000 U.S. population in male and female adults and adolescents, 2007.		
	Male	**Female**
White	18.2	3.0
Black	124.8	60.2
Hispanic	56.2	15.8
A/PI	14.5	3.8
American Indian/Alaskan Native	19.1	7.5

Data obtained from the Centers for Disease Control Surveillance Report (2005).

School-based Reproductive Services

Because teens – about half of whom are sexually active – are biologically more vulnerable to acquiring many STDs (CDC, 2000), and because teen parenthood and the acquisition of disease compromises health and student learning, educating teens about sexuality and providing health services that address their reproductive needs is important. Teen sexual health accounts for a considerable portion of health services provided by SBHCs. In a national survey of 551 SBHCs, Santelli et al (2003) found that more than 90% of them provided a broad range of reproductive services, including pregnancy testing, HIV/AIDS testing and counseling, STD diagnosis and treatment, birth control counseling, gynecological exams, pap smears, sexual orientation counseling, and the provision of a variety of birth control products. The following table compares the percent of health centers offering selected services nationwide and in Washington state.

Table 5. Selected services provided by school-based health centers, 2004-05 school year.		
	Washington SBHCs	**All SBHCs**
Comprehensive Health Assessments	89%	94%
Dental Preventive care	6%	22%
On-site STD diagnosis and treatment	94%	52%
Asthma Treatment	89%	92%
Nutrition/fitness/weight management	67%	55%
Immunizations	94%	87%
Mental Health	89%	81%
Conflict Resolution/Mediation	88%	79%

Source: National Census of School-Based Health Centers, National Assembly on School-Based Health Care (2006).

Health Care Access and the Role of School Health Services

One of the major reasons cited extensively in research literature for the existence of health disparities is lack of access to health care. Barriers to receipt of health care include unemployment and underemployment, ineligibility for public insurance, inability of parents to take time off work for medical appointments, lack of transportation, and cultural discontinuities between providers and patients (this affects both access and quality of care received). Health services provided at schools address many, if not all, of these barriers.

In this section, the following topics are discussed: First, an exploration of how and whether access to health care improves health status is conducted. Second, data on insurance coverage rates and barriers to health care access among various ethnic minority and immigrant pediatric populations is presented. Third, the actual and potential role that school-based health providers can play in narrowing or eliminating health and educational disparities by improving access

to health care is examined. Finally, the relationship of health to academic achievement is explored.

The Role of Health Care in Health

Just as educational interventions alone have not proven to narrow the academic achievement gap, the receipt of health services, while important in contributing both to health and educational outcomes, by itself is limited in addressing health and educational disparities.

Researchers have identified a number of social, cultural, and economic indicators that affect health as much, or perhaps more, as does health care. For example, the roles of class, race, ethnicity, gender, income inequality, socioeconomic status, and economic and environmental policies that favor wealthier populations have been cited as important determinants of health by a number of researchers (Isaacs and Schroeder, 2004; Kawachi, 2000; Lynch and Kaplan, 2000; Macintyre and Ellaway, 2000; Heymann, 2000).

These scholars provide a compelling case for a multitude of socioeconomic and cultural factors that influence a sound state of health. While this knowledge should be used to inform and necessitate changes in social and economic policies that affect the health of the public, particularly among poor children, children of color and immigrant children, it does not, according to other research literature, reduce or negate the need for access to health care. In an analysis of observational, quasi-experimental and experimental studies that

addressed the relationship between health insurance (access to care) and improvement of health status, Levy and Meltzer (2001) tried to determine whether the links were associational or causal. The authors found that the larger quasi-experimental and experimental studies (considered to be the gold standard in determining causal links) provided consistent evidence that health insurance improves health. They further noted that vulnerable populations, such as children, the poor, and those "on the fringes" (p. 34) of Medicaid eligibility, have the most to gain from more resources, and appear to benefit from them. Similarly, Howell and Trenholm (2006) found improvements in the health status of children after insurance enrollment in the majority of the studies reviewed in their meta-analysis.

Disparities in Health Insurance and Access to Care

Since evidence suggests that having health insurance improves one's health, rates of insurance coverage for particular populations may help to partially explain the reasons for the health disparities that exist between them. Poor children, for example, and children of color, have lower rates of health insurance – and, as has been discussed previously – have poorer health, than white children. In 2005, poor children were more likely to be uninsured than the population of all children: 19% of them went without health coverage compared to 11% of all children (DeNavus-Walt, Proctor, and Lee, 2006). Children of color also were likelier to go without insurance: 7.9% of white children were uninsured,

compared with 11.3% of black children, 13% of Asian/Pacific Islander children, and 19.7% of Hispanic children (DeNavus-Walt, Proctor, and Lee, 2006; March of Dimes, 2006; Vistnes and Rhoades, 2006).

While the percentages and ratios of children who are uninsured continues to be unacceptably high, the rates of no insurance for all children steadily dropped between 1997 and 2005 as a result of increased investments in, and broadened eligibility for, child health insurance in the State Children's Health Insurance Program (SCHIP) (Vistnes and Rhoades, 2006). This program was enacted by Congress in 1997 to insure children who were not poor enough to meet Medicaid eligibility requirements, yet whose parents were ineligible for private insurance (Lambrew, 2007; Vistnes and Rhoades, 2006). Between 1997 and 2005, 6.1 million previously uninsured children were insured through SCHIP, and eligibility through public insurance increased from 21.4 million in 1996 to 35 million in 2002 (Selden, Hudson, and Banthin, 2004). After the implementation of SCHIP, the rate of uninsured children steadily fell each year from 1997 to 2005, dropping by one third, from 22% to 15% (Lambrew, 2007). Despite the increases in insured children, gaps persisted between white children and children of color, with Hispanic children – one in five of whom are uninsured – faring the worst.

What is troubling about these disparities – in addition, of course, to the obvious lack of equitable access to health care – is their reflection of a shift toward higher rates of public insurance for poor children, as private insurance

through parental employment for this population has eroded (Lambrew, 2007; Vistnes and Rhoades, 2006). The problematic feature is not that more public insurance is being offered – indeed, if universal coverage in the U.S. is to be implemented, it will undoubtedly have a significant public element. The funding nature of SCHIP at this time is largely dependent on political winds and whims, making coverage unstable, particularly in regard to funding and eligibility requirements (Lambrew, 2007). For the immediate future, SCHIP is imperiled: President George Bush recently vetoed congressional legislation for a bill that would have extended SCHIP coverage by adding 4 million additional poor children to its roles (National Public Radio, 2007). Bipartisan bickering continues with both parties refusing to compromise while the number of uninsured children is increasing. In 2005, the first spike since the implementation of SCHIP in 1997 occurred (Lambrew, 2007).

Another measure of access to care is the ability to receive health services regardless of insurance status. This is referred to in the research literature as having a "usual source of care," and is influenced by multiple factors, from the lower presence of health care providers in poor children's communities, to cultural and institutional barriers that discourage ethnically and linguistically isolated populations from seeking care (U.S. Dept. of Health and Human Services, 2006). The group of children least likely to have a usual source of care is Native Americans, only 61% of whom have a usual provider. Brown (2005)

further estimates that 18.1% of Hispanic children did not have a usual source of care in 2002; nor did 12.3% of multiple-race children, 1066% of black children, and 7.3% of white children. This translates into about 7.3 million children not having a usual place to go to have their health needs addressed.

The potential dismantling or scaling back of SCHIP, declining availability of private insurance for ethnic minority children, and increasing rates of uninsured children since 2005 clearly threaten vulnerable children's already fragile access to health care. Children who stand to lose the most in the current and future policy environment are those who already are at highest risk of being uninsured and underinsured: poor children, children of color, and immigrant children. In particular, immigrant children face unique circumstances and barriers that affect their access to care. These are now discussed in more detail.

Immigrants and Access to Health Care

Despite public insurance eligibility expansions, significant disparities in health care access and use exist for immigrant children (Guendelman et al, 2005; Reidy, 2000). In Guendelman et al's (2005) comparative study of working poor insured and uninsured immigrant and non-immigrant children, they found that while 83% of non-immigrant working poor children were insured, only 56% of immigrant children were. Compared to non immigrant peers, uninsured immigrant children were almost half as likely to have a usual source of care (17% vs. 32%); to have ever received dental care (40% vs. 30%); to receive care at

community clinics (82% vs. 68%); and to perceive discrimination in a health care setting (11% vs. 5%). Insured immigrant children also fared worse on almost every access and use indicator (Guendelman et al, 2005; Reidy, 2000). Zhihuan, Yu, and Ledsky (2006) similarly found that, compared to non immigrant peers, immigrant children used health services at a much lower rate and suffered poorer physical health.

Some of the reasons for lower access and usage rates among poor immigrants are similar to those of poor non immigrants, and some are not. For example, barriers to health care access and usage for poor people of color in general include ethnicity, culture, socioeconomic status and race. Reasons that are unique to (but often highly variable between) poor immigrant groups include cultural discontinuities with health care providers (Fadiman, 1997; Kinsman, Sally and Fox, 1996), fear of involvement with government programs (Lewin, 1997) linguistic isolation, degree of acculturation (Kinsman, Sally and Fox, 1996), lack of knowledge concerning eligibility for public programs (Lewin, 1997) and government policies that limit access to health care, both for legal and undocumented immigrants (Ellwood and Ku, 1998; Lewin, 1997; Ziv and Lo, 1995). For example, the Personal Responsibility and Work Opportunity Act of 1996 (from here on referred to as welfare reform) specifies that legal immigrants who arrived in the U.S. after August 1996 are not eligible for public programs until they have been in the U.S. five years or longer (refugees are not subject to

this requirement). This means that, at a crucial time when legally admitted newcomers are attempting to establish economic independence, they are denied the resources that might help aid in this endeavor.

Cultural differences unique to immigrant groups also may influence their willingness to seek out and participate in traditional Western medical care; in particular, culturally incompatible or discriminatory experiences with the health care system, or with other governmental entities, may determine their future willingness to interact with it. Asian and Pacific Islanders, for example, are often stereotyped as "model minorities" (Lee, 2001), and are regularly excluded from research featuring black, white and Hispanic people living in the U.S. Despite the popular perception of Asian compliance and success, Stevens and Shi (2003, p. 22) reported that

> Asian Americans consistently reported the poorest primary care experiences across most domains of primary care. This finding is particularly important because of the growing numbers of Asian Americans in the United States and because Asian children are more likely than whites to be in fair or poor health, underimmunized, and at risk for contracting preventable illnesses such as hepatitis B.

Generational Status, Access to Care, and Health Risks

Another influence on immigrant children's access to care, and on their health status, appears to be the length of time they have lived in the U.S. Research into generational status and its association with health care access, health risk behaviors, and health status, is somewhat conflicting. Some researchers contend that the so-called "epidemiological paradox" (a more detailed

discussion of this begins on p. 20) protects the health of new arrivals, but that these protective factors dissipate in successive generations. Other researchers have found the opposite to be true: that new immigrants are in general in poorer health on a number of indicators than are their U.S.-born peers.

When considering the health of new arrivals, however, to that of succeeding generations from the same cultural group, the research is fairly consistent that health risk behaviors increase, and that health status deteriorates over time, despite increased rates of health insurance and improved knowledge of U.S. school and health systems. Adam, McGuire, Walsh, Basta, and LeCroy (2005) found that less acculturated Hispanic youth were 40% less likely than their white peers to have initiated sex, while Hispanic youth whose primary language was English were 170% more likely to have had a first sexual experience than white peers. Allen et al (2007) conducted a study observing dietary intake, preventive health behaviors (e.g. helmet and seatbelt use and physical activity) and number of hours spent playing video games or watching television among first, second, and third generations of Asian and Hispanic adolescents. The authors found that both groups of first generation adolescents ate more fruits and vegetables than did their white peers. While Asians maintained this nutritional intake over the generations, Hispanic adolescents' diets began to more closely resemble those of their white peers, with decreased fruit and vegetable, and increased soda, consumption. Health preventive behaviors, including physical

activity, use of bicycle helmets and seatbelts, and wearing sunscreen, increased in each successive generation for Asians. For Hispanics these behaviors decreased slightly or held steady in three categories; physical activity increased over succeeding generations of Hispanic adolescents.

It is theorized that poorer health status associated with increasing length of stay in the U.S. may be due to internalization of, and responses to, discrimination (Noh and Kaspar, 2003; Singh and Siahpush, 2002). Both formal and informal assignations of racial categories that didn't exist in immigrants' home countries lead to attendant discrimination and treatment that isolates people both socially and economically, and that consequently diminishes their educational and occupational choices. Somalis who don't consider themselves "black," for example, nevertheless experience mainstream assumptions and modes of discrimination applied to African Americans (Olsen, 1997; Portes and MacLeod, 1999). Such discrimination may chip away at the initial wide-eyed resilience of newcomers, ultimately affecting their health status, health risk behaviors, and educational attainment (Lee, 2005; Singh and Siahpush, 2002). Noh and Kasper (2003) found that lack of particular coping mechanisms in the face of perceived ethnic discrimination was associated with higher rates of depression and elevated blood pressure.

The sum of these studies suggest that there are different health risks and behaviors associated both with a child's country of origin as well as with

generational status. Interventions aimed at immigrant children at various stages of their residency may be amenable to improving health outcomes. It is important, therefore, for school-based health providers to be cognizant of the general risks associated with each generation so that children can be appropriately assessed, and preventive measures provided (Yu et al, 2002).

Health and Academic Achievement

Differences in culture, language, and academic and life experiences, combined with poverty, less access to health care, and racial inequities, contribute to higher dropout rates, and to entrenched academic underachievement of immigrant children and children of color, compared to native-born white children (Children's Defense Fund, 2006; Hernandez, 2005; Suarez-Orozco and Suarez-Orozco, 2001). As has been discussed earlier, ethnic minority children are likelier to suffer ill health, and have less access to health care than their white peers. Some of the factors that put children at risk for poor health are the same ones that influence academic achievement (see Table 6 below). Positive health outcomes associated with the presence of school nurses and SBHCs are well documented, and include increased access to care[6], reduced school drop-out rates (Sanford,

[6] (General Accounting Office, 1994; Lieu, Newacheck, and McManus, 1993; Santelli, Morreale, Wigton and Grason, 1996),

2001), decreased emergency room use[7] fewer school absences (Yee, 2001), and increased use of mental health, dental, and reproductive services.[8]

Table 6. Key factors affecting health and academic achievement.[9]

Factors unique to affecting health	Factors unique to affecting academic achievement	Factors common to affecting both health and academic achievement
Genetic predisposition	School segregation	Parental Income
"Lifestyle" health prevention factors	Teacher quality	Parental Education
Health insurance	Class size	English fluency
Having usual source of care		Racial inequities
		Access to health care, including the presence of school health services

Data for this table obtained from multiple studies cited in this literature review.

Further, school health clinics are a natural and intelligent response to the failure of health reform efforts to adequately address the problems of access to health care, particularly among poor students and students of color who populate the nation's public schools in increasing numbers (Marx and Wooley (1998).

The evidence linking health status to academic engagement and achievement is compelling, even if it is indirect. Evidence linking school-based health services to improved health on a variety of measures, and indirectly to improved academic achievement, makes a case for further exploration of their role in enhancing academic outcomes (Button and Rienzo, 2002; Dryfoos, 1994;

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[7] Kaplan, Calonge, and Guernsey and Hanrahan, 1998; Key, Washington, and Hulsey, 2002; Sanford, 2001; Schwarz and Lui, 2000; Young, D'angelo, and Davis, 2001.

[8] Button and Rienzo, 2002; Kaplan, Calonge, and Guernsey, and Hanrahan 1998; Schainker, O'Brien, Fox and Bauchner, 2005.

[9] The purpose of this table is to show that some factors have more of a direct impact on health, others have a more direct impact on academic achievement, and still others seem to affect both areas about equally. It is important to understand that factors listed as affecting only health or academic achievement do have broader affects, and seep into the other category.

Sanford, 2001; Schainker and Grant, 2003; Symons, Cinelli, James and Groff, 1997). Growing evidence of the role of health status and the provision of health services in schools in improving academic performance suggests the need for further examination of their current, as well as potential, contributions to promoting health and educational achievement, and to reducing health and educational inequalities between children of color and white children. Such an assessment is particularly apropos in light of increasingly complex health needs brought about in part by changing student demographics.

Health Care Usage and School-based Health Services

In building evidence that can inform interventions to improve vulnerable children's health, school health usage rates and patterns may contribute a great deal. Children who populate U.S. public schools increasingly represent the population of children who have limited or no access to health care. For example, while nearly 20% of Hispanic children are without any health coverage, about 12 million of them represent approximately 7% of the nation's school children (Shin, 2005). Add to this the millions of other poor children, limited English proficient (LEP) children, and children of color with partial or no access to health care, and it is apparent that school-based providers are increasingly providing primary, acute, and chronic care management to millions of the nation's uninsured and underinsured children.

An overview of the current literature on the characteristics and numbers of children who receive specific services at school is given in this section. This literature helps to provide a contextual background for usage rate results presented in this study. Because the services children seek out and use also is influenced by the types of services offered, this section begins with information on the roles and functions of various providers and services in the school setting.

The Roles of School Nurses and SBHCs

It is estimated that 45,000 school nurses in the U.S. (American Federation of Teachers, 2007) serve 49.5 million children in grades K-12. (http://usgovinfo.about.com/od/censusandstatistics/a/schoolboom.htm). This provides a ratio of about one nurse for every 1,155 students, far higher than the 1:750 ratio recommended by the National Association of School Nurses (NASN, 2006). In addition to serving large populations of children, school nurses also have much higher numbers of individual encounters (or "office visits") with them than do their community or private-practice counterparts (Schainker et al, 2005). In part due to the large numbers of children that they serve, school nurses function partially as "gatekeepers" of health. A partial list of school nurse functions includes: Fulfillment of mandated state screening requirements; duties of triage, assessment, and care for a wide assortment of both simple and complex health problems; preparing and monitoring individual health plans for students with special health care needs; providing health education and trainings for students

and staff; dispensing daily medications to children; providing referral and follow-up coordination of care for children who receive or need care outside of school.

In contrast, there are approximately 1,380 SBHCs in 45 states staffed with nurse practitioners and mental health professionals who provide on-site primary care and mental health services to the nation's school children (healthinschools.org, 2001). While this amount represents a seven-fold increase in the number of SBHCs over the past decade, it still remains a miniscule ratio of providers to students. Because of this, and because enrollment is required for children to receive care from SBHC providers but not from school nurses, children have much greater access to school nurses. For both school nurses and SBHCs, care is provided to children free of charge.

Most SBHCs function as outpatient clinics, providing most or all of the following services: diagnosis and treatment of illnesses; mental health counseling, substance abuse counseling, school and sports physicals; first aid; reproductive health services; health education; immunizations; basic laboratory services; and referrals for off-site services (advocatehealthcare.com., 2007).

While some overlap exists in the school nurse and SBHC roles, the majority of their functions are separate and complementary. In addition, the SBHC providers and school nurses often care for entirely different individuals and populations who might not otherwise receive care. As stated by the National Association of School Nurses (2001), "Both the school nurse and the SBHC have

distinct roles and each contributes to students' health, academic outcomes, life-long achievement, and over-all student and staff well-being. One does not replace the need for the other."

School Health Service Usage Rates and Student Characteristics

Because most school nurses serve large numbers of vulnerable children, it is not surprising that they receive far more visits per day than does the typical health care provider. In a study of health services provided by 94 school nurses serving 63,024 students in the Boston Public School system, Schainker et al (2005) reported that each nurse averaged 7,714 encounters per year, or 43 encounters per school day. This is almost double the approximate 23 patient visits per day conducted by the average clinic physician (Gabriel, 2001).

The authors also enumerated the frequency and types of services provided, including episodic care, medication administration, procedures and screening services. Of encounters listed under episodic care, the most frequently reported visits were for illness assessment (34%), first aid, (20%) and health education (18%). For medication administration, the vast majority of drugs administered to children were psychotropic agents (71%), followed by asthma medications (16%) and antibiotics (3%). Blood glucose assessment was the highest reported procedure (25%), followed by blood pressure measurement (22%), peak flow monitoring for asthmatic children (17%), and nasogastric or gastric tube care (13%). All children were screened for vision, 94% for screened for height and

weight, 32% for lice, 31% for scoliosis, 22% for dental health, and 15% for nutritional status.

The students who most frequently received nursing services were those with individual health plans (IHPs)[10], averaging 118 episodic, screening, medication, or procedure encounters, compared to 7.2 episodic and screening encounters for children without IHPs. Because the data was in the aggregate, it is unknown how many of the total number of encounters were made by the same students. Data on health visits by ethnicity, age, gender, and other variables also is not available.

Studies on usage rates of SBHCs logically reflect higher use of the types of services they offer. In the state of Louisiana, 53 SBHCs serving 84 schools and 26,355 students reported on usage rates (Louisiana state office of public health, 2003). There were about 30,000 visits made for general preventive health care (the majority of these were for vision examinations and immunizations), nearly 23,000 for mental health, and the next leading reasons for visits concerned physical complaints. The majority of students served were African American (60%); in the 7th or 8th grade (43,542 students); 28% were uninsured and 38% received Medicaid; 61% lived in rural areas; and 54% were female. Interestingly, while most SBHCs offering reproductive services have a majority of usage in this

[10] Students with IHPs are those who have diagnosed medical or mental health conditions. Because their health already is compromised, it would be expected that they may have more visits to school-based health providers, regardless of insurance status. An important side note is that there are an unestimated number of children who have conditions that would warrant the presence of an IHP, but who go undetected.

area, Louisiana did not – only 213 visits were pregnancy related, and 297 related to STDs; this is unusual in that the vast majority of enrollees were older adolescents and teen-agers, and considering that Louisiana has the 19th highest teen pregnancy rate in the U.S. (Guttmacher Institute, 2005). Although the teen pregnancy rate has declined in recent years, Louisiana's sex education policy – categorically dubbed the "worst" by the Guttmacher Institute (2005) – may be one of many states that reflects the contentious cultural and sexual politics surrounding the offering of reproductive services in schools (Button and Rienzo, 2002). As it stands, of Louisiana's 24,010 sexually active teens, only 24% receive reproductive services through publicly funded community clinics (Guttmacher Institute, 2005).

A study on health behaviors and health service use of 3,667 students in 5 Oregon schools with SBHCs revealed that more than half of the students used SBHC services, and that 10% of SBHC users had no other source of care (Stout, White, and Alexander, 1996). Students reporting emotional distress and sexual activity, and those with lower grade point averages, were more likely to seek care from SBHC providers than from outside providers on all categories listed, though statistical significance was reported only in the areas concerning mental health. Students who reported being sexually active reported higher levels of emotional distress, and preferred visiting SBHC providers over outside providers for

reproductive health and mental health concerns. More than half of the students reported using the clinic primarily because it was easily accessible.

Similar results were reported in a study by Walter et al (1996), who found that statistically significant proportions of junior high students using the SBHC were sexually active, had higher rates of suicide intentions or attempts, were suspended from school for fighting, witnessed or participated in violent events more frequently, failed subjects at school at high rates, and had higher exposure to the drug culture than non clinic users.

Kaplan, Calonge and Guernsey and Hanrahan (1998) compared SBHC usage rates among adolescents enrolled in a managed care system; half of the subjects had access to SBHCs and half did not. The authors found that students with access to SBHCs were more than 10 times more likely to make a mental health or substance abuse visit (98% of those visits occurred at the SBHC); were less likely to use emergency or after-hours clinic services; were more likely to have received a comprehensive health supervision visit; and were more likely to receive screening assessments of high-risk health behaviors.

In a survey of 630 high school students, 60% of whom were enrolled in the school's health center, student health status, demographic information, and student perceptions of the SBHCs were measured among frequent, average, and nonusers of the clinic (Pastore, Juszczak, Fisher and Friedman, 1998). The authors found that frequent users, compared to average and nonusers, were

likelier to be black (73%) or Hispanic (22%), and that they had higher rates of witnessing or being involved in violence and in drinking alcohol regularly. They "tied" with the nonusers for suicide attempts (13%). Nearly 60% of frequent users knew someone who had been murdered.

To assess satisfaction with services received at the SBHC, Pastore, Juszczak, Fisher and Friedman (1998) compared responses from males and female clinic users. The majority of females (95%) reported being satisfied with SBHC services, as did 88% of males. The authors also surveyed nonusers to elicit reasons for not visiting the SBHC. The primary reason given by females for not using SBHC services was that they received services elsewhere; males reported nonuse because they considered themselves to be healthy and not in need of SBHC services.

Another study, using student survey data, sought to determine whether immigrant students received health services in amounts comparable to those received by their native-born peers (Blake et al, 2001). The authors grouped the survey respondents into three groups to attempt to account for differences related to generational status. They found that recent immigrants (defined as living in the U.S. six years or less) were much likelier than U.S. born or immigrants residing in the U.S. longer than six years to receive education on topics related to mental health and sexual health. These students also indicated more concern about participating in high risk behaviors, and indicated a higher degree of receptivity to

health education, along with more positive beliefs regarding its utility and importance. These findings may offer value in helping to determine timing and types of services offered to better address health needs based on generational differences. The study did not, however, enumerate, or address the extent to which, such services are or should be offered, nor did it disaggregate findings among immigrant groups. In addition, approximately 60% of the immigrant sample was white, which portends differences in health beliefs and behaviors from today's majority of immigrant students, who are children of color.

The collective findings of these studies indicate that children who are vulnerable on a variety of measures – such as poverty, ethnicity, immigration status, health status, and lower academic achievement – use services of SBHCs with higher frequency than children who are less vulnerable, and appear to benefit from them, from health, economic, and academic standpoints. Juxtaposing the characteristics of children who frequently use school health services with the institutional, economic, and sociocultural influences that dictate what services are offered, and by whom, has broad implications for health services delivery to vulnerable children. This content will be further explored in the next chapter, which outlines the conceptual framework for this study.

CHAPTER THREE

Conceptual Framework

In conceiving a framework for examining how, why, and in what amounts school health services are utilized by students, four areas are key to the lens through which this study analyzes the data (see Figure 1, page 65). Student use of school health services is scoped here through the interaction of the following factors: The nature of students' health needs; the characteristics of providers; the characteristics of students; and the configuration and presence of services within an established institutional setting (the school district). These areas are now explored in more detail.

Student Characteristics

As has been elaborated in the literature review, students who use SBHC and school nurse services share some common characteristics. Poor, ethnic minority, immigrant, uninsured or underinsured children, along with those who are at academic risk, are likelier to use school health services. Children with chronic physical or mental health problems also are more likely to use school health services (for more information on this topic, see discussion below addressing the nature of a student's need).

Because children must be enrolled in SBHCs to receive services, and enrollment is dependent on parental consent for students under age 18, some children who may need the primary care services offered by SBHCs may go

without them for a variety of reasons. For example, immigrant children whose parents are unfamiliar with the school system may not be aware of the services, or they may be wary of establishing a formal relationship with a system they may perceive as confusing or even threatening, particularly if they are residing in the U.S. without legal authorization. Parents of U.S.-born children who are poor or who are people of color, may similarly view the system with distrust based on historical experiences of discrimination and maltreatment in both school and health care sectors. Parents who are opposed to confidential health services (i.e. those that are not obliged to notify parents) addressing reproductive and/or mental health needs of students also may deny enrollment for their children. For these reasons, students who could benefit from SBHC services but do not receive them, may be likelier to use services provided by school nurses, for whom no formal requirements exist to access services. School nurses, therefore, may be more likely than their SBHC colleagues to provide greater amounts of urgent care for unmet primary care needs.

Other factors that affect whether a child will seek health services, but that are not emphasized in this study, include age, gender, peer influences, community factors, immigrant generational status, and country of origin.

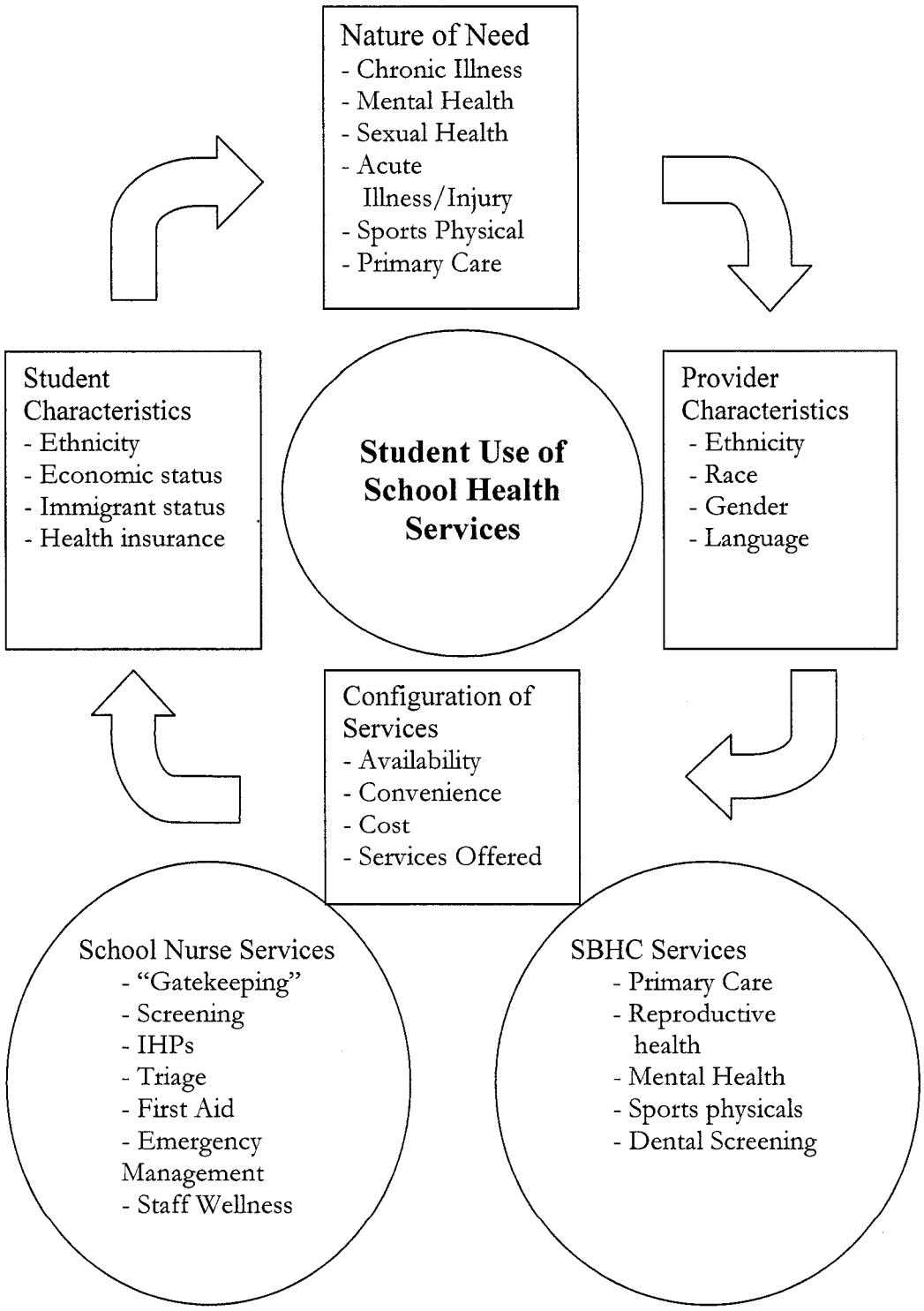

Figure 1. Factors Affecting Student Use of School Health Services

Provider Characteristics

While ethnic minority children are over-represented in accessing health services provided at school, the majority of providers from whom they receive services do not share an ethnic or cultural background with them. Differences between providers and patients in regard to ethnicity, race, language, and gender are referred to in the health care literature as culturally discordant. The literature further presents evidence that such discordance contributes to disparities in health and to poorer health outcomes among ethnic minority populations (Cooper and Powe, 2004; Institute of Medicine, 2002; Garcia, Paterniti, Romano and Kravitz, 2000). These inequalities are facilitated through several pathways, including discrimination and stereotypes, language barriers, and cultural discontinuities. Stoddard, Back, and Brotherton (2000) found that significant disproportionality exists in pediatrician-to-child ratios specific to racial/ethnic groups, and that this chasm will widen significantly by 2025. One potential consequence of these disproportionate ratios that may be attributed, at least in part, to cultural discordance in pediatric care, is a reduction in usage rates. While research literature was not found that specifically addressed health care usage as being negatively impacted by culturally discordant care, studies have demonstrated that health outcomes for ethnic minorities are improved when care is provided by someone sharing an ethnic, cultural, and/or linguistic background with them. While this study does not analyze the cultural compatibility of providers to

student patients, it nevertheless is an important contextual feature that should be analyzed in future studies.

Gender also may play a role in the usage rates and patterns of adolescents and teens using school health services. Bernzweig, Takamaya, Phibbs, Lewis, and Pantell (1997) found that children were more satisfied with physicians of the same gender, despite parental preferences for female providers. Given that the majority of school nurses and SBHC providers are female, one might expect lower usage among adolescent and teen males, particularly in regard to gender-specific services, such as those addressing reproductive health.

Nature of Student Need

A student's health status, including the presence and severity of a chronic or acute physical or mental health problem, influences whether and with what frequency a student will seek out or be referred to school health services. As stated in the literature review, students with IHPs have higher usage rates than those without them, and students who are sexually active, and who have mental health concerns, also seek school-based health care in higher numbers. Primary care services such as sports physicals and well child exams may be used in greater frequency by students who do not have health insurance or a regular source of care.

In some cases (depending on age, gender, and perceptions regarding the quality and confidentiality of available health services), students initiate the care

process by self- identifying a health concern that needs evaluation and treatment. For example, students who are sexually active may seek out clinical preventive as well as treatment services, such as gynecological exams, pregnancy and HIV testing and/or counseling services, and receipt of birth control products. In other cases, parents, caretakers, or school staff will refer a student to a school health provider. This is often the case when mental health, substance abuse, or child abuse concerns are suspected. Some children experiencing mental health problems will often repeatedly access school health providers, particularly school nurses, with physical complaints whose origins are psychological in nature. Children without health insurance or regular medical care also will seek services from school health providers for treatment of acute and chronic physical illnesses and injuries in greater numbers, with more frequency, and with concerns of greater severity, than their insured peers.

Configuration/Presence of Services

Also relevant to student use and frequency of particular school health services are the services themselves, and the ways in which they are offered. Students' knowledge of which services are available, the cost and convenience of services, the confidentiality of receiving services, and who provides the services, all factor into their decision to seek out and use school-based health services.

The configuration of school health services is bifurcated into services offered by school nurses, and those offered by SBHCs (see Figure 1 on page 65

for services offered). SBHC providers conduct outreach campaigns to raise awareness about the services offered, student eligibility, and enrollment requirements. The school nurse is the "default" setting in the school health arena, where students can receive health services – albeit not as comprehensive in nature as those offered by SBHCs – without enrollment. Sub-populations of students who use one or both services will be analyzed to determine whether differences exist in usage rate patterns specific to these providers, and if so, why this might be the case.

Two of the four key features outlined in this framework – nature of student need and student characteristics – are the primary ones that fit the research questions of who is using school health services and in what amounts. To a lesser extent a third component, services offered, will be analyzed to determine its potential influence on student health usage patterns and rates. The methods used for these analyses are the subject of the next chapter.

CHAPTER FOUR

Research Methods and Data Analysis

As an urban district with a white minority, 41% of students living in poverty[11], and 12% of students enrolled in bilingual education, the demographic characteristics of students enrolled in the Seattle Public School (SPS) district is similar to other urban districts, and thus makes a sensible case for study. In the 2005-06 school year, SPS reported that there were 10,613 students (23.3% of total enrollment) with limited or equal English proficiency, arriving from 75 different countries and speaking 63 languages or dialects (SPS District Data Profile, 2006).[12] Of these students, 6,427 (14.1% of enrolled students) were designated Limited English Proficient (LEP) or Equal English Proficient (EEP), qualifying for bilingual education. As of June 2007, SPS reported 2,503 (3.9% of total middle school enrollment) middle school, and 3,405 (4.2% of total high school enrollment) high school students as speaking a language other than English. [13] In the 2005-06 school year, percentages of the following groups were identified as

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[11] Free and reduced price lunch (FRPL) is the proxy for student poverty in this study. The percentage of poor students may be higher than represented here, particularly among non-English speaking populations, as they may be hesitant to apply for government programs; may not fully understand eligibility requirements; or may lack literacy in their own languages.

[12] Limited English Proficiency (LEP) indicates more fluency in a language other than English; Equal English Proficiency (EEP) indicates equal fluency in two or more languages. Designation in either category qualifies students for bilingual education services.

[13] It is unlikely that these numbers represent the entire bilingual population, as "unknown" language is grouped together with English-speaking designations. In addition, some bilingual children who pass the Language Assessment Scales (LAS) test that is administered when parents indicate a child speaks another language equally or less fluently than English may still need extra educational assistance but do not qualify for it.

LEP, meaning that English is not their first language: 1% of whites, 12.5% of African Americans; 29% of Asians, and 37% of Hispanics.

To examine school-based health care usage rates of middle and high school student subpopulations in the district, a multiple method design, using both quantitative and qualitative data, was used. The data is comprised of health services data provided by school nurses, student visit data provided by SBHC providers, and survey and focus group data collected from school nurses and SBHC health providers during the 2005-2006 school year.

A brief history of school nursing has been provided; before delving into methodology and analysis, a brief description of the district's SBHCs is now provided. There are 10 SBHCs located in as many high schools, and 4 located in middle schools. The SBHCs are sponsored by 5 different organizations, including Public Health – Seattle and King County, Group Health Cooperative, and Puget Sound Neighborhood Health Centers. In order to receive the primary care, acute care, and mental health services offered by the SBHCs, students must be enrolled. Enrollment for children under the age of 18 requires parental consent. In the 2005-06 school, year, an average of 25.7%, or 1,051 students were enrolled in the SBHCs.

Study Sample

The study sample includes children from the largest 4 racial groups (white, black, Hispanic, and Asian) enrolled in middle and high school in SPS who used

school nurse or SBHC services in the 2005-06 school year. Table 7 shows the total number and percent of these students enrolled in SPS middle and high schools, and the number and percent of them who used health services.

Table 7. Population of middle and high school users of SPS health services compared to entire population.[14]

	Total population; % of total population		Number visits, %, who used nurse services		Number, %, who used SBHC services	
White	9,659	41%	14,638	29%	10,949	32%
African American	5,607	24%	19,912	40%	12,162	35%
Asian	5,686	24%	8,528	17%	6,548	19%
Hispanic	2,689	11%	6,807	14%	4,820	14%
Total	23,641		49,885		3 4,479	

(Table information from Data Profile, District Summary, December 2006, Seattle Public School District)

Initial raw data showed the total number of visits to school nurses at 51,767. However, 1,221 visits were subtracted from groups of American Indians, Native Americans, and Alaska Natives, because each group represented less than 2.5% of the population. An additional 212 visits were duplicate entries, and 119 more had mismatching demographic data. There were 47 students for whom no demographic data existed. After subtracting these numbers from the sample, there remained 283 (accounting for .006% of visit data) visits that could not be reconciled when tallying the final numbers of student visits by the four primary ethnic groups. The final sample size, then, was 49,885 visits made by 14,543 individual middle and high school students. Health providers included in the sample were 22 middle and high school nurses – 12 of whom completed surveys,

[14] Because they represented less than 5% of the sample, visits by Native American and Alaskan Native students were not analyzed in this study.

and all of whom entered health visit data – and four school nurses and one nurse practitioner who participated in a focus group.

The SBHC data contained 35,971 entries on student visits made by 56 SBHC providers (nurse practitioners, mental health counselors, and psychiatrists) in middle and high schools. The tables below provide information on the numbers and demographic composition of all middle and high school students in SPS. Table 8 shows numbers of students in middle and high school, and the numbers and ratios of school nurse and SBHC services available to them. Table 9 shows the composition of students by race, poverty, and bilingual status. Analysis of school health users is in the results section, beginning on page 105.

Table 8. School nurse and health center ratios to student population.

	Student population	School nurse FTE	Ratio	Number of SBHCs
10 middle schools (6-8)	9,851	8.2	1: 1,201	4
7 K-8 schools	1,840 in grades 6-8	2.9	1: 634	0
1 K-12 school	350 in grades 6-12	1.0	1: 350	0
16 high schools	14,388	9.7	1: 1,483	10
1 Secondary Bilingual Orientation Center (6-12)	600	1.0	1: 600	0

Table 9. Race, poverty status, and bilingual status of middle and high school students in Seattle Public Schools, 2005-06 school year.[15]

Race	Number, percent, of students				Poverty (% FRPL)		Percent bilingual*
	Middle School		High School		Middle School	High School	
White	3,865	39%	5,794	47%	13%	11%	0.7%
Black	2,249	23%	3,358	23%	68%	56%	6%
Asian	2,302	24%	3,384	23%	52%	43%	26%
Hispanic	1,188	12%	1,501	11%	66%	47%	14%

* This data is not broken down for middle and high school students, but includes all students enrolled in SPS in grades K-12 (Table information from Data Profile, District Summary, December 2006, Seattle School District).

Quantitative Data Collection

School Nurses

Because student health services are provided by school nurses, and/or nurse practitioners and mental health practitioners located in SBHCs, health visit data entries from these providers were collected and analyzed. Using the Nurse Entry Database (NED) for the 2005-06 school year, a secondary analysis of existing school health data provided information on the number, types, and frequencies of services provided by school nurses to students according to gender, ethnicity, immigration status, and poverty.

Data entered when students receive health services from school nurses includes the reason for the visit, nursing assessment and service provided, referral source of the visit and referral status, follow-up communication, and disposition (e.g. whether the student was sent home or back to class). Information provided

[15] The ethnic groups presented in this and subsequent tables occur in order of population numbers as represented by homogenous groups. Whites, for example, are the most populous single ethnic group. While Asians as a whole are more populous than African-Americans, unlike the latter, they are a heterogeneous group composed of 9 subpopulations.

in these categories is entered by nurses from a menu of options. For example, when entering data pertaining to the reason for a student visit, the following options are available: injury; physical health problem/complaint; health screen or re-screen; social/emotional; drug/alcohol; and possible abuse/neglect. Although more detail about student visits can be provided if nurses choose to enter written comments into the database, this was not analyzed because it is an optional and non-standardized component of the health record. This information may be useful in future studies to further clarify reasons for student visits, but this level of analysis does not add to the clarity of this study, nor is it within its scope.

SBHC Data

A secondary analysis of existing data input by the SBHC providers was conducted to generate similar information about student health visits. SBHC providers input data into four data sets, two of which allow for clinic communication and identification of student and service data. Another set contains an electronic medical record consisting of individual demographic, general health, and treatment information. The set that is used in this study is the encounter-based data system used for billing purposes that in part describes the reason for the visit and the treatment provided. This data contains more detailed information regarding diagnosis and procedures than does the NED. For example, SBHC providers choose from a menu of more than 17,000 American Medical Association (AMA) diagnostic and treatment codes when entering

student visit information into the database. Of these options, 879 diagnostic and procedure codes were used by SBHC providers. This dataset was collected from Public Health – Seattle and King County, which manages the data under a contractual arrangement with the Seattle School District and the network of health plans and health agencies that operate the SBHCs. The diagnostic alpha-numeric codes were translated into diagnoses using the AMA ICD-9-CM expert Volume I and II (2006). The procedure codes, reflecting the services provided, were likewise translated into procedures, or treatments, using the AMA's Current Procedural Terminology Professional (2006). While some changes are made in the 2005 and 2006 editions of these manuals, the 2006 edition was chosen to translate the codes because the majority of visits occurred in 2006, and changes from the 2005 edition that affected SBHC providers were minimal.

In addition to the diagnosis and treatment data, detailed demographic information on the students is provided. The demographic data is collected by the City of Seattle as a required part of city levy funding for the SBHCs, and was used in order to more precisely identify ethnicity, poverty, and immigration status among SBHC and school nurse student visitors. All of the individual student identification numbers were identically scrambled among the three data sets collected to protect student anonymity, and to develop a relational database for the data sets. For example, with identical scrambled individual identification numbers, it is possible to anonymously identify students at the individual level

who had both school nurse visits and SBHC encounters, individual students who had multiple encounters, and to examine more precise student demographic information from one data set to another.

Qualitative Data Collection

School Nurse Surveys

At the end-of-year final school nurse meeting in June of 2006, nurses were informed about this study. Surveys and self-addressed, stamped envelopes were placed on a nearby table for middle and high school nurses who wished to participate in the study by completing and returning them. Of 21 nurses serving middle and high school students, 12 surveys were completed and returned. The response rate of 57% may have been due to some middle and high school nurses being absent, and due to year-end fatigue. However, administering the surveys at the end of the year helped to ensure more accurate summation of the year's activities.

The surveys pertained primarily to nurses' perceptions of student school health usage patterns (please see Appendix A to view the survey). Demographic data on the school nurses also was included in the surveys.

Focus Group

In order to help support, explain, and interpret the health service databases, a focus group was conducted. The focus group consisted of three school nurses – all of whom served in a setting with a SBHC on site – and one

nurse practitioner. The providers were selected from those responding to an e-mail solicitation to participate in this study. They were selected based on length of service as a school health provider, and based on representation of a variety of settings (i.e. diverse population in school building, large numbers of bilingual students served, and presence or absence of SBHC). They also were selected to represent a variety of provider types (school nurses and a nurse practitioner). No mental health counselors were able to participate in the focus group.

The purpose of the focus group was to gather a range of provider perceptions of the reasons for health service usage rates and health care needs among student sub-populations, and the perceived adequacy or inadequacy of available school health services in promoting health and student engagement with school. The focus group also was directed toward a discussion of the perceptions of the differences, similarities, and the actual and perceived functions of school nurses and SBHCs in collaboratively promoting student health and academic achievement. Please see Appendix B for the focus group protocol.

Data Analysis

The data were analyzed separately and collectively to most completely answer the research questions (Table 10 on page 83 provides a matrix of the research questions and the data used to answer them). The major units of analysis are overall numbers of health visits to school nurses and SBHC providers by category and subpopulation (e.g. total number of visits for mental health, broken

down by ethnicity, income, and immigration status); and comparative analysis of health services by subpopulation.

Quantitative Analysis

Descriptive statistics were used to organize and analyze both school nurse and SBHC visit encounters. Such methodology is commonly used to interpret large data sets (Welkowitz, Ewen, and Cohen, 1971). Data from the NED was provided in Access 2000. Using this program, raw numbers of total individual encounters, reasons for student visits, and demographic information about students, were compiled. From an original record of 51,767 visits to school nurses, 207 records were deleted from the study because they contained conflicting information, such as identifying a student as both qualifying and not qualifying for free and reduced lunch, or assigning multiple genders or races to the student.

SBHC data also was collected in Access 2000. The data was compiled to show raw numbers of individual student encounters displayed by diagnosis. As in the visits to school nurses, encounters were broken down by race, ethnicity, poverty status, and immigration status (using language or country of origin as a proxy). Gender also was analyzed to help reveal whether and how the health service usage rates varied among boys and girls.

Comparative Analysis of the Data

Differences in usage rate patterns of student subpopulations, and among users of particular services (school nurse, SBHC, or both) also is compared to help shed light on potential factors influencing such variability. Such influences may include community wealth and local social services; amount of nursing time or other ancillary support services in buildings; student-nurse ratios of different schools; the presence of a SBHC in the school; services offered by one provider over another; and a school's student body by enrollment and composition.

The data were examined for the largest numbers of usage of particular health services, and for the usage frequency of those using them. It also was combed to unearth potential deviations among subpopulations of students from the patterns of larger groups using both inter-group and intra-group perspectives. For example, to what extent is a particular health service used by Asian groups in comparison to other student populations? In comparison to other Asian sub-groups? To perform this analysis, the data for both school nurse visits and SBHC visits is nested. The first level of analysis provides a broad picture of usage rates by displaying the entirety of the usage rate numbers among the four broad umbrella ethnic categories of students shown above in Table 2 (i.e. white, Asian American, African American, and Hispanic). To further illustrate usage rates that may be specific to subpopulations of students, and that may show deviations from the patterns in the entire population of students in the database, the next layer of

analysis focuses on the SSD's 19 recognized sub-groups of students by showing differences among these populations. For example, SPS recognizes and maintains records on 9 different Asians groups, 4 Hispanic groups, 3 American Indian groups, and 2 white groups. African Americans are in a single group that also contains immigrants of African and Afro-Caribbean origin.

The third and final layer of analysis focuses on ethnic groups that are identified in this study as immigrants due either to their enrollment in bilingual programs or to their reported country of origin being outside the U.S. Immigrant students are further categorized as first, or as second or later generation according to characteristics detailed in the Results section on page 94.

Comparative Analysis with Research Literature

Another analytic strategy used compares study findings to other studies that examined school health usage rates and characteristics of students using school health services (detailed discussion of these studies begins on page 54). For example, the levels of clinical services provided for immigrant and white youth can be compared to the findings of Blake et al (2001) to help elucidate health services needs, disparities, or differences that may be evident among these groups. School nursing usage rates in the aggregate may be compared to those found by Schainker et al (2005) to help evaluate which services are most used.

Qualitative Analysis

Qualitative data in this study – in the form of school nurse surveys and a focus group – was used with the quantitative data (school nurse and SBHC data sets) as part of what Miles and Huberman (1994, p. 41) describe as a "continuous, integrated collection" that can augment analysis by "validating, interpreting, clarifying, and illustrating quantitative findings."

Qualitative data sets were coded and the major themes and results were cross-checked with the health service usage data to help confirm, disconfirm, and explain findings from the school nurse and SBHC datasets, particularly in relation to school health usage patterns according to race, ethnicity, poverty, immigration status, school location, and access to health services.

The school nurse surveys (see Appendix A, page 173 were designed to help with conceptual development of this study, as well as to gather data to help explain potential quantitative findings. Focus group data protocol (see Appendix B, page 177) was designed with the same intents; however, due to the nature of a focus group, more open-ended discussion ensued, providing richer detail about student health usage. The focus group data was transcribed, and both the survey and focus group data were coded. Initial broad codes emerged from both qualitative data sets, followed by more specific codes that were then triangulated with quantitative findings to assist with conclusions of this study.

As with the quantitative data, comparative analysis of the qualitative data to existing research literature also was performed. This analysis helped to determine whether consistent themes emerged across research in regard to reasons for school health usage among sub-populations of students. Inasmuch as consistency across literature was present, a stronger case for the explaining the quantitative data was made.

The following table displays the research questions, the data to be collected and analyzed, and the sources from which the data will be collected and the research questions answered.

Table 10. Sources of data collection and analysis.

Research questions	Data collected and analyzed	Data source: student health services database	Data source: SBHC databases	Data source: nurse surveys	Data source: focus groups
What clinical services are offered in SPS?	Surveys, focus group, school district web site and publications			X	X
Who is using these services, and how often (frequency)?	Total number of services provided according to health category and student characteristics (ethnicity, gender, immigration status, and income)	X	X	X	X
Patterns among student sub-populations	Usage rates according to student characteristics	X	X	X	X
Sources, or reasons for patterns, or lack of patterns	Variability in services used according to ethnicity, poverty, and immigration status	X	X	X	X

The next three chapters attempt to answer the research questions posed using the data sources illustrated in Table 10. Chapter five presents school nurse service findings, chapter six addresses usage rate findings of SBHCs, and chapter seven illustrates qualitative findings. Chapters five and six directly address usage rate findings, and, despite differences in how the data is collected and the services offered by the two school health provider groups, the chapters are organized to try to better view comparisons among the groups. Each chapter is organized by first presenting overall usage rates; then examining gender, followed by race, poverty, and reasons for visits. Finally, data on immigrant student health usage rates is presented for both datasets. The qualitative data follows these chapters to try to help explain and interpret the findings.

CHAPTER FIVE

Study Findings: School Nurse Services

School Nurse Visits

Twenty-one middle and high school nurses had 51,767 encounters with 12,797 students in the 2005-06 school year. As Table 11 shows, the majority of visits (73%) were for physical health reasons. Because many children present with physical symptoms for social or emotional problems, this category includes both types of visits. It is not possible, however, to determine the percent of physical health visits that are caused by social or emotional problems. In descending order, the next top five reasons for school nurse visits were for injuries (9%); nursing treatments (such as tube feedings and nebulizer treatments) (6%); social/emotional (6%); health screen/rescreen (3%); and immunizations (2%).

Table 11. Number of school nurse visits by reason.

Reason description	Number of visits	Percent of Visits
Physical Health Problem/complaint	37,987	73.00%
Injury	4,530	8.75%
Nursing Treatment	2,922	5.64%
Socia/emotional	2,853	5.51%
Health Screen/rescreen	1,602	3.09%
Immunization	1,033	2.00%
Referral Process: Assess/Reassess	747	1.44%
Possible abuse/neglect	50	.0009%
Alcohol or Drug	43	.0008%
Total	51,767	99.43%

School Nurse Visits and Gender

As illustrated in Table 12, overall usage rates between the genders were relatively equal. Considerable differences were evident, however, in school nurse

assessment and/or treatment in three areas: At a 53% greater occurrence, males are more than twice as likely as females to be referred for special education. Males also accounted for 55% of visits for health screen/re-screen and for social/emotional issues, while girls accounted for 45% of those visits. A greater percentage of boys (59%) than girls (41%) visited the school nurse for injuries. A slightly greater percentage of girls (54%) sought help for physical ailments than boys (46%).

Table 12. School nurse visits by gender.[16]

Reason for visit	Number of visits by gender		Percent of visits by gender	
	Male	Female	Male	Female
Physical health problem	17,629	20,358	46%	54%
Injury	2,684	1,846	59%	41%
Social/Emotional	1,557	1,296	55%	45%
Nursing Treatment	1,448	1,474	50%	50%
Health screen/re-screen	884	718	55%	45%
Immunization	559	474	54%	46%
Referral process: Assess/reassess	487	260	65%	35%
Possible Abuse/neglect	24	26	48%	52%
Alcohol or drug	32	11	74%	26%
Total	25,304	26,463	49%	51%

Race, Poverty, and School Nurse Visits

With 15,112 visits, poor black children (those eligible for FRPL) accounted for 29% of all visits to school nurses, making them the most frequent visitors (see Table 13). Because of the nature of individual-level data, which provides multiple visits by the same students, comparing data in aggregate form is not possible. Instead, the data in the tables below is calculated to measure frequency of visits on a per student basis.

[16] In SPS, 50.7% of the population is male, and 49.3% is female.

Table 13. Nurse visits per student by race and FRPL, 2005-06 school year.						
Race	Number of visits		Number of students		Nurse visits per student	
	FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no
White	4,018	10,620	1,211	8,426	3.32	1.26
Black	15,112	4,800	3,488	2,119	4.33	2.27
Asian	5,317	3,211	2,698	2,881	1.97	1.11
Hispanic	4,813	1,994	1,462	1,227	3.29	1.63

Each poor black child visited a school nurse an average of more than four times during the school year, seeking services nearly twice as often as their non-poor black peers. The next highest school nurse visitors were poor white children, each of whom saw the school nurse an average of 3.32 times during the school year, and poor Hispanic children, who averaged 3.29 visits per child during the same period. Poor white children saw school nurses nearly three times as frequently as non-poor white children, who averaged 1.26 visits. Poor Hispanic students sought nurse services twice as often as non-poor Hispanics. Non-poor Asian children were the least frequent visitors. Each Asian child saw the nurse nearly twice during the school year, almost twice as often as non-poor Asians. Non-poor children of all races sought services somewhat equally, averaging slightly more than 1 visit per child, with the exception of black children, who averaged 2.27 visits per child.

Physical health complaints, totaling 37,987 visits, were the most frequent reasons for nurse visits for students of all races, irrespective of poverty status. Poor black children made the most visits in every health category (see Table 14 for a representation by race and poverty of the five top reasons for school nurse

visits). For physical health complaints, poor black children made 10,833 visits, accounting for 29% of all visits. They were more than 3 times as likely as their non-poor black peers (who made 3,555 visits, or 9.4% of all visits), and nearly 4 times more likely than poor white children (2,906 visits, or 7.6%), to visit the nurse for physical health reasons.

For injuries, the second-highest overall reason for visiting a school nurse, poor black children were again over-represented, reporting 1442, or 33%, of all reported injuries. Non-poor white children were seen by school nurses for 757 reported injuries (17%), followed by non-poor black children, who reported 432 injuries (10%).

For social/emotional concerns, poor white and Hispanic children equally visited school nurses most frequently (one-third of children), while poor Asian and non-poor black children used these services at the same level (one in every 10 children). Poor black children were the second-highest users of this service (2 in 10 children), and non-poor Asians rarely were seen by school nurses for social/emotional health (less than one-half of 1%).

The highest level of nursing treatments was provided for poor black children who made nurse visits, nearly one-third of whom received these services. Poor white children were next for highest receipt of nursing treatments, followed by poor Hispanic, poor Asian, and non-poor black children.

Hispanic children, at 17% of visits, received the most health screening and re-screening services (such as vision and hearing screenings, and special education assessments), followed by poor black children (one of every 10), poor Asian children (one of 9), and non-poor Hispanic children (one of 8).

Table 14. Nurse visits per student by race, FRPL, and reason for visit, 2005-06 school year.

Reason for Visit	Race	Number visits		Total number of students		Nurse visits per student	
		FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no
Physical Health Problem/complaint	White	2,906	8,611	1,211	8,426	2.40	1.02
	Black[17]	10,833	3,555	3,488	2,119	3.11	1.68
	Asian[18]	3,628	2,461	2,698	2,881	1.34	0.85
	Hispanic	3,208	1,508	1,462	1,227	2.19	1.23
Injury	White	282	757	1,211	8,426	0.23	0.09
	Black	1,442	432	3,488	2,119	0.41	0.20
	Asian	560	319	2,698	2,881	0.21	0.11
	Hispanic	449	152	1,462	1,227	0.31	0.12
Social/emotional	White	360	406	1,211	8,426	0.30	0.05
	Black	754	240	3,488	2,119	0.22	0.11
	Asian	259	105	2,698	2,881	0.10	0.04
	Hispanic	442	115	1,462	1,227	0.30	0.09
Nursing Treatment	White	222	307	1,211	8,426	0.18	0.04
	Black	1,143	301	3,488	2,119	0.33	0.14
	Asian	433	151	2,698	2,881	0.16	0.05
	Hispanic	219	68	1,462	1,227	0.15	0.06
Health screen/rescreen	White	89	270	1,211	8,426	0.07	0.03
	Black	401	104	3,488	2,119	0.11	0.05
	Asian	242	97	2,698	2,881	0.09	0.03
	Hispanic	255	95	1,462	1,227	0.17	0.08

Some students make multiple visits to school nurses for a variety of reasons: Nursing treatments, medication administration, and physical complaints with or without psychological origins are some common reasons. Because there were 36 weeks in the school year in 2005-06, the 24 children who visited the nurse an average of once per week, or 36 times or more during the school year,

[17] NED records do not distinguish African-American students from other students with similar phenotypic features, except for those of Hispanic origin. Therefore, students assigned to the "black" category of race may include immigrants of African and Afro-Caribbean origin.

[18] Records in this category include all 9 Asian sub-groups recognized by SPS. These are: Chinese, East Indian, Filipino, Japanese, Korean, Other Asian or Pacific Islander, Samoan, Southeast Asian, and Vietnamese. Individual Asian groups were separately analyzed. Those with atypical or significant findings are discussed in the text.

are considered to be children who may have unmet or special health care needs. These 24 children (of a population of 12,797 children who visited the school nurse) accounted for 1,632, or 13%, of the total number of school nurse visits; an additional 8,852 children (69%) saw the school nurse more than once during the course of the school year.

Ethnicity and School Nurse Visits

To further understand student health usage patterns, it is important to separate and analyze ethnic categories that contain heterogeneous populations. For example, 5,686 Asian middle and high school students represent 23% of the student body; they are the most populous nonwhite group in SPS. Nearly 30% of them are designated Limited English Proficient (LEP) or Equal English Proficient (EEP) (Data Profile, District Summary, 2006). These students are combined in district datasets as one group representing 9 distinct ethnicities (two of these categories, "other Asian/Pacific Islander (PI)," and "other Southeast Asian" contain multiple ethnic groups). Table 15 presents health visit data by Asian ethnic subgroup, and Table 15 provides the same data for Hispanic subgroups. To allow for comparison among the individual ethnic groups and the aggregate groups, per-student physical health visits, the most numerous category of all school nurse visits, is provided.

Table 15. Asian middle and high school student nurse visits by ethnic sub-group, 2005-06 school year.

Race/ ethnicity	Total number of visits		Total number of students		Nurse visits per student		Physical health visit per student	
	FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no
Chinese	802	705	568	755	1.41	0.93	0.35	0.29
East Indian	385	97	51	104	0.13	1.07	2.45	0.77
Filipino	822	957	372	737	2.20	1.30	1.48	1.01
Japanese	97	314	38	351	2.55	0.89	2.11	0.79
Korean	39	143	27	135	1.44	1.06	1.15	0.87
Other Asian/PI[19]	325	150	111	13	2.93	1.12	2.00	0.42
Samoan	377	89	151	76	2.50	1.17	1.59	0.74
Other SE Asian[20]	906	400	493	334	1.84	1.20	0.49	0.17
Vietnamese	1,863	382	863	386	2.16	0.99	1.46	0.74

There are three compelling features that Table 15 reveals. The first is that, when viewed as independent groups, the health usage of Asian adolescents and teens looks different than when viewed in the aggregate. For example, when weighted as one group as shown in Table 13, poor Asians are represented as using health services less frequently than every other ethnic group. This is not the case, however, when the groups are disaggregated. On average, every East Indian child, for example, visited the school nurse for a physical health complaint more than twice during the school year. This rate is higher than three of the four Hispanic ethnicities shown in Table 16. Poor Asian/PI children had higher usage rates for nurse visits than every aggregate ethnic group – except black children – shown in Table 15. Poor Japanese children had higher usage rates for nurse visits

[19] Other Asian or Pacific Islander may include people from countries such as Tibet, Eastern Siberia, Guam, Tahiti, Hawaii, or the native people of Australia.

[20] May include students from countries such as Cambodia, Indonesia, Malaysia, Thailand, Sri Lanka, and Myanmar.

than poor Samoan children, and both groups had higher usage rates for nurse visits than aggregate groups of white, Hispanic, and Asian children. Poor Japanese children also had higher usage rates for physical health problems than did their poor Hispanic Indian and Hispanic Asian peers.

The second notable feature of Tables 13, 14, and 15 is that poverty stands out as a variable consistently associated with increased rates of health visits. Poor children of all ethnicities had higher school nurse usage rates than non-poor children, and in many cases, considerably so. The greatest same-group disparities were between non-poor and poor white children in the receipt of social/emotional services and nursing treatments. Poor white children were seen for social/emotional reasons six times more frequently than non-poor white children, and were provided nursing treatments four times more often than their non-poor counterparts. Another notable inter-group difference occurred among students labeled "Other Asian/PI": Each individual child in this category saw the school nurse twice during the year, whereas only half of non-poor children in this category made a nurse visit.

Cross-group differences for all nurse visits were the greatest between poor black (3.11 visits per child) and non-poor Asian (1.34) children in the aggregate, and between poor Hispanic black (5.41) and poor East Indian (0.13) children when shown by ethnic subgroup.

The third notable feature of these tables is that race appears to be associated with school nurse usage rates, and race and poverty together accentuate the number of health visits. Non-poor black children made more frequent visits to the school nurse than Asian, Hispanic or white children, and this frequency grew when associated with poverty. For example, non-poor Hispanic black children used school nurse services slightly more than their Hispanic Asian peers; when poverty was added, Hispanic blacks were more than three times likelier than Hispanic Asians to see the school nurse.

Table 16. Hispanic middle and high school student nurse visits by ethnic sub-group, 2005-06 school year.

Race/ethnicity	Total number of visits		Total number of students		Nurse visits per student		Physical Health visit per student	
	FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no
Hispanic Asian	75	132	46	96	1.63	1.38	1.04	0.96
Hispanic Black	655	134	121	82	5.41	1.63	3.88	1.33
Hispanic Indian	2,600	890	826	521	3.15	1.71	2.05	1.32
Hispanic White	1,483	838	469	528.	3.16	1.59	2.12	1.17

Immigrants and School Nurse Visits

Immigrant students are identified in this study based on student assignment by SPS of a language and/or country code. Country codes and language codes are assigned to students enrolling in SPS upon arrival from a country outside of the U.S. These students are first-generation immigrants. Other students who were born in the U.S., but whose English fluency has been determined to be less or equally proficient as the student's primary (home) language, are assigned as LEP by SPS, and qualify for bilingual programs. These

students are assigned language codes, but not country codes, because they were born in the U.S. This student population contains second and later generation immigrants.

In the 2005-06 school year, 68 separate language codes and 75 country codes were assigned to children by SPS. These data sets were applied to the NED database using matching (scrambled) student identification numbers.

The most populous groups of students whose home language is not English are those who speak the following languages: Cambodian (these students represent 5.1% of all non-English languages represented in SPS); Cantonese (representing 10.8%), and Mandarin (3.1%); Oromo (3.1%) and Tigrigna (3.9%); Somalian (8.6%); Spanish (20.1%); Tagalog (6.5%); and Vietnamese (15.5%). With the exception of Cambodian students, who are grouped in the "other Asian" category, and therefore cannot be separately analyzed, these are the immigrant students examined in this study. The remaining 23% of LEP students represent 59 other languages.

Tables 17 through 21 illustrate, by generational status, school nurse visits made by immigrant students. While the majority of immigrant or LEP students are poor (i.e. qualify for FRPL), poverty status is available by language status of a student, but not by a student's country of origin. Therefore, tables illustrating visits of first-generation students (those who have a country code assignment) do

not show a relationship of number of visits to poverty status, although it is likely that this relationship exists.

Table 17. Total school nurse visits by country (1st generation).

	Number visits	Percent of visits	Number students	Percent of students	Nurse visits per student
China	307	5%	293	12.0%	1.05
El Salvador	155	2%	43	1.7%	3.60
Ethiopia	819	14%	264	10.0%	3.10
Guatemala	134	2%	21	0.8%	6.38
Honduras	86	1%	18	7.2%	4.77
India	71	1%	34	1.4%	2.09
Mexico	1,794	31%	617	25.0%	2.91
Philippines	561	10%	334	13.0%	1.68
Somalia	1,191	21%	415	16.0%	2.87
Vietnam	646	11%	478	19.0%	1.35
Total	5,764		2,517		2.98 (average)

Table 17 illustrates the usage rates of school nurse services by first generation immigrant students. Guatemalan students had the highest usage rates, with each child visiting the school nurse more than 6 times during the course of the school year. The next highest users were children from Honduras (nearly 5 visits per child); El Salvador and Ethiopia (both with more than 3 visits per child); and Mexico and Somalia, both with almost 3 visits per child. When compared to total nurse visits by race (Table 13), Guatemalan and Honduran children are the highest users, followed by poor black children (4.33 visits per student), El Salvadoran children (3.6 visits per child), poor white children (3.32 visits), and poor Hispanic children (3.29 visits).

When analyzed by category, the most common reason for a visit to the school nurse by first generation students was for a physical health reason. This is

consistent with other student populations. Guatemalan and Honduran students made more visits for physical health reasons than any other category of students, with 4.9 and 3.5 respective visits for each student. The next highest number of visitors was El Salvadoran students (3.60 visits per student); Ethiopian students (2.35 visits per student); Somali students (2.07 visits per student); and Mexicans (1.88 visits per student). When compared to student visits by race (Table 13), only poor black children (at 3.11 visits per student) and poor Hispanic children (2.19 visits per student) had similar frequencies of visits.

Visits for social/emotional reasons also were higher for first generation immigrant students from some Latin American nations, Ethiopia, and Somalia, than for poor white, black, Asian, and Hispanic students. For example, 44% of Honduran student visits were for social/emotional reasons, while 30% of poor Hispanics and whites in the aggregate were seen for the same reason. Of those visiting the school nurse, 37% of El Salvadoran children, 29% of Guatemalan children, and 21% of Mexican children, were seen for social/emotional reasons. This compares to 22% of poor blacks, and 10% of poor Asians. Conversely, first generation Asian and African students were rarely seen for social/emotional reasons: Vietnamese children were the most frequent visitors in this category (8%), and Chinese children made the least frequent visits for social/emotional reasons (2%).

Table 18. Reasons for school nurse visits by Latin American Countries (1st generation).

Reason for visit	Country of origin	Number of visits	Number of students	Nurse visit per student
Physical Health	El Salvador	93	43	2.16
	Guatemala	103	21	4.90
	Honduras	63	18	3.50
	Mexico	1158	617	1.88
Screen/Rescreen	El Salvador	15	43	0.35
	Guatemala	4	21	0.19
	Honduras	1	18	0.06
	Mexico	134	617	0.22
Social/emotional	El Salvador	16	43	0.37
	Guatemala	6	21	0.29
	Honduras	8	18	0.44
	Mexico	130	617	0.21
Nursing Treatment	El Salvador	5	43	0.12
	Guatemala	0	21	0
	Honduras	2	18	0.11
	Mexico	63	617	0.10
Immunization	El Salvador	11	43	0.26
	Guatemala	8	21	0.38
	Honduras	4	18	0.22
	Mexico	75	617	0.12

Table 19. Reasons for school nurse visits by Asian and African countries (1st generation).

Reason for visit	Country of origin	Number of visits	Number of students	Nurse visit per student
Physical Health	China	190	293	0.65
	Ethiopia	620	264	2.35
	India	50	34	1.47
	Philippines	366	334	1.10
	Somalia	859	415	2.07
	Vietnam	439	478	0.92
Screen/Rescreen	China	48	293	0.16
	Ethiopia	29	264	0.11
	India	3	34	0.09
	Philippines	29	334	0.09
	Somalia	65	415	0.16
	Vietnam	33	478	0.07
Social/emotional	China	7	293	0.02
	Ethiopia	25	264	0.09
	India	2	34	0.06
	Philippines	21	334	0.06
	Somalia	21	415	0.05
	Vietnam	37	478	0.08
Nursing Treatment	China	1	293	0.00
	Ethiopia	37	264	0.14
	India	6	34	0.18
	Philippines	66	334	0.20
	Somalia	62	415	0.15
	Vietnam	12	478	0.03
Immunization	China	34	293	0.12
	Ethiopia	41	264	0.16
	India	4	34	0.12
	Philippines	21	334	0.06
	Somalia	71	415	0.17
	Vietnam	58	478	0.12

Before examining data for second and later generation students, it is important to note data limitations. Second (and later) generation students in this study were identified by the assignment of a language code, but not a country code. As noted in data from first generation students, children who come from different countries, but who share the same language (e.g. Mexicans and Guatemalans), may have different patterns of school health usage rates. That

means that data for second and later generation students may not be as reliable as that presented for first generation immigrants, for whom the presence of both a language and a country code provides specificity in regard to both immigration status (first generation vs. groupings of second and later generation for students assigned only a language code) and country of origin. The data for second and later generation students is presented here despite this limitation because patterns may be seen with students whose language denotes only one possibility for country of origin (e.g. the vast majority of Vietnamese speaking children are from Vietnam), and it also seemed worth providing from an exploratory perspective. Information on second and later generation students is now presented.

Second or later generation students who spoke Oromo (an Ethiopian language) had the highest rates of visiting school nurses compared to other LEP children born in the U.S. Each Oromo-speaking child visited the school nurse nearly 4 times in the course of the 2005-06 school year. Spanish speaking students were the second highest visitors to school nurses of all populations studied, averaging more than 3 visits per student during the same time period. Middle and high school students speaking Tigrigna (Ethiopia), Amharic (Ethiopia), and Somali also visited school nurses at rates roughly comparable to poor U.S.-born poor black students.

The biggest difference in proportion of the population to percent of visits was with Spanish-speaking students: They comprised 26.5% of the LEP

population, and accounted for 35.8% of visits to school nurses made by the same population. Children whose primary language was Mandarin had the lowest visit-to-population ratio, making 1.3% of visits, while comprising 3.1% of the LEP population.

Table 20. Middle and high school nurse visits by language (2nd or later generation immigrants), 2005-06 school year.

Home language	Number visits	Percent of visits	Total number LEP students[21]	Percent of students	Nurse visits per student
Spanish	3,934	35.8%	1,247	26.5%	3.14
Vietnamese	1,829	16.7%	1,021	22%	1.79
Cantonese	771	7.0%	625	13.3%	1.23
Somalian	1,350	12.2%	437	9.3%	3.09
Tagalog	684	6.2%	389	8.3%	1.76
Cambodian	558	5.0%	292	6.2%	1.91
Amharic	510	4.6%	178	3.7%	2.87
Tigrigna	624	5.7%	204	4.3%	3.06
Mandarin	147	1.33%	147	3.1%	1.00
Oromo	571	5.2%	159	3.3%	3.59
Total	10,978	99.7%	4,699	100.0	2.34 (average)

The primary reason for second generation immigrants to visit a school nurse, as illustrated in Table 20, was for physical health reasons. Students of African origin made the most visits in this category, with Ethiopian and Somali students making more than 1 visit per student, on average, per school year. More than 50% of visits for physical health reasons in every language group were common among all groups.

[21] This represents the number of students assigned a language code, but not a country code, indicating that they were born in the U.S., but speak English less or equally proficient as their primary language.

Table 21. Reasons for school nurse visits by language (2nd generation).				
Reason for visit	**Language**	**Number visits**	**Number students**	**Visit per student**
Physical Health	Amharic	50	49	1.02
	Cambodian	102	211	0.48
	Cantonese[22]	0	361	0
	Mandarin	4	77	0.05
	Oromo	42	33	1.27
	Somalian	50	42	1.19
	Spanish	483	535	0.83
	Tagalog	63	92	0.68
	Tigrigna	107	120	0.89
	Vietnamese	264	349	0.76
Screen/Rescreen	Amharic	1	49	0.02
	Cambodian	5	211	0.02
	Cantonese	0	361	0
	Mandarin	0	77	0
	Oromo	1	33	0.03
	Somalian	5	42	0.12
	Spanish	13	535	0.02
	Tagalog	2	92	0.02
	Tigrigna	5	120	0.04
	Vietnamese	14	349	0.04
Social/Emotional	Amharic	5	49	0.10
	Cambodian	7	211	0.03
	Cantonese	0	361	0
	Mandarin	0	77	0
	Oromo	0	33	0
	Somalian	16	42	0.38
	Spanish	131	535	0.24
	Tagalog	2	92	0.02
	Tigrigna	1	120	0.01
	Vietnamese	16	349	0.05

Table 22 compares rates of school nurse visits between first generation and second and later generation students. It shows that second generation Asian and African students visited school nurses slightly more frequently than did first generation students. This may be due to chance, due to declining health among later generations, as posited by the epidemiological paradox theory, and/or it may

[22] School nurse visit data for Cantonese-speaking students was not available.

be due to a greater familiarity with services and how to access them. Table 22 also shows that first generation Spanish-speaking students used school nurse services more frequently than did their second-generation counterparts. As explained in the data limitations, however, differences between country of origin can be considerable. Thus, averaging the visits by country (as was done for first generation students from Mexico, Honduras, El Salvador and Guatemala) and comparing it to second generation students – for whom language was used to represent generational status – is an imperfect representation of generational differences.

Table 22. Nurse visits by generational status, 2005-06 school year.

	Nurse visits per student 1st generation	Nurse visits per student 2nd Generation
China[23]	1.05	1.12
Ethiopia[24]	3.10	3.32
Mexico, Honduras, El Salvador, and Guatemala	4.42	3.14
Somalia	2.87	3.09
Vietnam	1.35	1.79

Summary

These tables collectively illustrate that certain Latin American (Guatemalan, Honduran, and El Salvadoran) and African immigrant groups – particularly those who are second generation – along with poor black, white, and Hispanic children, are the most frequent users of school nurse services. The data further illustrates that physical health complaints are the most common reason for school nurse visits, and that frequency of visits for social/emotional reasons vary

[23] Includes students speaking Mandarin and Cantonese
[24] Includes students speaking Oromo and Tigrigna

considerably among the populations. First generation Latin American immigrants are, on average, three times as likely to see a school nurse for social/emotional problems than are their Asian and African peers, and than their poor U.S.-born counterparts.

To determine whether these usage patterns are consistent with other school health services, results of SBHC usage rates is the focus of the next chapter.

CHAPTER 6

Study Findings: SBHC Services

In the 2005-06 school year, 15 nurse practitioners, 2 physician assistants, 15 mental health counselors, and 7 psychiatrists working in 14 SBHCs made 35,971[25] diagnoses on visiting students and provided health services for 4,975 middle and high school students. Of 879 separate diagnostic numeric and alpha-numeric codes entered, there were 53 for which no corresponding diagnoses could be located in the manuals that translate the codes into diagnoses and procedures. These 53 codes represented 172 student visits. When these visits are added to the 1,247 visits discarded from the dataset due to multiple and/or conflicting entries, the number of visits analyzed is 34,552.

Because services offered by the SBHCs emphasize primary care, they differ from school nurses' focus on triage, prevention, urgent care, and screening. However, in an attempt to better compare the two services, SBHC services are analyzed according to broad codes. Broad codes were made from specific codes, which are the direct translations of the numeric and alpha-numeric codes entered by practitioners. For example, a diagnosis code of 282.6 represents a diagnosis of sickle cell disease. This disease is categorized under a specific category of endocrinology/hematology/metabolism, and is broadly coded as a physical health diagnosis. There are 879 diagnosis codes, 72 specific codes, and 15 broad codes.

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[25] The original data set on visits were reduced by 1,247 visits due to duplicate entries on individual students.

The data is presented in the broad codes that represent the majority of services provided, and that may be used for comparative purposes with school nurse visits as well as for better observation of general usage trends.

The top 20 diagnoses made accounted for 18,950 visits – more than half of all visits. The majority of SBHC visits were for mental health and reproductive health.

Table 23. Top 20 SBHC diagnoses made in the 2005-06 school year.

Broad code	Diagnosis	Number of visits
Social-emotional	Academic problems	2,533
Reproductive health	Family planning	2,338
Social-emotional	Interpersonal problems, not elsewhere classified	1,182
Reproductive health	Sexually transmitted disease	1,169
Reproductive health	Contraceptive pill	1,092
Reproductive health	Other contraceptive method	1,090
Physical health	Well child exam	994
Mental health	Depressive disorder, not elsewhere classified	985
Reproductive health	Venereal disease	925
Physical health	Undiagnosed disease	914
Social-emotional	Parent/child conflict	820
Physical health	Other medical exam for administrative purposes (adoption, camp, immigration, etc.)	673
Mental health	Observation for unspecified mental health condition	638
Physical health	Symptoms involving head & neck	617
Mental health	Other psychological stress	585
Mental health	Identity disorder	528
Reproductive health	Pregnancy test, negative	472
Reproductive health	Prescription of oral contraceptives	468
Social-emotional	Family disruption/divorce	466
Reproductive health	Initiation of other contraceptive methods	461

SBHC Visits and Gender

Females visited SBHCs much more frequently; they made 27,115 visits, compared to males, who made 8,856 visits (see Table 24). Except for medication management and referral, the categories with the least number of visits, females made more visits in every broad category than did males. The category accounting for the largest discrepancy was reproductive health, where females made 9,229 visits, compared to 518 visits made by males. Females also made nearly 3 times as many visits for social-emotional concerns, and nearly twice as many visits for mental health reasons, as did males. Females were seen by SBHC providers nearly 5 times as often as males for possible abuse or neglect concerns, and were almost twice as likely to be seen for drug or alcohol concerns.

Table 24. Female and male visits to SBHCs by category, 2005-06 school year.

Reason for visit (Broad code)	Number of visits by gender		Percent of visits by gender	
	Male	Female	Male	Female
Reproductive Health	518	9,229	5%	95%
Social/Emotional	2,216	5,968	27%	73%
Physical Health	2,850	4,863	37%	63%
Mental Health Disorder	1,874	3,555	35%	65%
Counseling	535	2,161	20%	80%
Immunization	298	397	43%	57%
Injury	232	254	48%	52%
Alcohol or drug	119	207	37%	63%
Possible abuse/neglect	31	139	18%	82%

Race, Poverty, and SBHC Visits

Consistent with the findings of school nurse visits, poor children saw SBHC providers more frequently than non-poor children overall and in every

health category (Table 25 provides overall usage data by ethnicity, and Table 26 shows usage data by ethnicity and reason for visit).

The greatest number of health visits was from poor black children who used clinic services: More than half of them sought care for physical health. The next highest usage rates were for mental health visits, made by more than half of clinic-using poor white students. The third highest usage rates were shared equally among poor black and poor white students for social-emotional concerns. Of those who used clinic services, half of poor Hispanic children were seen by SBHC providers for social-emotional problems, and nearly half of them also were assessed for physical health concerns. More than half of poor black and white children received services for reproductive health, while 40% of poor Asian children, and 44% of poor Hispanic children, received reproductive health services.

Table 25. SBHC visits per student by race and poverty (FRPL), 2005-06 school year.										
Race	**Number of visits**		**Percent of total visits**		**Number of students**		**Percent of total students**		**SBHC visits per student**	
	FRPL yes	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**
White	2,817	8,132	16%	48%	1,211	8,426	14%	58%	2.32	0.97
Black	8,015	4,147	46%	25%	3,488	2,119	39%	14%	2.30	1.96
Asian	3,922	2,626	22%	15%	2,698	2,881	30%	20%	1.45	0.91
Hispanic	2,857	1,963	16%	12%	1,462	1,227	17%	8%	1.95	1.60
Total	17,611	16,868	100%	100%	8,859	14,653	100%	100%	2.01 (average)	1.36 (average)

Differences in inter-group usage were noteworthy among white children in all health categories: For mental health diagnoses, usage rates were 40% higher among the poor; for social-emotional visits they were 35% higher; for physical health diagnoses they were 25% higher; and for reproductive health, poor white children received services 23% more frequently than non-poor white children.

The differences in usage rates between poor and non-poor children of color were much narrower, perhaps indicating that race, language, or immigration status are tightly associated with health service usage in schools. The highest inter-group disparity in usage rates after white children was for poor vs. non-poor Asian children receiving mental health services (29% of poor vs. 12% of non-poor), followed by Hispanic children receiving treatment for physical health problems (46% of poor vs. 28% of non-poor). While usage rates were high, representing half of the population, there was virtually no difference between rates of Hispanics receiving services for mental health (27% of poor, vs. 22% of non-poor); social-emotional problems (50% vs. 49%), or for Asians receiving reproductive health services (44% vs. 40%). Again, this may indicate that racial or immigration status is independent of poverty in influencing health usage in these areas.

In terms of reasons for visits, the most frequent use of clinics was by non-poor black students, 60% of whom visited SBHCs for reproductive health services. In all other categories, like those of school nurses, the most frequent

visitors, sometimes by considerable margins, were poor children. The second highest visit rate was by poor black children for physical health reasons (57%), followed by poor white children for mental health services (56%). More than half (55%) of all poor white and black student visits were for social-emotional concerns, as half of those for Hispanic students. Students receiving services for mental health reasons differ from those receiving services for social-emotional complaints in that the former results in a diagnosable illness such as anxiety disorder, depression, or bipolar disorder, whereas the latter is to address concerns often related to family or social circumstances such as parental drug dependency, domestic violence, foster care situations, or other social stressors.

The greatest racial intra-group differences by category of visit were between non-poor white students (16%) presenting with physical problems, compared to 57% of poor black students; 12% of non-poor Asian students receiving mental health services compared to 56% of poor white students; 31% of non-poor white students receiving reproductive health services compared to 60% of non-poor black students; and 20% of non-poor white students receiving social-emotional health services, compared to 55% of poor black students.

The greatest inter-group differences again were between poor and non-poor white students. For mental health services, nearly four times as many visits by poor white students (56%) were for these services, compared to 16% of visits by non-poor students. Large disparities also existed among poor and non-poor

white student visits for physical health services (41% compared to 16%); and for social-emotional health visits (55% of poor whites compared to 20% of non-poor whites).

Because disparities in use of services were much narrower in student populations of color than in white students, the SBHC data confirms the findings of the school nurse data in suggesting that color may be an independent factor in use of health services.

Table 26. SBHC visits per student by race, FRPL, and reason for visit, 2005-06 school year.

Reason for visit	Race/ ethnicity	Number visits		Total number of students		Nurse visits per student	
		FRPL yes	FRPL no	FRPL yes	FRPL no	FRPL yes	FRPL no
Physical Health Problem/diagnosis	White	495	1,310	1,211	8,426	0.41	0.16
	Black	1,988	960	3,488	2,119	0.57	0.45
	Asian	832	614	2,698	2,881	0.31	0.21
	Hispanic	679	341	1,462	1,227	0.46	0.28
Mental Health	White	677	1,340	1,211	8,426	0.56	0.16
	Black	1,133	474	3,488	2,119	0.32	0.22
	Asian	787	349	2,698	2,881	0.29	0.12
	Hispanic	402	264	1,462	1,227	0.27	0.22
Reproductive Health	White	652	2,592	1,211	8,426	0.54	0.31
	Black	1,792	1,228	3,488	2,119	0.51	0.60
	Asian	1,025	1,135	2,698	2,881	0.40	0.39
	Hispanic	650	486	1,462	1,227	0.44	0.40
Social-Emotional	White	668	1,707	1,211	8,426	0.55	0.20
	Black	1,929	893	3,488	2,119	0.55	0.42
	Asian	752	596	2,698	2,881	0.28	0.21
	Hispanic	733	605	1,462	1,227	0.50	0.49

Ethnicity and SBHC Visits

In comparing usage rates of aggregate poor Asian students visits (Table 25) to those disaggregated by ethnic sub-group (Table 27), a similar pattern to that of school nurse findings (i.e. increased usage rates) emerges. Sub-groups of poor

Asians that exceeded the aggregate rate of 1.45 visits per child were Filipino students, each of whom visited a SBHC more than twice during the school year. Japanese and Other Asian/PI students also each visited school health clinics more than twice during the school year, and Samoans and Other Southeast Asians also exceeded the aggregate visit rate. Chinese students were the least frequent clinic visitors (at 0.62 visits per poor student, and 0.11 for non poor students). Koreans were unique in that most of their clinic visits were by non poor students (1.71 visits per child) than poor students (0.81 visits per student).

Disaggregated Hispanic student visits were more aligned with aggregate numbers, although there was less disparity between poor and non poor students, except for Hispanic whites.

Table 27. Asian middle and high school SBHC visits by ethnic sub-group, 2005-06 school year.										
Ethnicity	**Total number of visits**		**Percent of Visits**		**Total number of students**		**Percent of Students**		**SBHC visits per student**	
	FRPL yes	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**
Chinese	353	84	9.0%	3.0%	568	755	21.2	25.0	0.62	0.11
East Indian	71	51	1.8%	1.8%	51	104	1.9	3.5	1.39	0.49
Filipino	804	1,299	20.0%	47.0%	372	737	14.0	24.5	2.16	1.76
Japanese	95	166	2.4%	6.0%	38	351	1.4	11.7	2.50	0.47
Korean	22	231	.5%	8.3%	27	135	1.0	4.5	0.81	1.71
Other Asian/PI	267	140	6.7%	5.0%	111	134	4.2	4.4	2.41	1.04
Samoan	262	69	6.6%	2.5%	151	76	5.6	2.5	1.74	0.91
Other SE Asian	902	401	23.0%	14.3%	493	334	18.4	11.1	1.83	1.20
Vietnamese	1162	348	30.0%	12.4%	863	386	32.3	12.8	1.35	0.90
Total	3938	2,789	100.0%	100%	2,674	3,012	100	100	1.65 (average)	0.95 (average)

Table 28. Hispanic middle and high school SBHC visits by ethnic sub-group, 2005-06 school year.										
Ethnicity	**Total number of visits**		**Percent of visits**		**Total number of students**		**Percent of students**		**SBHC visits per student**	
	FRPL yes	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**	**FRPL yes**	**FRPL no**
Hispanic Asian	80	150	2.8%	7.6%	46	96	3.1%	7.8%	1.74	1.56
Hispanic Black	194	93	6.7%	4.7%	121	82	8.3%	6.7%	1.60	1.13
Hispanic Indian	1,645	1,017	57.5%	51.8%	826	521	56.5%	42.5%	1.99	1.95
Hispanic White	938	703	33.0%	35.8%	469	528	32.1%	43.0%	2.00	1.33
Total	2,857	1,963	100.0%	99.9%[26]	1,462	1,227	100.0%	100.0%	1.83 (average)	1.49 (average)

[26] Numbers do not add up to 100% due to rounding

Immigrants and SBHC Visits

First generation immigrant students who made the most SBHC visits were from, in order of frequency, Guatemala, Cambodia, and Mexico (see Table 29). Students from Cambodia and Guatemala made, on average, more visits to SBHCs than any other category of poor student in the middle and high school population. First generation Mexican students, at nearly 2 visits per student, also ranked high in SBHC usage. Students from other countries where the average visit exceeded one visit for every child in the population were, from highest to lowest frequency, Ethiopians, Filipinos, Somalis, and El Salvadorans. These visit rates may not reflect first generation immigrant students' potential visit rates as nearly 600 of them per year are located at the BOC, where school nurse, but not SBHC services, are readily available.

Table 29. Total SBHC visits by country (1st generation).

	Number visits	Percent of visits	Total number students	Percent of students	SBHC visit per student
Cambodia	127	3.6%	47	1.7%	2.70
China	151	4.3%	293	11.4%	0.52
El Salvador	46	1.3%	43	1.7%	1.07
Ethiopia	482	13.8%	264	10.3%	1.83
Guatemala	94	2.7%	21	0.8%	4.48
Honduras	18	0.5%	18	0.7%	1.00
India	5	0.1%	34	1.3%	0.15
Mexico	1,162	33.3%	617	24.0%	1.88
Philippines	506	14.5%	334	13.0%	1.51
Somalia	436	12.5%	415	16.2%	1.05
Vietnam	464	13.3%	478	18.6%	0.97
Total	3,491	99.9%[27]	2,564	99.7%	1.56 (average)

[27] Number does not add up to 100 due to rounding.

In terms of reasons for visits (see Tables 30 and 31), Guatemalan students were the most frequent visitors for physical health (on average, each Guatemalan child made 1.5 visits), and for reproductive and social-emotional health (nearly every Guatemalan child made 1 visit on average during the year for these reasons). The second highest users of services among first generation students were Cambodians, each of whom, on average, made more than 1 visit for mental health services. 64% of visits from Ethiopian students were for physical health, and at 62% of visits, first generation Filipino students made the most visits for reproductive health. More than half of visits made by first-generation Mexican children were for social-emotional health, and nearly half of them were for reproductive and physical health.

The fewest number of visits were from children from India, none of whom made visits for reproductive, social-emotional, or mental health. This may be due to the relatively small sample of children, due to lack of knowledge about services, or due to cultural influences discouraging students from seeking such services.

Table 30. Reasons for SBHC visits by Latin American countries (1st generation).				
Reason for visit	**Country of origin**	**Number of visits**	**Number of students**	**SBHC visit per student**
Physical Health	El Salvador	12	43	0.28
	Guatemala	31	21	1.48
	Honduras	2	18	0.11
	Mexico	266	617	0.43
Mental Health	El Salvador	1	43	0.02
	Guatemala	6	21	0.29
	Honduras	2	18	0.11
	Mexico	163	617	0.26
Social/emotional	El Salvador	5	43	0.12
	Guatemala	19	21	0.90
	Honduras	8	18	0.44
	Mexico	317	617	0.51
Reproductive Health	El Salvador	6	43	0.14
	Guatemala	19	21	0.90
	Honduras	2	18	0.11
	Mexico	271	617	0.44
Immunization	El Salvador	13	43	0.30
	Guatemala	7	21	0.33
	Honduras	4	18	0.22
	Mexico	31	617	0.05

Table 31. Reasons for SBHC visits by Asian and African countries (1st generation).				
Reason for visit	**Country of origin**	**Number of visits**	**Number of students**	**SBHC visit per student**
Physical Health	Cambodia	24	45	0.53
	China	38	293	0.13
	Ethiopia	170	264	0.64
	India	3	34	0.09
	Philippines	126	334	0.38
	Somalia	164	415	0.40
	Vietnam	82	478	0.17
Mental Health	Cambodia	50	45	1.11
	China	19	293	0.06
	Ethiopia	74	264	0.28
	India	0	34	0.00
	Philippines	19	334	0.06
	Somalia	54	415	0.13
	Vietnam	45	478	0.09
Social/emotional	Cambodia	7	45	0.15
	China	17	293	0.06
	Ethiopia	65	264	0.25
	India	0	34	0.00
	Philippines	48	334	0.14
	Somalia	91	415	0.22
	Vietnam	77	478	0.16
Reproductive Health	Cambodia	35	45	0.77
	China	33	293	0.11
	Ethiopia	100	264	0.38
	India	0	34	0.00
	Philippines	208	334	0.62
	Somalia	72	415	0.17
	Vietnam	191	478	0.40
Immunization	Cambodia	3	45	0.07
	China	28	293	0.10
	Ethiopia	21	264	0.08
	India	1	34	0.03
	Philippines	37	334	0.11
	Somalia	19	415	0.05
	Vietnam	24	478	0.05

At first glance, a comparison of Tables 29 and 32 shows that with a couple of exceptions (Spanish and Vietnamese-speaking students), second-generation students appear to be slightly less frequent users of SBHCs. Somali students made only half the visits to SBHCs as did their first generation peers, and

Ethiopian and Filipino children also made fewer visits. As in the nurse tables, however, second generation students are tabulated by language, not country of origin, so cultural differences among students speaking similar or the same languages may influence usage rates. In addition, when disaggregated by services, a clearer picture emerges of specificity of services used by student populations.

Table 32. Total SBHC visits by language (2nd generation).

	Number visits	Percent of visits	Total number U.S.-born students	Percent of U.S.-born students	SBHC visit per student
Amharic, Oromo, & Tigrigna[28]	500	15.6%	331[29]	18.7%	1.51
Cambodian	426	13.3%	211	12.0%	2.02
Cantonese &[30] Mandarin	336	11.0%	27	1.5%	
Somalian	21	0.6%	42	2.4%	0.50
Spanish[31]	1,136	35.6%	535	30.2%	2.12
Tagalog	123	3.8%	92	5.2%	1.34
Vietnamese	643	20.1%	530	30.0%	1.21
Total	3,185	100.0%	1,768	100.0%	1.45 (average)

For example, although Ethiopians as a group used combined SBHC services less frequently than 3 other groups, U.S.-born Oromo-speaking students used mental health, physical health, and social-emotional health SBHC services considerably more than any other second-generation immigrant population (see Table 31). Each Oromo-speaking child used these services more than 3 times

[28] Represents students of Ethiopian origins
[29] This number represents 178 Amharic-speaking children, 33 Oromo-speaking children, and 120 children who speak Tigrigna
[30] Represents students of Chinese origins
[31] Represents students of Mexican, El Salvadoran, Guatemalan, and Honduran origins

during the course of the school year. U.S.-born Amharic-speaking students (also of Ethiopian origin), were the second-highest users of mental health services (96%), followed by Somali students (81%) and Spanish-speaking students (75%).

Reproductive health services used by second generation immigrant students were most frequently used by Filipino students: Each Tagalog-speaking student on average received these services nearly 3 times during the school year.

Table 33. SBHC visits by language (2nd or later generation).[32]									
Home language	**Number of U.S.-born students**	**Mental health**		**Physical health**		**Reproductive health**		**Social/ emotional**	
		Number Visits	**Visit per student**	**Number Visits**	**Visit per student**	**Number Visits**	**Visit per student**	**Number Visits**	**Visit per student**
Spanish[33]	535	229	0.43	189	0.35	225	0.42	272	0.51
Vietnamese	530	152	0.29	113	0.21	88	0.16	187	0.35
Cambodian	211	67	0.32	73	0.45	130	0.62	96	0.45
Somalian	42	0	0.00	11	0.26	2	0.05	7	0.17
Tagalog	92	19	0.21	14	0.15	66	0.72	27	0.29
Amharic, Tigrigna, and Oromo[34]	49 120 33 **202**	47 27 111 **185**	0.92	50 71 127 **248**	1.23	11 51 45 **107**	0.53	30 55 112 **197**	0.98
Total	1,612	652	0.40	648	0.40	618	0.38	786	0.49

[32] The figures in these tables are derived from counting all students in one language group who used the services (includes students of all generations) and subtracting the number of students with country codes (1st generation immigrants) who used the same services from the language group, to determine usage rates of second or later generation students. Because some individual students may use a service multiple times, and because not all students who speak the same language share the same country of origin, the figures are not entirely precise. Information on students speaking Mandarin and Cantonese were not available.

[33] Spanish-speaking students represent those from Mexico, Guatemala, Honduras, and Nicaragua

[34] Because virtually all students who speak these languages come from Ethiopia, and country code is a proxy for first generation immigrant status, these visits had to be combined. While some differences in school health usage are likely to exist among children speaking these languages, there are likely many similarities, as well.

When all SBHC visits are combined (see Table 34), second generation immigrant students use SBHC services more frequently than their first generation peers. Cambodian students had the highest usage rates, with nearly 3 visits per student for first generation immigrants, and more than 2 visits per student, on average, for second generation immigrant students. Second generation immigrant Ethiopian students were the second-highest users of SBHC services among immigrant populations, with 2.48 visits per student; 1.83 visits per student was the average for first generation Ethiopian students. First generation students from Latin American countries (the most populous being from Mexico) were the third-highest population of immigrant students using SBHC services. First generation students (1.9 visits per student) used the services considerably more than their second-generation counterparts (0.91 visits per student). Filipino students of first and later generations used SBHC services in similar amounts, with 1.5 visits per first generation student, and 1.34 visits per student for second and later generation students. Inter-group differences were the widest among Somali students, with first generation students using services twice as often as their second and later generation counterparts. This difference is striking in comparison to other groups, and may be due to the comparatively small sample size. Vietnamese students used SBHC services in roughly comparable amounts, with both groups nearing approximately 1 visit per student per year.

Table 34. Total SBHC visits by generational status.						
	Total number of students by generation		Total number of visits by generation		Visits per student by generation	
	First	Second[35]	First	Second	First	Second
Cambodian	44	211	128	426	2.91	2.02
Ethiopian[36]	264	202	482	500	1.83	2.48
Mexican[37]	696	1,247	1,320	1,136	1.90	0.91
Somalian	415	42	436	21	1.05	0.5
Tagalog	334	92	506	123	1.51	1.34
Vietnamese	478	530	464	643	0.97	1.21

Summary

Nearly every immigrant student used SBHC services on average at least once during the school year, with Cambodian students having the highest usage rates, and first generation Vietnamese students having the lowest. In comparing immigrant students to other groups of SBHC users, the groups using services the most infrequently (i.e. those who are not poor and enjoy primary health care coverage) may be the ones, according to research literature, who enjoy better health and who function better at school. On a relative level, infrequent users set the "bar" for usage desirability. When compared to poor white and black students who used SBHC services in comparable amounts (2.32, and 2.30 visits per student, respectively), only 2 immigrant groups used the services more: First generation Cambodians (2.91 visits per student) and second-generation Ethiopians

[35] Refers to second and later generations
[36] Includes students who speak Amharic, Oromo, and Tigrigna
[37] Includes Spanish-speaking students from Mexico (617), and 70 other students from Guatemala, Honduras, Nicaragua, and El Salvador.

(2.48 visits per student). When compared to non-poor ethnic groups (Table 25, p.109), almost all immigrant groups exceeded their usage. Interestingly, poor Hispanics and non-poor Hispanics used SBHC services in nearly identical frequencies to, respectively, first generation and second generation Hispanic immigrants.

To help interpret the results of these and previous chapters containing the quantitative research, the next chapter focuses on qualitative data findings.

CHAPTER 7

Qualitative Findings

There are two sets of findings for this section: one set analyzes focus group data, and one set analyzes surveys completed by school nurses. These findings will be presented separately, then collectively summarized.

Focus Group

The focus group was designed to help illuminate the quantitative findings of this study, and to help explain usage rate patterns of students, particularly in regard to ethnicity, poverty, and immigration status. To that end, the focus group inquiry centered mainly on the nurses' experiences in, and perceptions of, student health usage patterns and behaviors, and the nurses' changing roles and responsibilities in light of increasing numbers of ethnic minority and immigrant children in their schools.

The focus group was comprised of 4 nurses, two of whom work in middle schools that house SBHCs, one who works as nurse practitioner in a high school health center, and one who works at the Bilingual Orientation Center (BOC), a school serving newly arrived immigrant middle and high school students. Two of the nurses have four-year nursing degrees; the other two, including the nurse practitioner, have advanced practice degrees. The nurses working in middle schools served a population of approximately 1,630 students, with about half the student population qualifying for FRPL. The nurse practitioner works in a high

school housing about 1,300 students, 70% of whom are enrolled in the health center, and the IOC nurse serves about 600 new immigrant students annually, more than 99% of whom qualify for FRPL. Combined, the nurses have nearly 40 years' experience working in the schools they currently serve.

Table 35. Focus group participant demographics.

	Years' experience working in schools with predominant ethnic minority populations	Educational and licensing attainment	Current primary area of practice
Nurse A	10	RN, MN	Middle School with Wellness Center
Nurse B	5	RN, BSN	Bilingual Orientation Center
Nurse C	15	RN, BSN	Middle School with Wellness Center
Nurse D	8	RN, ARNP	SBHC

After transcribing and coding the data, three major themes emerged. The first was identification of student health needs and the ability of school-based health providers to meet them. The second was the issue of access to health care – both facilitators and barriers to access within the school setting and the larger community. The third was the actual and potential ability of school nurses and SBHCs to improve health status, and therefore increase access to and accomplishment in, educational endeavors, particularly among traditionally disadvantaged populations. These three major findings will now be discussed.

Student Health Needs

The major needs that emerged were mental health, reproductive health, and what will be referred to as "basic needs." Basic needs are those for which services such as immunizations and management of a chronic health condition

such as asthma, directly influence school attendance. These services include dental hygiene; vision and hearing screening and treatment; well-child physical examinations; management of acute and chronic health conditions such as allergies, asthma, seizure disorders, and diabetes; and sports physicals, which are required for adolescents to participate in many sports. As is consistent with numerous research studies identified in the literature review, all of the nurses identified uninsured children, immigrant children, and ethnic minority children as those least likely to have basic needs met.

Mental health was identified by all of the nurses as a mounting impediment to learning readiness and academic success, both in terms of the increasing numbers of children with mental health disorders (both diagnosed and undiagnosed), and in terms of the severity of mental health presentations. Depression, anxiety, anger, bipolar disorder, substance abuse, post-traumatic stress syndrome (PTSD), and attention-deficit disorder with or without hyperactivity (ADD/ADHD), were the most common conditions cited by focus group participants, again consistent with literature. The nurses also indicated that ethnic minority, uninsured, and immigrant children were at higher risk for some mental health disorders (especially PTSD among immigrants), and were at significantly higher risk of having their mental health problems go untreated. All of the nurses stated that the most common physical health complaints that children reported to them were stomachaches and headaches, physical symptoms

which the nurses said often stemmed from social-emotional difficulties. "For a lot of these kids, it's not physical…it's a lot of anxiety. A huge amount of anxiety." The nurses said that efforts to treat the underlying mental causes masked by somatic symptoms were hampered mainly by lack of resources and by cultural conflicts, making students of color, poor students, and immigrant students more likely both to experience mental health problems, and to have them go untreated. More will be said about this in the section on health care access below.

Reproductive health was the third major area of concern among the focus group participants. Not surprisingly, adolescents and teens with untreated mental health problems were at greater risk of having unprotected sex, resulting in increased exposure to disease transmission and unplanned pregnancies. Nurses at the middle school level reported much fewer contact with students about reproductive health. One middle school nurse said that over the course of a school year, she had 4 visits pertaining to sexual health, in contrast to the high school nurse practitioner, for whom 60% of visits pertain to reproductive medicine (primarily contraception, pregnancy and STD testing, and sexual health education). The nurse at the BOC said that sexual health services for immigrant students are one area "that is not even close to being adequately met," adding that Hispanic students at her school are the dominant population, and the one most in need of reproductive health services.

Access to Health Care

Focus group participants identified access to health care as a major determinant of children's health status, with subsequent implications for school attendance, learning readiness, and drop-out rates, all of which affect academic engagement and achievement. The barriers to health care access most frequently cited by the nurses were cultural discordance, family and community opposition to provision of sexual health services, and lack of available resources – such as clinics, health care personnel, and health insurance for poor and immigrant populations.

Focus group participants also talked about facilitators to health care access, namely the availability of health services at schools, cooperation and communication among community health clinics and SBHC providers, and outreach and education efforts aimed at students and their families.

The nurses unanimously identified growing immigrant populations as vulnerable in terms of receiving health care and subscribing to the Western beliefs and traditions upon which it is based. This is now discussed in more detail.

Immigrants, Culture, and Health Care Access

All of the focus group participants identified cultural differences between providers and patients (patients in the school setting refers both to students and to students' families, as applicable) as a barrier to meeting the health needs of ethnic minority and immigrant students. The culture of western health care providers is

based on theories and clinical practices that often are not subscribed to by their patients. For example, focus group members stated that in particular, some native African and Asian groups, such as Vietnamese and Chinese, view mental health as a "taboo subject" and are reluctant and usually unwilling to permit their children to undergo diagnostic tests for mental health, receive treatment for mental health services, to allow their children to participate in anonymous surveys about mental health status, or to enroll their children in special education services. This is true even when instructional assistants or interpreters at the school who share the family's culture attempt to translate the rationale for, and benefits of, provision of such services. One focus group member said:

> "The most common response with the Africans, -- native Africans – or the Asians that I've run into, is 'the kid's bad or lazy'. Not he doesn't have ADHD or he's got – I mean, I've seen many times African families reject…us asking them to go through testing for ADHD or special ed because the kid is 'just bad.'"

Another nurse added, "I agree on the cultural basis which is very inter-group…Asian and African populations. It's difficult to even get their permission for special ed. It's just not something that's acceptable." Added another nurse, parents interpret suggestions for mental health testing or treatment as a judgment – "you're calling the kid crazy, (which is) traumatic for the family."

Another example of conflicting cultural health mores was related by a middle school nurse who described conflicts in cultural tradition surrounding death. She describes a middle school child of African origin who

> "comes to school today and says 'Oh, my Dad died yesterday.' So we had a conference with his Mom because he was acting out and

> getting in trouble and we had to tell the Mom that the child needs more support right now because he just lost his father and that we would expect these kinds of (behaviors) to happen. Not that he's a bad child, but that he's trying to handle other things. But making him go back to school the very next day was probably something that other people wouldn't have done."

Complicating already sensitive issues pertaining to health care diagnosis and treatment is the cultural dynamic between provider and patient. This occurs in differences in the practical ways that health issues are diagnosed and treated, but also in the subtle yet profound ways that differences in ethnicity and language can influence trust in provider-patient interactions. Said one nurse: "I wonder about us and our ability to build trust when most of us are white middle class females" largely working with African American, immigrant, and other ethnic minority populations.

Resource Availability and School-Based Health Centers

Availability of health resources was identified by focus group participants as a substantial access issue. All of the nurses stated that the presence of SBHCs serves to increase access, particularly for ethnic minority and immigrant children, on multiple fronts: by eliminating the need for transportation, by not requiring parents to take time off work, by providing free services to poor children, and by improving the quality of follow-up care. The nurses also claimed that SBHCs link families to community care, and help them navigate the paperwork and – for many immigrant families – threatening bureaucratic hurdles necessary to apply for Medicaid and other programs to which families may be entitled. Provision of

health services at school also facilitates better communication among health providers, teachers, and other staff, who can then modify or enhance educational goals with a more complete picture of the influences and circumstances affecting a student's ability to learn.

While the presence of SBHCs reduces barriers to improved health for children, focus group participants identified several characteristics that negatively impact students' ability to access these services. Structural issues such as staffing, SBHC locations, and services offered are dictated by funding and policy concerns. In some cases, this means the students who most need services offered by a SBHC are not able to easily get them. At the Bilingual Orientation Center (BOC) serving new immigrants, for example, there is one full-time school nurse on site, but no health clinic despite a prolonged and demonstrated need for one. According to the BOC nurse, this means that

> we're not meeting mental health issues. We have practically no access to mental health services for these students. We have very…limited access to reproductive health. The access to care for acute care issues just depends on whether or not they can get to a clinic…and then it's the clinic's problem to figure out how they're going to pay for it.

The nurse practitioner, who cares for the immigrant children who arrive at her high school after spending 6 months at the BOC said, "I know those kids (immigrants) don't get any better by the time they get into a regular building, and probably just more problems are added and it just seems like, 'what are we

doing?' They really need support there (at the BOC) more than anyplace else. I think that's obvious."

Denying adequate support when most needed is reflective of other policy guidelines that prohibit, for example, immigrants' eligibility to receive medical coupons until they have resided in the U.S. for 3 years. In the interim, the nurses said, indiscriminate – and expensive – use is made of emergency rooms which are not designed to, and which do a poor job of, providing primary care. By the time the mandated 3-year residency requirement rolls around, any health problems that could have been diagnosed and treated are far worse – and much more costly to remedy.

This scenario underscores the need for addressing some of the structural inadequacies of SBHCs to provide better access to health care for immigrant children, arguably among the most vulnerable of our pediatric populations.

In addition to widening the physical presence of SBHCs to provide better access to students needing their services, the staffing of SBHCs and the paperwork required to access services also provide barriers to services, according to the focus group members. The nurses commented on limitations of services due to inadequate staffing at some SBHCs and the impact such conditions placed on their own workloads. To address acute or more serious health issues requiring immediate attention that would ordinarily be handled by a nurse practitioner, takes school nurses away from their buildings and from other children who need

their services. At the BOC, the lack of an on-site clinic necessitates strict prioritization of services requiring high nurse input with a resultant low output. For example, strong focus is placed on immunizations to allow children to continue to attend school. This requires "that I see every kid just about individually to see to it that I get that paperwork signed, the right forms sent home…in their native language for each one of those shots. I've got to go to each one of those kids, I've go to go to every advisory and talk to every kid. And we usually have about 150 kids out of compliance." In addition, because parental consent is required for enrollment in the SBHCs, immigrant students who are transitioned to traditional middle and high schools after they leave the BOC have added barriers to accessing these services. To help pave the way for continued school health services, the BOC nurse must coordinate SBHC enrollment forms in each student's native language, and the forms must be returned, signed by a parent. This often involves verbal explanations to parents which require coordination of interpreter services. "Out of the time we spent (coordinating and organizing enrollment procedures), we had the clinic people put the paperwork together, bring it over, spend time talking with them (students), and we got 14 back out of" approximately 150 students.

School Nurse Surveys

Twelve school nurses serving 15 schools completed surveys (please see Appendix B for survey protocol) that were designed to elicit their perceptions of

school health usage patterns and rates among disaggregated groups of children. Surveys were distributed to all 19 nurses in schools with students in grades 6 through 12 at a nurse meeting at the end of the 2006 school year. The surveys, along with self-addressed, stamped envelopes, were placed on a table for those nurses who wished to participate. The response rate was 63%. While this response rate was lower than desired, it was not unexpected given the multiple tasks required of nurses in order to close out the school year. In addition, nurses had to actively seek out the survey (the surveys were not handed to them), take approximately one-half hour to complete it, and mail it.

The nurses collectively served five middle schools, five high schools, one K-6 school, one 6-12 school, and three K-8 schools. All but two of the nurses who completed the survey had served in their building for more than 6 years; two of the nurses worked in their buildings less than two years. All of the nurses identified themselves as white women over the age of 45, 10 of whom exclusively speak English, and two of whom were bilingual in English and Spanish. Seven of the nurses worked in buildings with bilingual or ESL programs. Five of the nurses had bachelor's degrees in nursing, 6 had master's degrees in nursing, and one had a PhD. In addition, one nurse was licensed as a psychiatric nurse practitioner, one master's prepared nurse had received national board certification as a school nurse, and one master's prepared nurse had previously served as an

emergency medical technician. Two middle schools and two of the high schools had SBHCs on site.

In addition to acquiring the demographic data described above about the nurses and the schools in which they served, the survey sought to solicit nurses' perceptions of students' health usage behavior patterns and rates, and to provide opinions about the reasons that particular groups of students' may have unique health needs. The nurses also were asked about the adequacy and potential of school nurses and other school-based health providers to fulfill primary care and urgent health needs unique to particular student sub-populations. The most frequent common themes that emerged from the nurse surveys were high physical and mental health needs associated with poverty and/or uninsurance or underinsurance and with ethnic minority or immigrant status. These questions were asked about in terms of variability in usage patterns seen by the nurses among different student subpopulations. This is addressed in more detail below.

The second major theme that emerged was similar to that of the focus group: Issues around access to care were frequently cited as barriers to care for vulnerable student populations, and nurses articulated support for building a larger network of school based health services to promote student academic achievement through more accessible and effective delivery of health services. This is also addressed in more detail in the section below.

Variability in Health Usage

Nine of the 10 nurses who answered a question about variability in types of services sought by sub-populations of students stated affirmatively that differences exist in the types of services sought or needed by different groups of students. Three of the nurses stated poverty as an indicator of more frequent use of school health services, and four of the nurses indicated ethnicity as a factor in frequent school health care access and usage. Two of the nurses stated that services sought were uniform for all students; in other words, that no differences existed between types of services sought by varying subpopulations of students.

When asked about qualitative differences in care for children without insurance, 3 nurses wrote that these children do not receive vision or dental care, and three others said the uninsured do not receive preventive or follow-up care, leading to excessive and inappropriate use of emergency room services. Nine of the 12 nurses wrote that immigrant students were likelier to be uninsured, to go without vision and dental care, and to be more hesitant to seek services due to cultural barriers. Two of the nurses said that Asian students preferred to use international clinics where providers share their cultural backgrounds; one nurse said Chinese students were hesitant to partake of Western medicine. Another nurse stated that immunization compliance and allergy management is lower in uninsured children.

School Health Services and Academic Achievement

Eleven of the 12 nurses[38] stated that the provision of health services at school had a positive effect on academic achievement, with the most frequently cited reason being improved attendance. The nurses attributed accessibility and convenience of on-site services as improving attendance primarily through two mechanisms: The first is attending to both acute and chronic illnesses at school, thereby reducing time away from school, and the second was a combination of advocacy, case management, education, and collaborative efforts with teachers and school administrators, families, and community health providers to improve children's overall health, thus increasing their readiness and ability to learn.

[38] One nurse did not answer the question.

CHAPTER 8

Summative Findings

Comparison of Overall Visits

To begin to summarize and analyze the cumulative findings of the quantitative components of this study, a comparative look at usage rates between school nurses and SBHCs may be helpful. Table 36 below shows usage rates of these two school health providers. School nurses received 51,767 visits from 12,797 students, and SBHC providers received 34,552 visits from 4,975 students; 3,229 students saw both the school nurse and a SBHC provider.

Table 36. Comparison of school nurse and SBHC visits by middle and high school students, 2004-05 school year.

	Number students making visits (unduplicated users)	Number visits	Visit per student
School Nurse	12,797	51,767	4.05
SBHC	4,975	34,552	6.95

As is illustrated by Table 36, school nurses see more than twice as many students as do SBHC providers, but the visit per student ratio is lower. This makes sense for two reasons: First, students must be enrolled in health centers in order to use them, while school nurses are available to all children without enrollment requirements. Second, because SBHCs function as primary care clinics, students are more apt to use them for a variety of primary care purposes in lieu of making visits to outside providers; this is not always the case with school nurses.

Gender and Usage Rates

School nurses cared for relatively proportionate amounts of males (46%) and females (54%), while the majority of SBHC visits (77%) were made by females. A considerable chunk of this disparity is explained by visits for reproductive health at SBHCs, a large part of which – birth control – females have traditionally assumed responsibility. However, as Bernzweig et al (1997) found, students prefer providers of the same gender; because most providers are female, this could negatively influence usage rates for male students. This leads to potentially troubling disparities in widely disparate usage rates for social/emotional, mental health, and drug and alcohol concerns that are attended to by school nurses and SBHC providers (See Table 37 below). School nurses treated slightly more males for social/emotional and drug and alcohol concerns while their SBHC counterparts treated nearly three times as many females as males for these reasons.

Table 37. Differences in visit rates by gender among SBHC and school nurses.

	Social emotional		Drug and alcohol		Mental health	
	Females	Males	Females	Males	Females	Males
SBHC	5,968	2,216	207	119	3,555	1,874
School Nurses	1,296	1,557	11	32	N/A[39]	N/A

Similarly, school nurses treated more males than females for drug and alcohol concerns, while SBHC providers treated nearly double the amount of females for the same reason. Females were also diagnosed and treated for mental

[39] Mental health is not a category used by school nurses

health concerns at nearly double the rate of their male peers. These usage findings – that females seek out and receive treatment in greater numbers than males, even when males may experience the same problems at equal or greater rates – are consistent with those found by Stout, White and Alexander (1996), and Pastore, Juszczak, Fisher and Friedman (1998). They are potentially worrisome in that boys may not be getting the care needed by accessing SBHCs to address their emotional, mental health, and substance abuse concerns.

Poverty, Ethnicity, and Usage Rates

Poor students visited both school nurses and SBHCs in greater amounts than did their non-poor counterparts. All students visited school nurses with greater frequency than did those visiting SBHCs, but in relatively similar proportions according to poverty status. This may be due to the fact that more children altogether visited school nurses than SBHCs. When race was added, black and Hispanic children – poor and non-poor alike – visited both types of providers in greater amounts than did their white and Asian peers. Both school nurse and SBHC data sets revealed the greatest inter-group differences in usage occurred in white and Asian poor and non-poor student populations: In other words, frequency of usage was much higher proportionally for poor than non-poor children of these ethnicities than it was for children with Hispanic and black ethnicities. The lower rate of difference in usage among Hispanic and black poor and non-poor children compared to white and Asian children (in the aggregate)

supports other research evidence (Pastore, Juszczak, Fisher and Friedam, 1998), as well as qualitative data from this study, that race is indeed a factor in school health usage rates.

An important finding of this study, consistent among both quantitative data sets, is that disaggregating usage rates upends some conventional thinking about ethnicity, health, and potentially about academic achievement, particularly among Asian populations. As an aggregate group, poor and non-poor Asians were the lowest users of school nurse and SBHC services. When disaggregated, however, several Asian groups using school nurse services had usage rates nearly equivalent to or surpassing those of poor whites and Hispanics. The highest Asian users of school nurse services were, from most-used, other Asian/PI, Japanese, Samoan, Filipino, and Vietnamese. This finding also held true for SBHC visits: While Asians in the aggregate each visited a SBHC 1.45 times during the school year, Asian subgroups exceeding this rate were, in order from highest users, Japanese, other Asian/PI, Filipino, other SE Asian, and Samoan. Asians using SBHC and school nurse services with the least frequency were Chinese and Korean.

While Asian groups showed more dramatic differences in usage when disaggregated by ethnicity, Hispanic groups also showed variability, though less marked, in usage rates. For example, poor Hispanics in the aggregate each saw a school nurse 3.29 times, and visited a SBHC 1.95 times during the school year.

When disaggregated by country of origin, however, each Guatemalan student visited a school nurse 6.38 times, and a SBHC 4.48 times – far above any other disaggregated student population. Students from Honduras and El Salvador also had higher usage rates than their Mexican counterparts for school nurse services.

Another important finding from this study – supported by all data sources – is that race appears to be a chief factor in school health service usage. Of the Hispanic sub-groups, for example, those with the highest overall usage rates for school nurse services were Hispanic blacks. Each of these students made nearly 6 visits to the school nurse during the course of the school year, more than twice as many visits as the second-highest users: poor black students. This was not the case with SBHC visits, however, where users of Hispanic ethnicity were white (2.00 visits per student), Indian (1.99), Asian (1.74) and black (1.60). The accessibility of school nurses, and enrollment requirements of SBHCs, may explain the greater usage of nurses for some student populations. While the qualitative data from this study suggests higher school health usage rates among poor populations, and students of color, there was no data to either support or disconfirm the differences found in usage rates between SBHCs and school nurse services by these populations. The qualitative data from this study also provides support for cultural influences in helping to determine the degree to which, or whether, particular ethnic groups seek health services at schools.

Immigrants and Usage Rates

As shown in Tables 34 (p. 114) and 22 (p. 100), a clear pattern did not emerge in regard to usage rate frequency and generational status. In school nurse visits, all immigrant groups except those from Latin America used these services more in the second generation. For SBHC visits, Ethiopians were the only group who had higher usage rates with second-generation status. As with non-immigrant populations, the visit rate is higher among all immigrant groups with school nurses than with SBHCs.

In comparing school health services usage of immigrants to racially similar non-immigrants – with some exceptions that are discussed below – the latter generally had higher usage rates. For example, for first and second-generation Somali and Ethiopian students, who are categorized racially as "black" in the SPS database, combined visits per student were 3.10. This is lower than the aggregate nurse visit per student (4.33) of poor black students, but higher than the non-poor black student visit rate (2.27). Non-immigrant Asians also had higher usage rates than their first and second-generation immigrant peers: In the aggregate, each poor Asian student visited the school nurse 1.97 times during the school year, while both first and second-generation Asians had lower visit rates. This may be due to lack of knowledge about service offerings, or due to cultural incongruence with providers or clinical methods. Qualitative data from this study supports both of these possibilities.

Hispanic immigrants were the exception to this trend, with first generation immigrant students each visiting a school nurse 4.42 times, compared to 3.29 times for poor Hispanics in the aggregate. Second generation Hispanics each visited a school nurse 3.14 times. A similar pattern was repeated for SBHC visits: Poor Hispanics in the aggregate each visited a SBHC 1.95 times, compared to 2.11 times on average for first generation Hispanics, and 0.91 times for second-generation Hispanics.

Study Limitations

The next chapter discusses implications for these findings, as well as suggestions for how to address them. Before delving into such a discussion, however, it is important to note some study limitations.

First, the data is geographically limited to Seattle. Other urban areas may have proportionally different racial, ethnic, and immigrant populations in their schools, as well as different types and quantities of health services. Thus, these findings may not be applicable to student populations in other areas of the country.

Second, the population is confined to students in middle and high school. While this is an important age group to study, information about younger children with similar demographic characteristics could be valuable in helping to interpret these results. In addition, longitudinal cohort studies could be valuable in

discerning associative or causal factors that contribute to health usage rates and academic achievement.

Third, the data analysis here is descriptive. While the large study sample provides strong evidence to support the findings, it could be strengthened by statistical analyses.

Fourth, the type of data that was available to compare first and second generation immigrant populations is not ideally suited to achieving optimal study validity. Using country of origin as a proxy for first-generation immigrant students is an accurate representation, but using language without country for second-generation status makes it difficult to discern differences that may occur among children from different countries who share language. When looked at individually, for example, Mexican and Guatemalan children had quite different rates of school health use, even though both groups are Spanish-speaking. Therefore, it would be helpful in identifying generational differences for future studies if data were available from school districts or other health or educational entities that explicitly and clearly define immigration status by attaching country of origin to generational status.

These limitations – along with study findings – may be helpful in defining next steps for future research as well as in serving to inform school policies pertaining to health and education. This is explored further in the next chapter.

CHAPTER NINE

Discussion and Implications

This study strengthens and adds to previous research that associates poverty, ethnicity, skin color, and immigration status with increased rates of health care usage. [40] Therefore, it was not entirely surprising that this research found that poor children, children of color, and immigrant children seek school health services in greater numbers than their poor and non-poor white peers. There were, however, some surprising and unique findings that may shed light on informing future research as well as policy for the school district under study, the agencies that operate the SBHCs, the state Office of Superintendent of Public Instruction (OSPI), and state policy makers. These findings and study limitations, along with suggestions offered to address them, are now discussed.

Findings of Note

African Americans at Risk

As evidenced both by elevated school health usage rates and by Washington Assessment of Student Learning scores (see Table 36 below), African American children, children who are ELL, and immigrant children are the most vulnerable to both health and academic risks. While it is well established that, in the aggregate, African American children have health and academic risks that are higher than their white and Asian peers, the extent to which they used

[40] Schainker, O'Brien, Fox, and Bauchner (2005); Louisiana State Office of Public Health (2003); Stout, White, and Alexander (1996); Walter et al (1998); Pastore, Juszczak, Fisher and Friedman, 1998; Blake, Ledsky, Goodenow and O'Donnell, 2001).

school health services and performed poorly academically (according to WASL scores) in relation to other students who have clear linguistic, cultural, and economic disadvantages – was surprising. African American students' health status and academic performance has traditionally been compared to that of white students.

Table 38. Washington Assessment of Student Learning (WASL) scores for SPS 2005-06.[41]

	Math (% meeting standard)			Reading			Writing*		Science**	
Grade	**7**	**8**	**10**	**7**	**8**	**10**	**7**	**10**	**8**	**10**
Black	17.7	14.9	21.7	33.8	45.7	61.4	48.4	60.8	9.4	8.7
Hispanic	28	32.8	37	44.8	52.4	69.5	52.7	66.5	23.7	22.6
Limited English	13.2	13.4	16.3	15.4	24.2	36.5	29.5	32	4.3	5.5
Low Income	29.5	25.1	31.5	37.5	49.9	63.9	48.5	60.7	14.8	14.3
Migrant	10	7.7	13.6	22.2	38.5	29.2	22.2	30.4	3.8	4.3

* No scores were available for 8th grade writing.
** No scores were available for 7th grade science.

In this study, it was clear that a gap exists not only between African American and white children but also between African American children and their immigrant and Hispanic peers: African American children used health services more frequently (both at aggregate and individual levels) than many immigrant groups and than Hispanic groups. They also had the lowest WASL scores of all subgroups of students except for migrants. These findings suggest that more, and perhaps different, research and policy emphases should be placed on understanding and addressing health and educational inequalities experienced by African American students. While OSPI and SPS are rightly taking steps toward

[41] Office of Superintendent of Public Instruction. Washington state report card: District WASL Scores by subgroup.

improved accommodation of bilingual and immigrant students, these findings indicate that African American students must continue to remain central to efforts to equalize health and educational outcomes.

The Color Gap

This study indicates that race is associated with school health usage rates even when poverty is not a factor. In general, this study found that, as skin shades darkened, use of school health services correspondingly increased. For example, students with the lightest skin tones – whites, Hispanic whites and Asians – had lower usage rates than African Americans, Hispanic Indians, and Hispanic blacks regardless of poverty status. White students also had the widest gap in usage rates between their poor and non-poor sub-groups (i.e. poor white students used health services with much greater frequency than non-poor whites when compared to groups of children of color), whereas children of color had narrower gaps in usage rates between poor and non-poor populations. What might this imply for policy?

SPS has struggled in its attempts to provide equity for students through integration efforts since a court ruling prohibited its former practice of using race as a tie-breaking factor in school enrollment decisions. One idea bandied about to address this has been to integrate students based on income. While more children of color are poor, and thus a degree of integration could be achieved by this method, other instructional, institutional, and/or community interventions that explicitly address skin color, should be considered.

This study also indicates that considering race as a component of achieving equity in schools also means that students should be viewed within the unique individual context in which ethnicity, culture, race, and income reside. This is particularly true in the case of Asians, many subgroups of which (Samoans, Southeast Asians, and Cambodians in particular) have persistent academic achievement and health risks despite the commonly held opinion that Asians in general enjoy sound health and excel academically. This opinion, of course, is founded on the achievement of Asians in the aggregate, which helps to inform instruction and other educational and health policies, even though it poorly represents the circumstances of many Asian sub-groups.

The emphasis on skin color presented here does not negate the deleterious effects of poverty – which, when added to race in this study, strongly accentuates school health usage rates – but rather is intended to highlight the finding that race may, by itself, be associated with increased school health usage rates.

The Gender Gap

Another unexpected finding was the striking gender gap in receipt of mental health services at SBHCs. While males accounted for 55% of visits to school nurses in this study for social/emotional reasons, the tables turned with visits to SBHCs, where girls made nearly 3 times as many visits for social/emotional concerns, and nearly double the visits for mental health reasons. Explaining this data is difficult in light of the paucity of research available that

provides prevalence rates of mental health disorders by gender in adolescents. Do girls have higher rates of mental health disorders? Are boys going without needed services? Do girls prefer service from a school nurse rather than a SBHC with a social or emotional complaint than do boys? Given the general high rates of mental health disorders in adolescents and the impact that such disorders have on academic and health outcomes, I agree with many mental health researchers who plead that continued research – and funding for research – be prioritized.

Similarly, males have higher rates of being seen by school nurses for alcohol and drug concerns, yet females comprised the majority of students receiving school health services for substance abuse problems. What accounts for this disparity?

School Nurses and SBHCs

Before conducting this research, I hypothesized that nearly equal numbers of children would be seen by school nurses and SBHC providers. This is not the case. More than double the amount of children are assessed and treated by school nurses than by SBHC practitioners. There were 24,239 middle and high school students enrolled in SPS in the 2005-06 school year. Of these, 14,294 students, or 59%, were enrolled in SBHCs. Of the SBHC-enrolled students, only 4,975 of them, or 35%, actually made visits to the centers. This means that 21%, or roughly 1 in 5, of all middle and high school students enrolled in SPS, made a visit to a SBHC. In comparison, school nurses saw 12,797 students, or 53%, of

the entire student body under study. What might this portend, and how might the status quo be altered to maximize student health and academic performance?

School nurses serve as the "first line of defense" in child health within the school setting. They function as clinicians; perform vital triage and follow-up services; and coordinate services with community providers, families, and school personnel in advancing child health, particularly for underserved youth. Because of these multiple and complex tasks, and the large numbers of students evaluated and treated by school nurses, the nurse-to-student ratio should be changed to 1:750 as recommended by the National Association of School Nurses. Legislation is currently being considered in Washington state to mandate this goal.

SBHCs serve as community clinics, providing mostly primary, and some urgent care. They provide vitally needed services for 21% of the student population in middle and high school. It might be helpful for SBHCs to closely evaluate the enrolled and un-enrolled populations to determine what barriers may exist to the 47% of students who are not enrolled. Surely there are students who would benefit from these services but for enrollment or other access barriers. One obvious example is the immigrant students at the BOC, for whom there is no on-site SBHC where great need clearly exists. Further, why are only 35% of enrolled students making visits to the health centers? Do the other 65% have no need for

the services, or are there barriers that discourage these students from visiting? What are these obstacles? How might they be broken down?

Finally, would the existence of SBHCs in elementary schools be an investment that pays off in better health and academic achievement in the important middle and high school years? Research on the long-term health and academic outcomes of children who use elementary school-based health centers could provide important information regarding investments in this area.

In addition to the findings and suggestions addressed above, increased interdisciplinary collaboration among educators and health providers could strengthen each practice. This is now discussed.

Toward More Interdisciplinary Collaboration

Because children of color, poor children, and immigrant children constitute a growing percentage of students in U.S. public schools, the demand for increasingly complex and primary health care in schools will continue to rise. And because academic achievement is linked to sound health, the responsibilities of school districts to provide equitable education is to a considerable degree contingent on students' health status – a status that can be improved and addressed, at least in part – and I would argue in large part – within the school health setting.

To accomplish improved access to health care, and improved quality of care, thus helping to boost academic achievement for millions of at-risk school

children, it seems that an overarching interdisciplinary collaboration among educators and school health providers is essential. Health services in SPS – as well as in thousands of other school districts nationwide – are viewed as ancillary to the business of education. This divisive, "poor stepchild" status of school health services is detrimental to academic achievement: It results in patchwork budgetary allocations and lack of sharing of information about vulnerable children from which health providers and educators could form more effective interventions and alliances. Symons et al (1997, p. 221) write that this division facilitates a

> 'silo' pattern of funding and research (limiting) the development of an interdisciplinary body of knowledge that addresses the complexities of student health risks in the context of achievement. It is not surprising, therefore, that we lack robust empirical evidence from well-designed evaluations demonstrating a direct link between school health programs and academic outcomes.

While it is questionable that a direct link between health and academic achievement exists, should the indirect links that clearly do exist be any less compelling a reason to place health services on a par with educational ones? An explicit partnership between educators and school-based health providers also can contribute substantially to the development of policy that ensures that every child receives health care – a necessary ingredient in improving academic outcomes.

Such collaboration could be powerful, and is indeed timely. With an upcoming change in the executive branch of the nation's government, health care reform is likely to at last gain the momentum necessary for lasting change. To

ensure that such change is equitable, teachers, school nurses, and SBHC providers need to be at the table in helping to craft its policy – the lives and welfare of millions are dependent upon it.

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Appendix A
School Nurse Questionnaire

Part 1. Demographic Information

a. How long have you been a nurse? _____
b. How long have you been a school nurse? _____
c. In what health care setting(s) did you work prior to becoming a school nurse? For how long?_____
_____
_____
d. How long have you worked as a nurse in the Seattle School District?
_____
e. What prior school districts have you worked in as a school nurse?
_____
2d. Please describe the school population you served in the previous district or setting in which you worked, i.e. the ages, grade levels, and ratios of bilingual students, poor students, immigrant students and students of color.
_____
_____
_____
f. How long have you practiced in your current building? ___years __months
g. What is your age? _____
h. What is your gender? _____
i. What is your ethnicity? _____
j. What languages do you speak?
_____
_____
k. What is your highest educational degree earned? _____
If you are currently in school, please state what degree you are working toward.
_____
l. What additional licensures or clinical specialties do you hold?
_____
_____

Part 2. School Characteristics

a. Please describe your current setting by circling ONE of each of the items below:

I work in a: High School (grades 9-12)
Middle School (grades 6-8)
K-8
K-12
Alternative school. Please list grades served: _____

b. Please answer the following. My school:

1. Has a Bilingual Orientation Center (BOC) Yes_____ No_____

2. Has the following special programs (autism program, SBD program, etc.): _____
_____
_____

3. Has a school-based health center Yes____ No_____

4. Has a family support worker Yes____ No____

5. Other support services (before, during or after school) offered at my building_____
_____
_____

6. I have worked as a school nurse previously in a building with a school-based health center Yes_____ No_____

7. My school offers the following health education courses targeted to the following groups. Please also include health education offerings for staff and/or parents:

	Course Offered	Targeted Group/approx. number participants
Example:	FLASH program	5th grade students/approx. 60
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

Part 3. Nurse perceptions/experiences of health service delivery to student sub-groups

a. Do you perceive variability or uniformity in the types of services sought by different populations or ethnic groups of students? If so, what are they?

_____
_____
_____
_____

b. What is your estimate of the ratio of children you serve who have and don't have health insurance? Insured: _____% Uninsured:_____%

c. In your experience of providing health services to children is there a difference in the types of health services sought among those who have insurance and those who don't? If so, what are they?

_____
_____
_____
_____

d. In your experience, does the general provision of health services in school have an effect on student academic achievement? Please be specific in providing concrete examples if you believe this to be true. For example, you have seen actual cases of increases in attendance, improvement in communication, or improved continuity of care that can mediate school performance.

_____
_____
_____
_____

e. What do you believe the current objective of school-based health care is, and who benefits from this?

_____
_____
_____
_____

f. What should be the objective of school-based health care, i.e., what should we be doing that we are not doing? Who would this serve, and how would it serve them better? _____
_____

g. What do you believe are the most valuable contributions that school-based health care makes to:

Students: _____

Families: _____

Schools: _____

Society: _____

h. Do you believe students are better served when a school nurse and a school based health center (SBHC) are present in the same school? If so, why?

i. How do you distinguish between services offered by and the roles of school nurses and SBHCs?

j. If you were to improve the relationship or partnership between school nurses and SBHCs what would you address, why would you address it, and how would you address it?

Appendix B
Focus Group Protocol for School Nurses

Sampling procedure: Approximately six to eight school nurses will be asked to participate in this focus group. Participants will be sampled based on length of time spent working as a middle or high school nurse (more than five years). To obtain a cross-section of opinion, about half of the sample will work in schools with a Bilingual Orientation Center, and about half will work in schools without a bilingual orientation center. About half of those attending will work in a school with a School-Based Health Center (SBHC) and about half will not.

Objectives: To elicit open-ended discussion concerning reasons for school health care usage rates among student subpopulations; to discuss the actual and potential objectives and benefits of the provision of health services in schools, and to discuss barriers and facilitators to achieving those objectives.

Procedures: Participants will have signed a consent form administered and collected by the principal investigator prior to participation. Participants will be assigned pseudonyms to protect confidentiality. The focus group will last approximately 60-90 minutes. Participants and interviewer will sit in a circular fashion in a relaxed atmosphere. Each participant will have an opportunity to respond to the questions asked and/or to respond to comments made by other participants. The proceedings will be tape- recorded. After the tapes have been transcribed by the principal investigator, they will be destroyed.

Introductory Remarks

- Thank participants for attending, introduce self, and describe study.
- Review informed consent; restate that those who do not want to participate at any time may leave or decline to participate.
- Describe objectives of focus group as stated above.
- Describe ground rules for conducting focus group: Everyone has an opportunity to respond or to decline response to interviewer's question; by participating, everyone present agrees to keep confidential what has been discussed during the session;

Questions

- Opening question: Please introduce yourself and state what school(s) and student populations you serve.
- Has the population you serve changed over the time you have worked there? If so, how?
- In what ways have these changes impacted your practice?

- What do you believe to be the primary responsibilities of your job as a school nurse? To what extent are you able to fulfill these responsibilities? What are the barriers to meeting them? The facilitators?
- What do you believe should be the primary responsibilities of your job? Why?
- If resources were unlimited, how would you envision the role of school health as part of an overall health system delivery mechanism? (e.g. would it provide primary care? To whom?)
- Please describe how you view the roles that school-based health centers play in providing health services at schools, both in relation to working with the school nurse, and in terms of the specialized services and functions it offers compared with other community providers serving similar populations.
- What do you believe are the most valuable contributions that school nurses and school-based health centers currently make to: 1) students 2) schools 3) families 4) communities. Do you think the potential for school nursing to contribute to educational and health equity is being realized? If so, why? If not, how could this potential be realized?

VITA
Robin Fleming

EXPERIENCE

Co-Director, Cross Cultural Education in Public Health 9/00 – 9/02

Wrote and received one of 10 national grants awarded by Associates in Supervision and Curriculum Development (ASCD), and funded by the Robert Wood Johnson Foundation. This two-year, $40,000 grant funded the development and implementation of a health education and public health career development program that served approximately 400 middle and high school immigrant students in the Seattle School District. Duties included curriculum development, organization and facilitation of classroom activities and projects, provision of mentoring activities, job fair and field trip coordination. Involved extensive community linkages, including the Seattle School District, Public Health – Seattle and King County, Harborview Medical Center, the University of Washington, Seattle Pacific University, Children's Hospital and many other community providers of public health and educational services. Administrative duties included grant budget management, preparation of annual reports, presentations at annual meetings, and media relations. The program was the subject of an evaluation study conducted as part of my master's thesis, and was a subject of the book "Education and Public Health, Natural Learning Partners for Life," by Jenny Smith (2003). I was the lead author of a research evaluation of this project published in the *Journal of School Nursing* in April of 2005.

RN, Seattle School District 3/99 – present

Duties include triage, assessment, treatment, medication administration, health care plan development and emergency care protocols, health monitoring, referral and education services for staff, students and families. Provide primary prevention with health screenings for vision, hearing, oral health and scoliosis. Work collaboratively with school staff, families, interpreters, community health care providers and agencies to promote equitable, culturally sensitive, holistic health care addressing a wide variety of individual and public health concerns. Serve on Student Intervention Team and on Gap Closing Committee. Provide education in-services for district nurses, and served as co-facilitator of the school's Courageous Conversations program, designed to stimulate discussion about race and its relevance and application to providing equitable health and educational services to a multi-ethnic student body. Mentor and help train nursing students. Have served elementary, middle school and high school students, with an emphasis on bilingual and immigrant populations.

RNII, Harborview Medical Center **9/98 - 4/99**
Care for patients pre and post-operatively in the Ambulatory Surgery unit included physical assessment, pre-op anesthesia interviewing, starting IVs, drawing labs, administering EKGs and medications, monitoring surgical recovery and teaching about post-surgical care.

EDUCATION

PhD, College of Education, University of Washington, 2008
Educational Leadership and Policy Studies. Cognates in public health, education finance and economics, and multicultural studies. Dissertation Title: *The Role of School Health Services in Reducing Health and Educational Disparities: Examining Usage Rates of Student Health Services in the Seattle School District*

M.N., University of Washington, 2002
Emphasis in community and public health nursing and health policy. GPA 3.82

B.S.N., University of Washington, 1998
GPA 3.85.

B.A., Seattle University, 1983
Major, Journalism; Minor, French

OTHER WORK HISTORY

PUBLISHER, Business to Business **5/91 - 5/93**
Worked collaboratively with the University District Chamber of Commerce in founding and publishing this 5,000-circulation monthly business newspaper. Duties included all editorial and freelance staff management, advertising sales, design and layout, and printing.

MARKETING DIRECTOR, University Village **12/89 - 5/91**
Managed advertising, media relations, marketing and promotions for 70 stores.

SENIOR CORPORATE COMMUNICATIONS SPECIALIST
Washington Mutual Savings Bank **10/86 - 8/89**
Media relations, investor communications, speech writing, annual report, catalog and newsletter management and production, video production, customer service management.

REPORTER/FREELANCE WRITER **4/84 – 10/92**
General assignment and business reporting for Washington CEO Magazine, Spokesman Review/Spokane Chronicle (worked as daily stringer in North Idaho bureau from 8/83-4/84), Pacific Northwest Maga`e, Puget Sound Business Journal,

Seattle Daily Journal of Commerce (staff writer) and other weekly community newspapers. Staff writer for Queen Anne/Magnolia News from 4/82-8/83).

CITATIONS, MEMBERSHIPS, SPECIAL LICENSES

- Graduate of the NW Public Health Leadership Institute, 2004-2005.
- Member, American Educational Research Association, 2007-present.
- Member, Pi Lambda Theta International, 2003-present
- Member, National Association of School Nurses, 2000 - present.
- Board Member, John Hay Elementary School, 2000 - 2002.
- Member, School Nurse Organization of Washington, 1999 - present.
- Member, Sigma Theta Tau International. Inducted 1998.
- Award citation for volunteer service, University District Chamber of Commerce, 1993.

PROFESSIONAL ACTIVITIES AND EDUCATION

- Lead author in published research study (Increasing Minority Representation in the Health Professions) in the *Journal of School Nursing*, February, 2005, 21(1).
- *Partnering for Pluralism: Harnessing the Power of Educational and School Health Systems in Promoting Equity*: Paper presented at AERA annual conference, 2008.
- Cadre member of Seattle Education Association, assisting 10 Seattle Public School buildings in facilitating conversations about, and activities related to, race. (2002-2003).
- Provide in-service trainings for school nurses and school building staff regarding a variety of physical and mental health issues. Staff training provided annually on asthma, allergies, diabetes, and bloodborne pathogens.
- Provide education program for 5/6 grade Family Life and Sexual Health (FLASH).
- Attend frequent workshops and conferences related to professional development such as adolescent health issues, school-health partnerships in improving academic achievement among ethnic minority and immigrant populations, ADD/ADHD, suicide prevention, SNOW conferences, Washington Children's Health Policy Conference, and the UW 2000 Clinical Update for School Nurses.