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California School Nurse Survey

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Abstract

The purpose of this study was to obtain evidence to support the assumption that school nurses have a positive effect on school attendance and medication administration practices and to hear the voice of the California school nurse. Data from this exploratory, descriptive study came from an online researcher developed survey consisting of both forced choice and open ended questions completed by California school nurses representing the three major regions of California (Northern, Central, and Southern). The following three research questions guided the study:

1) What is the relationship between school and nurse factors on student outcomes?
2) How valued do California school nurses feel?
3) What makes the California school nurse feel valued?

Descriptive statistics and correlations between school nurse and nurse factors and student outcomes were computed for comparability analysis at baseline. Research question three was analyzed qualitatively for themes using a horizontal approach.

A total of 382 surveys were utilized for data analysis and these were separated based on region of California. The majority of nurses reported having a method to track attendance and receive referrals for students with frequent absences. The majority also reported that attendance improved after their intervention. The majority of nurses reported that they have guidelines for medication administration; the most common people to administer medications were the health aide or secretary; and no medication errors occurred in the previous month. Of the errors that had occurred, the most common error was a missed dose. Correlations between years of experience as a school nurse,

number of students and school sites that the nurse is responsible for and number of medication errors and number of children sent home were non-significant. The majority of school nurses felt "extremely valued" or "valued" in their current positions. Nine themes from open ended questions were developed to learn specifically what makes school nurses feel valued. Limitations of this study included the self report nature of the survey, the large amount of data missing for key questions, and the convenience sample. Discussion for areas of future research is included.

Dedication

This work is dedicated in loving memory to Mrs. Marjorie Stoole, the first school nurse I remember, who lovingly cared for hundreds of children at Van Dellen Elementary School in Denver, Colorado.

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California School Nurse Survey

Introduction

Today's children are faced with more serious health care issues then ever before including psychological, emotional, and physical difficulties. Some of the common problems facing children in increasing numbers include chronic physical conditions like asthma, diabetes, and obesity (Ebbeling, Pawlak, & Ludwig, 2002; Liao, Morphew, Amaro, & Galant, 2006); psychological problems like autism and attention deficit disorder (Yeargin-Allsopp, et al., 2003); and emotional problems or social problems including school violence and lack of insurance (Erickson, Mattaini, & McGuire, 2004; Taras, Zuniga de Nuncio, & Pizzola, 2002). It has also been shown that there is a link between general well being and academic success (Fryer, Igoe, & Miyoshi, 1997). Children dealing with any of the above mentioned problems attend school every day where school staff can intervene in these children's lives. School nurses could be important contributors to the health and education of these children; however, they face significant hurtles including lack of funding, lack of knowledge about their role, and increasingly high numbers of students, both healthy and ill, under their care.

Problem

Many behaviors, such as substance misuse, dietary excess, and physical inactivity contribute to the greatest morbidity and mortality in adulthood are usually well established during childhood (Centers for Disease Control and Prevention [CDC], 2010). With their access to a large percentage of children, school nurses have the potential to be key players in improving the lives of these children. Recent figures show there are currently over 45,000 school nurses working in public schools across the United States (Ihlenfeld, 2008). There are over 55 million children attending school in the U.S. every day (Center for Health and Health Care in Schools, 2007); nationally, the school nurse to

student ratio is approximately 1:1,155. This is far from the recommendation of Healthy People 2020 objective that recommends 1 nurse to 750 students (U.S. Department of Health and Human Services, 2009). There are several factors affecting these ratios including socioeconomic status, school board philosophies about school nurses, and political factors.

In California over 6 million children attend school every day (California Department of Education, 2005-2006). The current budget crisis in California has lead to the elimination of school nurse positions leading to one of the worst school nurse to student ratios in the country – 1 nurse to over 2,000 students (California Department of Education, 2005-2006). The presence of school nurses has been shown to make a difference in improving student attendance and improving health recovery of school children (Allen, 2003; Guttu, Engelke, & Swanson, 2004; Pennington & Delaney, 2008). With the prediction of further budget cuts for schools in California and beyond, it is important to validate the role of the school in order to preserve this vital role resource for children and schools.

Purpose

The purpose of this study was to obtain evidence to support the assumption that school nurses have a positive effect on school attendance, decrease medication errors, and improve child health. Additionally this study gives voice to the California school nurse. While there is evidence that school nurses make a difference in the lives of children, no studies have specifically examined the perceived value of school nurses from their perspective, nor have the daily responsibilities of school nurses been described or their potential given the appropriate time and resources. With an increasing national emphasis

on health promotion and expanded health care coverage school nurses have the opportunity to be key players in the changing health care debate. Without a clear understanding of their role or potential, it is likely they will be overlooked. This study filled a void by providing evidence about the vital role school nurses report that they play in children's lives. This study also strengthened the growing body of literature linking school nurse presence to improved student outcomes.

Manuscripts

Three manuscripts were developed as a result of this investigation. The purpose of the first manuscript was to describe the evolution of the role of the school nurse from the kindly mother substitute to the competent health care practitioner; as well as the evolution of the school from a place in which one sought an education to an institution that has been charged with improving the overall well-being of the child (socially, cognitively, and physically). The paper concluded with suggestions for future development of the role of the school nurse including 1) evaluating the recommendation of one nurse for 750 students and determining if this is a realistic or useful ratio to have as a standard, 2) increasing research linking school nurse presence with academic outcomes, 3) working with a variety of disciplines and within communities to improve the health of children and communities, 4) becoming more active in the political system both locally and nationally, 5) finding innovative methods to reach the large number of students and families in their schools, 6) partnering with local baccalaureate nursing and accelerated pre-licensure master's nursing programs to improve services offered as well as increase research opportunities, and 7) advocating for appropriate education of school nurses.

The purpose of the second manuscript was to define the concept of marginalization, to apply the concepts of marginalization to two populations who interact on a daily basis – children and school nurses – and to discuss possible ways to help overcome this phenomenon. Recommendations for overcoming marginalization of both school nurses and children include educating the public and the school communities about the vital role of school nurses, in particular in their care of marginalized children. To do this school nurses must increase their visibility in the school setting through newsletters, back to school nights, and health fairs; be active in local nursing organizations and politics; precept nursing students; and take opportunities to speak in the community, in political settings, and in nursing schools about their important contributions to children's well being. Other suggestions include the development of a tool to identify and evaluate the risks to children who are or may become marginalized and remaining strong advocates for their positions and for the children with special needs under their care.

The final manuscript contains the results of the survey study including a detailed analysis of the methodology, data analysis, limitations and areas of future research. Results from the survey were based on 382 responses and are separated based on region of California. There were responses from 122 nurses in Northern, 71 in Central, 182 in Southern and 7 in "other" regions of California. The majority of nurses reported having a method to track attendance and receive referrals for students with frequent absences. The majority of nurses reported that attendance did improve after their intervention. The majority of nurses have guidelines for medication administration; the most common people to administer medications included the health aide and the secretary; the nurses

reported that no medication errors had occurred in the previous month. Of the errors that had occurred, the most common error was a missed dose. The majority of school nurses felt "extremely valued" or "valued" in their current positions. The following themes emerged from the responses to the question of what contributed to their feelings of being valued: their special or unique knowledge, the lack of knowledge about the role from the public and schools, the importance of administration support and the role of budget.

When asked about how their role makes a difference, they reported on their care of children with special health care needs, their ability to find resources, their creativity, and the importance of health promotion. Frustration was also a theme that emerged in several responses in regards to the lack of knowledge about the role, the impact that budget plays and the high numbers of children they are responsible for leading to an inability to fully perform to their fullest abilities. Correlations between years of experience as school nurse, number of students and school sites that the nurse is responsible for and number of medication errors and number of children sent home were non-significant. Limitations of this study included the self report nature of the survey, the large amount of data missing for key questions, and the convenience sample of National Association of School Nurses and California School Nurse Organization members. Discussion about areas of future research included improved methods of gathering data linking school nurse interventions with educational outcomes, utilization of school based health centers, and increasing knowledge about the school nurse role among the public and educational communities.

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Publishable Paper Number One:

School Nursing:

Yesterday, Today & Tomorrow

Abstract

It is well documented that many behaviors that contribute to the greatest morbidity and mortality in adulthood are usually established during childhood such as substance misuse, dietary patterns, and physical inactivity (Centers for Disease Control and Prevention [CDC], 2001). School nurses, with their access to a large percentage of children, have the potential to be key players in improving the lives of these children. There are over 55 million children attending school in the U.S. every day (Center for Health and Health Care in Schools, 2007); nationally, the school nurse to student ratio is approximately 1:1,155. This is far from the recommendation of Healthy People 2010 objective 7-4 (1 nurse to 750 students) (U.S. Department of Health and Human Services, 2000). There are several factors affecting these ratios including socioeconomic status, school board philosophies about school nurses, and political factors.

The intent of this paper is to help the reader understand the evolution of the role of the school nurse to the competent health care practitioner; as well as the evolution of the school from a place in which one sought an education to an institution that has been charged with improving the overall well-being of the child (socially, cognitively, and physically). Lastly, the paper will examine the reality of the role of the school nurse in the context of the world today and the potential for this role in the future.

She was the kind, sweet, blue-haired lady at my elementary school who was not only the school secretary but also a rudimentary school nurse, providing health care for students' minor aches and pains. She lovingly provided a place to rest for those with a tummy ache. She attentively listened to the student who had been bullied on the playground and did not want to go out for recess. She carefully wrote our first initial in iodine on minor cuts or scrapes, making us feel loved. This was the school nurse I remember; the school nurse who influenced my decision to become a nurse and to advocate on behalf of school nurses. The reason was not because this school nurse was so scholarly or research minded but because she made a difference in the lives of each child who entered her small office; she never judged, never shamed, and always made the child feel better for being in her presence. School nurses are more than the substitute "mother;" in today's world of physical, mental, emotional, and chronic health problems, they must be clinical experts, social workers, mental health counselors, health educators, community collaborators, and adequately prepared at a minimum of a bachelor's level.

School based health clinics (SBHCs) and thus indirectly school nurses have been explored as an option for meeting the health care needs of children and families since the 1970s and have spread widely since then. However the number of SBHCs remains small with just under 2,000 in the United States (Strozer, Juszczak, & Ammerman, 2010). In 1994 the federal government funded a grant program "Healthy Schools Healthy Communities" which funded thirty-three organizations to establish new school-based health centers in twenty-three states (Morone, Kilbreth, & Langwell, 2001). The recent Affordable Care Act is emphasizing the importance of community centers and the role of the nurse practitioner in managing these centers as one way of reaching large numbers of

uninsured families and vulnerable populations (U.S. Department of Health and Human Services, n.d.). Schools, with their access to children and families as well as their mission to help promote the optimal development of children, could be a potential center to help children and families change lifestyle behaviors and to provide educational and health assistance to those in need. Centers with the most success include those with a multidisciplinary focus including mental health provider, dental care, and school nurse (Strozer, et al., 2010). School nurses have a history of being patient advocates, educators, and family focused. Their access to large numbers of children puts them in a position to be leaders in the movement of increasing SBHCs locally and nationally.

The intent of this paper is to help the reader understand the evolution of the role of the school nurse from the kindly mother substitute to the competent health care practitioner; as well as the evolution of the school from a place in which one sought an education to an institution that has been charged with improving the overall well-being of the child (socially, cognitively, and physically). Lastly, the paper will examine the reality of the role of the school nurse in the context of the world today and the potential for this role in the future.

Development of the School Nurse: Historical Perspective

School nursing evolved around the same time as the public health nurse; both created by the pioneer, Lillian Wald (Dieckmann, 2008). The role of the school nurse grew out of a need to improve children's health especially poor immigrant children living in New York City in the early 1900s (Wold & Dagg, 1981), when Lillian and her colleagues noted that most of the children sent home from school were those living in disease-infested tenements with little access to health care. These circumstances, in

combination with high rates of illiteracy and a lack of access to medical care led to rampant rates of infectious disease and school absenteeism, and an increasing morbidity and mortality rate (Vessey & McGowan, 2006). Wald's vision for public health nursing took into account the public's responsibility for health care, providing it to all regardless of their economic status (Buhler-Wilkerson, 1993).

Wald's team of public health nurses lived in these neighborhoods, caring for school children sent home by Medical Inspectors. The story about "finding a 12-year-old boy who never attended school because of a tiny sore on his head led to an investigation that proved he was only one of many such truant children" (Wold & Dagg, 1981, p. 6). Wald initiated a meeting with the Health Commissioner and the Chairman of the Board of Education to discuss these children, which led, in turn, to the initiation of school nursing with the assistance of Lina Rogers, another of Wald's Henry Street nurses, who became the first school nurse (Hawkins, Hayes, & Corliss, 1994). The Henry Street nurses were now school nurses caring for over 10,000 children in the New York City school district conducting home visits to follow the children identified with health problems, developing treatment plans, and providing health promotion and disease prevention education to vulnerable families. The school nurses treated common infectious diseases such as ringworm, scabies, and impetigo and provided wound care to children and their families; and in collaboration with charitable foundations, began to meet the material needs of the families (Hawkins, et al., 1994).

Like Wald's mentor, Florence Nightingale, these school nurses were asked to do "research" to assess the effectiveness of their practice. Careful and thorough documentation of all interventions and treatments were completed and this data

eventually supported the development of practice guidelines related to the health management of children while in school and the criteria that would validate their need to send a child home. The spread of disease was one of the key problems faced by many immigrant children; thus, personal hygiene education became an important component of the school nurses' daily work (Hawkins, et al., 1994). Schools benefited from these services and the public acknowledged the important role of the school nurse (Rogers, 1903). These protocols were adopted by the New York City Department of Health (Hawkins, et al., 1994; Vessey & McGowan, 2006) and within a year of implementing the school nurse project, student absenteeism was reduced by 90% (Vessey & McGowan).

Throughout the early 1900s, as the reputation of the public health nurse grew, so did that of the school nurse. Unfortunately, a change in the responsibilities of public health nursing in the late 1920s led by an initiative from the American Medical Association who believed nursing was becoming too autonomous, contributed to the lessening value of the school nurse (Kort, 1984; Lusk & Robertston, 2005; Parsons & Felton, 1992).

Evolution of the School Nurse Role

Rogers' clear vision of school nurses as public health nurses working in communities began to shift during the 1920s (Parsons & Felton, 1992). School nurses, once hired by municipal health departments, began to be hired by education departments and individual schools. By 1940, over 3,500 school nurses were employed by boards of education, changing the primary identity of school nurse from that of a public health nurse to a school nurse teacher or teacher nurse (Hawkins, et al., 1994). Further evolution

of the concept of the school nurse occurred during the Depression and the World Wars when more women entered the work force, often leaving their children largely unsupervised. The schools accommodated some of these changes by extending school hours of operation so children were not left alone; teachers and nurses served as child care attendants; and the concerns of the school nurse regarding these children were related to psycho-social and family function, child safety, isolation and child neglect issues (Hawkins, et al., 1994).

During the 1950s medical discoveries in immunizations and antibiotics began to have a significant affect on the incidence of diseases (Hawkins, et al., 1994). Absenteeism was reduced, illnesses in schools were decreasing, and school nurses were becoming more involved in primary care activities such as hearing and vision screening, consulting with teachers on health education, and promoting staff health. The value of school nurses as that public health professional who had a well developed psycho-social and medical skill set to care for children and their families suddenly moved to a professional who only screened for health problems and did health education. Two important functions of the school nurse; however often seen as less significant than the highly technological tasks of acute care nurses and not a necessary component related to the education of children. Therefore, the school nurse position became a less desirous role for those with a limited understanding of the public health role.

Despite a move by the American Nurses Association (ANA) in the 1960s to emphasize public health nursing, it minimized the role of the school nurse to home visits to determine health and safety status. By the end of the 1960s the school nurse role had been greatly diminished. Important functions, such as child advocate, health educator,

and primary health care provider were no longer viewed as necessary. At the same time, there was an increase in the number of physicians leading to improved access to health care and lessening dependence on school nurses for primary care (Hawkins, et al., 1994).

During the 1970s and 1980s, enactment of three federal laws making education available to all children in the least restrictive environment further changed the role of the school nurse. These laws were the Individuals with Disabilities Education Act, section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act. These laws saw the advent of individualized education plans (IEPs) and individualized health plans so all children could potentially be successful in the school setting (Ihlenfeld, 2008). In 2001, the No Child Left Behind Act required that all children receive standardized education in a healthy environment (Brener, Wheeler, Wolfe, Vernon-Smiley, & Caldart-Olson, 2007). While not specifically addressing the issue of school nursing, this act increased the awareness that a healthy environment was necessary for academic success. It indirectly affected school health services as there was now more emphasis on keeping children healthy while in the school setting (Brener, et al., 2007).

These legislative actions significantly affected the role of the school nurse. Children, who had been cared for at home such as those with physical and/or mental disabilities, were now "mainstreamed" into the school system. School nurses now needed to meet the special needs of these children including medication administration, managing specialized equipment like wheelchairs, feeding tubes, tracheotomies, or colostomies as well as provide support to the teachers educating these children. It was evident that school nurses could play a vital role in helping these mainstreamed children and the educational staff required to help them be academically successful. Managing the

physical and mental health problems of children with special needs requires a health care expert; unfortunately, the burden of this responsibility has fallen on the school administrator or on the teachers themselves (Anderson, 2009; Canham, et al., 2007). Funding allocations to schools changed with more money being allocated to schools with greater academic scores (Lagana-Riordan & Aguilar, 2009); therefore the emphasis for the school was now to support teachers and redevelop the curriculum to improve national test scores. Justifying funding for school nurses became difficult as their services were not directly linked to the achievement test scores; thus school nurses were seen as dispensable. The emphasis on test scores as the sole indicator of academic achievement led to elimination of positions and or services not able to be directly linked (Fiscella & Kitzman, 2009).

Preparation as a School Nurse

The current role of the school nurse has evolved from that of an autonomous public health nurse to a dispensable and ancillary position in a school setting who provides health education, and may or may not be able to provide primary (health promotion), secondary (screenings, monitoring growth and development, and caring for ill children), and tertiary health care (care of children with chronic health problems and health education to families and communities) (Ihlenfeld, 2008; Wolfe, 2006). The National Association of School Nurses (NASN) defines the school nurse role as:

> A specialized practice of professional nursing that advances the well-being, academic success, and lifelong achievement and health of students. To that end, school nurses facilitate positive student responses to normal development; promote health and safety including a healthy environment; intervene with actual

> and potential health problems; provide case management services; and actively collaborate with others to build student and family capacity for adaptation, self-management, self-advocacy, and learning.(2010)

Such activities are the ideal for a school nurse but may not be the reality in today's cost restrictive and academic achievement focused educational system. Performing in an ideal school nurse role requires an educational preparation that supports all dimensions of health care practice and prepares the nurse as a professional able to advocate for his/her patients, families, and profession. Such preparation is with a minimum of a bachelor's degree in nursing; however, a master's in nursing is preferred.

However, the preferred education is often not the reality. Though both the American Academy of Pediatric (AAP) and the National Association of School Nurses (NASN) recommend that all school nurses have Bachelor of Science degrees in nursing with accompanying school nurse certification, this requirement varies by states, with only half of all states requiring certification beyond basic nursing education, usually at the associate degree level and in some cases at the licensed vocational nurse level (Costante, 2006; Ihlenfeld, 2008). Because the school nurse role is potentially governed by three different state run agencies – the board of nursing, the board of education and public health, enforcement of a single entry level degree among states is difficult (Keller & Ryberg, 2004). Further complicating matters is the poor remuneration of school nurses and all the aforementioned factors presented above leading to a dearth of qualified, appropriately educated applicants.

Loeb, as early as 1965, captured the current dilemma, "The nursing profession regards School Nursing as a public health specialty....The education profession regards

nursing as an education function to which the nurse brings her health knowledge and skill" (p. 210). This dilemma has led to the public's, educators', and the nursing profession's misunderstanding of the full potential of the role (Maughan, 2009a, 2009b). Smith (2004) argued that school nurses are a marginalized population with limited research substantiating their effectiveness. Because of the lack of uniformity in preparation, as well as school nurses' ambiguous classification, the role is quickly losing status and opportunity to positively influence the lives of students. This is of particular concern today when children experience a myriad of health problems further complicated by the significant medical and psych-mental health disabilities of mainstreamed children (Caprio, 2006; Centers for Disease Control and Prevention [CDC], 2010; DeNavas-Walt, Proctor, Smith, & U.S. Census Bureau, 2008).

The Future Potential for School Nurses

Despite the lack of value for and the ambiguous classification of school nurses, national and international agencies recognize their important contribution to children's health. Healthy People 2010 included seventeen objectives addressing school health and/or school nursing. The objectives are broad in scope and include goals of improved screening for children, better education for health promotion, and education on cessation or prevention of adverse health behaviors like smoking, drinking, and weapon carrying. They also address the issue of the ratio of students to school nurses, recommending at least 750 to 1 (U.S. Department of Health and Human Services, 2000). Unfortunately the most recent School Health Policies and Programs Study (SHPPS) by the Centers for Disease Control and Prevention in 2006 found deficiencies in the ratio of school nurses to

students and the collaboration of school nurses with other disciplines (Brener, et al., 2007).

With the upcoming publication of Health People 2020, the proposed objectives continue to emphasize the important role that school health care centers and potentially school nurses can have in the future lives of children. These objectives continue to emphasize a need to increase the number of providers, increase the number of community health centers and increase the number of people with insurance. Further, Healthy People 2020 continues to emphasize the need for improved services and education offered in schools including topics such as nutrition, exercise, and sex education (U.S. Department of Health and Human Services, 2009).

There are over 55 million children attending school in the U.S. every day (Center for Health and Health Care in Schools, 2007); nationally, the school nurse to student ratio is approximately 1:1,155. School nurses are instrumental in changing the health and well-being of children; however, the majority of states (33) have school nurse to student ratios that far exceed the recommended 1:750 leading to poor and ineffective utilization (Maughan, 2009a). There are several factors affecting these ratios including socioeconomic status, school board philosophies about school nurses, and political factors. And while there seems to be no evidence or rationale for the Healthy People recommended ratio, research determining what are appropriate and effective ratios is necessary to best utilize this role.

Many behaviors that contribute to morbidity and mortality in adults are established during childhood, including dietary patterns, physical inactivity, and substance misuse (CDC, 2010). With their access to large numbers of children and

families, their awareness of community resources, and their knowledge of health assessment and health promotion principles school nurses have the potential to positively affect and change the lives of both children and their families. There is evidence that school nurses do make a difference when it comes to school attendance, medication administration, health education and providing community resources for lower socioeconomic often uninsured families (Canham, et al., 2007; Farris, McCarthy, Kelly, Clay, & Gross, 2003; Ficca & Welk, 2006; Gance-Cleveland & Bushmiaer, 2005; Guttu, Engelke, & Swanson, 2004; Kelly, McCarthy, & Mordhorst, 2003; Kruger, Toker, Radjenovic, Comeaux, & Macha, 2009; Pennington & Delaney, 2008; Rosas, Case, & Tholstrup, 2009). Following are suggestions for other ways to fully realize the potential of school nurses.

School nurses need to create an image of their role as being indispensable. This includes continuing to conduct research, linking specific student outcomes to school nurse presence; becoming strong collaborators with other disciplines (medicine, psychology, social work, and educators) to demonstrate how such collaboration improves the health and educational well-being of the students as well as bringing about positive change within the community, and documenting these efforts in both the public and professional literature. As identified by Maughan (2003), one difficulty in studying school nurses and their impact on children's health is the multiplicity of factors that influence children's health status. Such research is exactly what is needed, however, to confirm and validate the important role school nurses play. Nurse scholars, in collaboration with school nurses, must find ways to utilize all resources available to

improve children's health. This should include demonstrating the effectiveness of school nursing.

Second, school nurses must continue to work with a variety of people in their communities to obtain funding and support staff to organize and coordinate school-based health centers, much like the early settlement houses. This includes working with community leaders, politicians, staff, and key administrative personnel within their own schools. School nurses must advocate for the work they do and ensure that school administrators and the public are aware of the wide range of services provided by this group of professionals. Without the support of communities and local, state, and federal governments, school nurses are unlikely to influence the health of children. Currently, only a small percentage of schools have school-based health clinics (Center for Health and Health Care in Schools, 2007; Gustafson, 2005), presenting a challenge and opportunity for school nurses. School nurses can influence children's lives through the establishment of such centers.

Third, school nurses must be active in the political system in their state and community. At a state level, Maughan (2009a) found a majority of states require some type of school health services, ranging from screenings to immunization record keeping. In states with laws mandating nurse ratios, the nurse student ratios were lower. She concludes "laws may influence school nurse ratios, but only if they are written clearly (leaving little room for interpretation), are enforceable, and include an appropriate funding source that does not fluctuate" (p. 219). Making their presence felt at this level may help in reaching the recommended nurse to student ratios of 1:750.

Fourth, school nurses need to identify ways to best reach the large number of students in their care. School nurses, in conjunction with school administrators, need to work toward achieving the recommended 1:750 school nurse to student ratio while discovering ways to effectively treat the students under their care. In addition to increasing the number of school-based health centers, school nurses can make use of the Internet and telehealth strategies to stretch resources (Ihlenfeld, 2008). Technologically based strategies are an efficient way to educate large numbers of people, and, considering that the number of families with computers is on the rise, such strategies have the potential to be an effective approach.

Another approach that has been successful in several states is partnering school nurses with local baccalaureate nursing (BSN) or accelerated pre-licensure master's nursing (MSN) programs (Adams & Scheuring, 2000; Schwartz & Laughlin, 2008). Through such partnerships, children can receive desperately needed health care and health promotion programs provided by student nurses and their expert faculty. In addition, the partnerships create a unique community health clinical experience for professional level student nurses, encouraging them to consider community/public health nursing as career options. Finally, this type of partnership showcases the important role of the school nurse, could be an avenue for joint research projects validating the efficacy of the school nurse in school children's academic achievements, which could bring about additional funding and legislative action for school nurse positions (Adams & Scheuring).

School nurses need to advocate for effective education for those entering the field. NASN recommends a minimum of a baccalaureate degree for all newly hired school nurses. Based on SPHSS findings, however, less than one third of districts have such a

requirement. Further, less than 50% of schools require a school nurse certification (Brener, et al., 2007). The increasing complexity of school nursing and the need to work with and within communities necessitate baccalaureate education for entry level practice. This education should include a strong emphasis on public health nursing, to effectively implement the school nurse role.

Finally, it is essential that the nursing profession and school nurses themselves find ways to improve the current status and perceived role of school nurses. One of the key problems faced by school nurses is the lack of opportunity to interact with their peers and other nurse professionals. Their offices are often in isolated areas of the school, many have several schools to cover in a week's time leaving little, if any, opportunity for professional consultations and professional growth further contributing to feelings of isolation and marginalization (Smith, 2004). Misconceptions of the role of the school nurse held by educators and administrators further contribute to these feelings. Strategies to minimize feelings of isolation include increasing collaborative opportunities, joining professional organizations and mentoring new school nurses (Smith). Nursing cannot afford to miss an opportunity to advocate for the important role that school nurses serve in the lives of children.

The school nurse role emerged out of a need for improved health and better living conditions for the poor. The pioneers in school nursing accomplished their goals by treating and addressing the needs of children in schools, going into the communities where children lived, and advocating for improved access to health care, better living conditions, safer work environments, and better hygiene practices. While many of the infectious diseases that affected school children in the 1900s are no longer an issue, many

of the other problems Rogers faced still affect today's children. These include limited access to care, poor living conditions, environmental hazards, and non-English speaking parents. Much like school nurses in the 1900s, nurses today are responsible for the health of many students and provision of care in a large number of schools. With the recent passage of the Affordable Care Act there is increased funding available for community clinics such as school based centers as one method of reaching large numbers of uninsured families (U.S. Department of Health and Human Services, n.d.). School nurses have the potential to be leaders in this health policy change and need to take advantage of this opportunity.

Conclusion

Children who are healthy learn better. School nurses have a long history of caring for children's health needs through a variety of methods – screening, education, and basic health care. School nurses have an important role to play in the future lives of children; just as they played such a significant role in the lives of our great grandparents. Somewhere between 1920 and 2010, the school nurse was lost. It is time for them to be found again as they are invaluable to our future. We as fellow colleagues with the school nurse can support the revitalization of this role by advocating for school nurses, helping patients and families understand this role and utilizing them appropriately. Of critical importance is the need for the school nurse to advocate for their unique role in meeting the needs of children and help achieve the goals outlined in Healthy People 2020—to discover new and innovative ways to meet the complex needs of children while maintaining their original sense of caring and compassion for the future generation.

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Publishable Paper Number Two

Two Marginalized Populations, One Setting:

School Nurses and Children

Abstract

The purpose of this paper is to define the concept of marginalization, to identify certain pediatric populations and school nurses who may be at risk for marginalization, and discuss possible ways to help overcome this phenomenon in both school nurses and children. Recommendations for overcoming marginalization of both school nurses and children include educating the public and the school communities about the vital role of school nurses, in particular in the care of marginalized children. Suggestions include increasing visibility in the school setting through newsletters, back to school nights, and health fairs; being active in local nursing organizations and politics, precepting nursing students, taking opportunities to speak in the community, political settings and nursing schools about their important contributions to children's well being, helping in the development of a tool to identify and evaluate the risks of children who are or may become marginalized, and remaining strong advocates for their positions and for the children with special needs under their care.

Margins are all around us – in academia (scholarly formatting), health care (measuring the size of wounds), and politics (margins of error). These margins are relatively benign; however the marginalization of people can be damaging by limiting their access to power and/or resources and identifying them as less valuable or respected. Marginalized populations include the working poor, immigrant workers (documented and undocumented), chronically unemployed individuals, children, women, victims of abuse and human trafficking, racial and ethnic minorities, and gay/lesbian/bisexual or transgendered persons. These are populations that are pushed both figuratively and perhaps literally into the periphery of society because of their income, age, sex, color, ethnicity, religious beliefs, cultural or sexual practices. As marginalized individuals, their access to education, health care, marriage, and safety – rights that are often taken for granted by those in the dominant center – may be in jeopardy or non-existent (DeNavas-Walt, Proctor, Smith, & U.S. Census Bureau, 2008; DiNapoli & Murphy, 2002; Hall, 1999; Hall, Stevens, & Meleis, 1994; Lynam & Cowley, 2007; 98; World Health Organization & Bank, n.d.).

Among professional groups, some have also been included in the list of marginalized populations, often because they do undesirable work (custodians, funeral directors and sex therapists) (Maynard & Ferdman, 2009; Nasserzadeh, 2009), because of the dominant gender of its members (nurses, teachers, flight attendants), and/or because of its perceived novice status in professional arenas (Meleis & Im, 1999).

The two marginalized populations discussed in this paper, school nurses and children, interact with one another on a daily basis and have the potential to affect one another. Little is understood about how the health of school-age children, particularly

those with special needs, is impacted by limitations on the professional practice of school nurses. Further investigation is needed to better understand how one might affect the other and to identify ways in which the marginalization of both can be overcome. The purpose of this paper is to begin to lay a foundation for future research on this subject; first, however, the concept of marginalization in these two populations will be explored as well as discussion of possible ways to help overcome this phenomenon in both school nurses and children.

Marginalization Defined

A search in several databases uncovered a plethora of articles related to such concepts as margin, marginal or marginalization. Marginalization, from the root "margin," was derived in the fourteenth century ("Margin," 2010). There are varied uses for the term "margin" the boundary line or the area immediately inside the boundary; an amount beyond the minimum necessary; "the margin of victory;" the amount of collateral a customer deposits with a broker when borrowing to buy securities; the net sales minus the cost of goods and services sold; the blank space that surround the text on a page; allowance; a permissible difference; allowing some freedom to move within limits (Miller, 2009).

Within the social sciences, marginalized populations have received much attention due to their increased risks of vulnerability and health problems. In this regard, marginalization is a process primarily used as a way to define a group of individuals who are outside the mainstream, dominant center of society and who suffer ill consequences with no meaningful participation in society because of their peripheral position (Hall, 1999; Hall, et al., 1994).

Marginalization of Children

Hall, Stevens, and Meleis (1994) were the first to give a thorough and complete analysis of the concept of marginalization. Their assessment defines marginalization as "the process through which persons are peripheralized on the basis of their identities, associations, experiences, and environments" (p. 25). They outline and define seven key properties or attributes of marginalization. These properties include: "intermediacy, differentiation, power, secrecy, reflectiveness, voice, and liminality" (p. 23). In her revision of the original work, Hall (1999) incorporated seven new properties of marginalization to "increase the concept's global relevance and comprehensiveness"(p. 98). These attributes included: "exteriority, constraint, Eurocentrism, economics, seduction, testimonies, and hope" (Hall, pp. 98-100).

Children are a marginalized population in the United States where greater emphasis is placed on meeting the needs of adults rather than children and elders (Berman, 2003). Moreover, children, as a group, reflect the following components of marginalization: 1) Intermediacy is the main property of marginalization representing boundaries which separate children from adults. 2) Differentiation is the process by which those in the margins (children) are different than the center or majority (adults). 3) Power reflects the influence that one group has over another. 4) Reflectiveness involves the marginalized population needing to constantly be aware and evaluate their surroundings - the idea of "constant vigilance." 5) Liminality involves certain activities or experiences that are not shared by others which can lead to marginalization (Hall, et al., 1994). 6) Exteriority involves being outside the dominant society; 7) Eurocentrism is the belief that the European and North American view and lifestyle is superior. 8)

Seduction is the quality of addiction that may lead to further marginalization (Hall, 1999).

Children cannot make their own decisions as these are left to an adult who has been given the responsibility for their care; they do not have a voice as they are just a child, they exist outside the dominant adult world, they are often seduced by the trusts they place on the adults in their lives, and they are economically dependent on those adults. While improvement has been made, rarely are their opinions are sought, even in matters directly affecting them, such as their health or involvement in research (Powell & Smith, 2009).

Children are at risk of being socially marginalized from their peers in the school setting if they are in any way different such as being obese, chronically ill, or poor (DiNapoli & Murphy, 2002; Robinson, 2006; Selekman & Vessey, 2004; Strauss & Pollack, 2003). The very fact that certain pediatric populations are more at risk for being marginalized demands that pediatric health care providers determine how best to address their health care needs and experiences. Marginalization places children at risk for poor academic outcomes, inadequate medical services, and delinquent activities (DiNapoli & Murphy, 2002; Strauss & Pollack, 2003).

Children with special health care needs such as those who are chronically ill, the obese and the poor are increasing in the school setting. The federal Maternal and Child Health Bureau defines children with special health care needs as: "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally"(McPherson, et al., 1998, p. 138). Approximately 10.2

million children ages 0–17 years in the United States (13.9%) have special health care needs, often requiring medications and special health care services in the school setting (Child and Adolescent Health Measurement Initiative, n.d.). Studies involving parents of children with special health care needs have identified common themes. One is the lack of communication between the education and medical worlds these children occupy (Anderson, 2009). By having to cope with potentially complicated medication regimes, frequent health care appointments, and possible fatigue due to illness, these children are likely to become marginalized. They are marginalized from their peers and from school activities, and are at risk for low self-esteem and increased delinquent activities.

One of the miracles of modern science has been the development of cures and treatments for diseases that were once fatal are now considered to be chronic, such as diabetes, cystic fibrosis, and some forms of cancer. With new technology, however, comes the challenge that children now face living with diseases and treatments that make them different from their peers. This group can become isolated and marginalized due to their medications, side effects, physical fatigue and the very nature of being different (DiNapoli & Murphy, 2002). Add to that their need to interact within both education and medical settings, often simultaneously, puts these children at risk and in need of special intervention and care.

Obese children may be marginalized. It is not surprising to learn that obesity is the number one chronic health problem facing children and adolescents (Strauss & Pollack, 2003). And while many adverse affects do not manifest until adulthood, it is well documented that obese children are more prone to depression, low self-esteem, and

bullying by their peers (Robinson, 2006; Strauss & Pollack, 2003), placing them at risk for marginalization and delinquent behaviors.

Lastly, are children of the poor. This is a potentially large group and is growing in today's current economic situation. Included in this group are immigrants, homeless, children of single parents, and children of adolescents. These children are at risk of being marginalized in the school setting and in their communities. Poor children, who lack material resources in the home environment, have been shown to have poorer outcomes in the school setting leading to adverse outcomes in the future (Fiscella & Kitzman, 2009; Gutman, Sameroff, & Cole, 2003). Having a lack of understanding of what resources are available to their families can further complicate and disable them in the health care arena.

Given the significant number of marginalized children in the school setting, school nurses are in a pivotal position to advocate for their needs. By serving as a liaison between the educational and medical worlds of these children, school nurses are positioned to manage their care while at school. Their knowledge about child and adolescent development, disease pathophysiology, and medication effects and administration, along with their skills in health screening, patient education, and community referrals, puts them in the best position to work and intervene with the marginalized child (Anderson, 2009; Descoteaux, 2001; Fleming, 2009; Kruger, Toker, Radjenovic, Comeaux, & Macha, 2009; Taras, Zuniga de Nuncio, & Pizzola, 2002).

Marginalization of the School Nurse

School nurses have also been identified as a marginalized group (Simmons, 2002; Smith, 2004; Zimmerman, Wagoner, & Kelly, 1996). Smith (2004) posits that although

school nursing is one of the oldest specialties in nursing it is one of the least researched. Furthermore, while "anecdotal information supporting marginalization of the role of the school nurse exists, research supporting this claim has not been done" (p. 313).

Two studies have examined some of the challenges school nurses face that may lead to feelings of marginalization. Zimmerman, Wagoner, and Kelly (1996) found that school nurses believed school administrators lacked a clear understanding of their full potential, in part due to school nurses' inability to articulate their full functional abilities. Simmons (2002) found similar findings among novice school nurses who were often challenged by the autonomy and independence of the role. A misunderstanding and lack of administrative support led to feelings of loneliness and isolation (Simmons). This sense of being isolated from key education personnel like administrators, teachers, and the sense of not having power within the team they were working qualifies this role as marginalized.

Smith (2004) identified four barriers that formed marginalizing boundaries for the school nurse. First are actual physical barriers of where the school nurse's office often is located. It is usually a very small room in the periphery of the administrative offices, making it difficult to be part of the administrative educational team. Because they are pushed literally into the periphery they are seen as easily dispensable and invisible to school administrators. Then there are social barriers. Because school nurses serve a variety of schools in multiple locations, there is little opportunity to associate with their educational or nursing colleagues. This leads to a lack of professional and collegial relationships and further marginalization. Third are the cultural barriers that result from a lack of knowledge by the public and the education personnel of the role of the school

nurse and their true abilities. School nurses do much more than deal with minor injuries or illnesses; they conduct health screenings, educate children, parents, and teachers about health and illness, and manage the health needs of chronically ill children, thereby enhancing the learning process. Finally, there are the economic barriers. Because their services are misunderstood, school nurses are not compensated accordingly. Smith concludes, "School nurses routinely experience isolation, a lack of understanding of their role by colleagues, and encounter significant barriers to practice, all of which are characteristic of marginalization" (p. 314).

The National Association of School Nurses (NASN) defines the school nurse role as:

> A specialized practice of professional nursing that advances the well-being, academic success, and lifelong achievement and health of students. To that end, school nurses facilitate positive student responses to normal development; promote health and safety including a healthy environment; intervene with actual and potential health problems; provide case management services; and actively collaborate with others to build student and family capacity for adaptation, self-management, self-advocacy, and learning. (2010)

While it seems obvious that school nurses are in the prime position to work with marginalized children, how can they fulfill this role when they may be themselves a marginalized population? Compounding this is the fact that funding for school nurses is often the first budget item eliminated, especially in the current academic achievement test-score driven era (Anderson, 2009; Fiscella & Kitzman, 2009). Furthermore, a lack of complete understanding by the public, those in education, and the nursing profession

itself has led to dissatisfaction and poor utilization of the role and, perhaps, as some have argued, the marginalization of the school nurse.

Consequences of Marginalization of School Nurses and Children

There are significant consequences of marginalization, especially in the pediatric population. Much is known about the health disparities that exist in marginalized populations including lack of access to resources such as health care, education, employment, and basic everyday needs – food, water, and shelter. Marginalized populations are at great risk for illness, abuse, and early death largely because they are marginalized. In addition, with marginalized children comes the risk of lowered self-esteem, lack of appropriate resources, and increased delinquent behavior affecting their potential for healthy development and academic success (Selekman & Vessey, 2004; Strauss & Pollack, 2003). Children today are the first generation not expected to outlive their parents. Many already face health problems and challenges due to obesity and chronic illnesses. Violence continues to be an issue in schools with gangs and bullying often due to marginalization of particular groups (Nansel, et al., 2001; Selekman & Vessey, 2004; Strauss & Pollack, 2003; Van Cleave & Davis, 2006).

With marginalized professions, like school nursing, consequences include a dissatisfying career that may lead to feelings of loss and depression (Junious, et al., 2004). Failure to utilize school nurses to their fullest capabilities creates a loss for society in general. Marginalized children in particular are feeling the effects of school nurses who are spread so thin (Guttu, Engelke, & Swanson, 2004; Horovitz & McCoy, 2005). With budget cuts that eliminate the services of school nurses evidence suggests that children are at an increased risk with devastating consequences, including shortened

life spans and decreased educational opportunities (DiNapoli & Murphy, 2002; Erickson, Mattaini, & McGuire, 2004; Fiscella & Kitzman, 2009; Guttu, et al., 2004; Horovitz & McCoy, 2005; Maughan, 2009a, 2009b). In looking at the increasingly poor health of children, it seems that one resource that is currently underutilized and yet has the highest potential for positive gain is that of the school nurse (Wales & Crisp, 2007). It is incumbent upon school nurses to advocate effectively for the health care needs of children while at school and to measure the impact of their care on student well being, school attendance, and achievement.

Marginalization is a complicated and complex problem demanding changes at the community and policy level (Razack, 2009). Historically, school nurses have not exerted sufficient influence when it comes to establishing policies in the school setting to support their practice. School nurses have the potential to be key players in giving voice to marginalized children and families and in turn allowing the skills and abilities of the school nurse to be recognized and utilized.

Overcoming Marginalization in School Nurses and Children

In order for school nurses to overcome their marginalized status they must first make the public and school administrators aware of the difference they do make in the lives of the children they serve. Being more visible in communities through health fairs, school newsletters, and back-to-school nights will help educate communities and administration on the multifaceted role of the school nurse. Being active in nursing organizations and in local politics is another way for school nurses to demonstrate their important role. Meleis and Im (1999) suggest having the public become "research collaborators" in order to "sensitize the public to the important role of nursing"(p. 98).

This is particularly important for school nurses. Having the parents of marginalized children aware and demanding the valuable services of school nurses may lead to improved school nurse to student ratios. So too school nurses must continue to promote their skills and services in both nursing journals and public venues. Being active in local nurse organizations, precepting nursing students, speaking in community and political settings, as well as nursing schools to advance their role may lead to increased value and knowledge of the role and perhaps secure their positions (Adams & Scheuring, 2000).

To best serve marginalized children, school nurses must be able to function fully with the necessary resources in their role as educators and health care advocates. School nurses should continue to screen children for achievement of milestones and identify those who are failing to meet these milestones. This is a crucial need for the marginalized child. One of the challenges for marginalized pediatric populations is their potential failure to achieve academic milestones because of having to miss school which may lead to further isolation. School nurses must identify children with special health care needs, and, in conjunction with other health care providers, help them meet their highest potential academically and developmentally. Vasas (2005) identified the need for a specific tool to measure marginalization and its effects. School nurses are well equipped to create such a tool for the school setting because of their knowledge of child development, community resources, and general health care. In their role as educators, school nurses can give voice to the marginalized by educating school personnel, communities, and peers of the special needs and abilities of marginalized populations.

School nurses should also foster resilience and continue their work as advocates for marginalized children. Resilience is the "capacity for transcending obstacles, present

to some degree in all human beings" (de Chesnay, Peil, & Pamp, 2008, p. 25). School nurses must foster resilience among themselves and the marginalized pediatric populations under their care. Advocacy is acting as the "surrogate when the patient is incapacitated" (de Chesnay, et al., 2008, p. 25). By encouraging resilience, embracing their role as advocates, examining the effects of marginalization on the health and academic success of pediatric populations and by identifying those at risk for and those that are marginalized school nurses are best suited for caring for marginalized pediatric populations..

Conclusion

School nurses can and should be leaders in identifying, intervening, and giving voice to invisible, marginalized pediatric populations. Identifying resources, providing support, and educating the community, the student body, and school administrators about marginalized groups demonstrates the valuable role of the school nurse in caring for marginalized children and their families. School nurses in conjunction with communities and parents and with the support of schools have the opportunity to improve the overall development and academic success of marginalized children thus demonstrating their valuable contribution to children's healthy development.

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Publishable Paper Number Three

The Voice of the California School Nurse

Abstract

The purpose of this study was to obtain evidence to support the assumption that school nurses have a positive effect on school attendance and medication administration practices and to hear the voice of the California school nurse. Data from this exploratory, descriptive study came from an online researcher developed survey consisting of both forced choice and open ended questions completed by California school nurses representing the three major regions of California (Northern, Central, and Southern). The following three research questions guided the study:

1) What is the relationship between school and nurse factors on student outcomes?
2) How valued do California school nurses feel?
3) What makes the California school nurse feel valued?

Descriptive statistics and correlations between school and nurse factors and student outcomes were computed for comparability analysis at baseline. Research question three was analyzed qualitatively for themes using a horizontal approach.

A total of 382 surveys were utilized for data analyses were separated based on region of California. The majority of nurses reported having a method to track attendance and receive referrals for students with frequent absences. The majority also reported that attendance improved after their intervention. The majority of nurses reported that they have guidelines for medication administration; the most common people to administer medications were the health aide or secretary; and no medication errors occurred in the last month. Of the errors that had occurred, the most common error was a missed dose. Correlations between years of experience as a school nurse, number

of students and school sites that the nurse is responsible for and number of medication errors and number of children sent home were non-significant. The majority of school nurses felt "extremely valued" or "valued" in their current positions. Nine themes from open ended questions were developed to learn specifically what makes school nurses feel valued. Limitations of this study included the self report nature of the survey, the large amount of data missing for key questions, and the convenience sample. Discussion for areas of future research is included.

Today's children are faced with more serious health care issues then ever before including psychological, emotional, and physical difficulties. Some of the common problems facing children in increasing numbers include chronic physical conditions like asthma, diabetes, and obesity (Ebbeling, Pawlak, & Ludwig, 2002; Liao, Morphew, Amaro, & Galant, 2006); psychological problems like autism and attention deficit disorder (Yeargin-Allsopp, et al., 2003); and emotional problems or social problems including school violence, bullying, and lack of insurance (Erickson, Mattaini, & McGuire, 2004; Taras, Zuniga de Nuncio, & Pizzola, 2002). A link between general well being and academic success has also been demonstrated (Fryer, Igoe, & Miyoshi, 1997). Children dealing with any of the above mentioned problems attend school every day where school staff can intervene in these children's lives. One particular role that needs further exploration is that of the school nurse. The purpose of this paper is to present findings from an online survey of California school nurses to highlight practice issues affecting the school nurse role and give voice to this unique nursing specialty.

Problem

Many behaviors, such as substance misuse, dietary excess, and physical inactivity contribute to the greatest morbidity and mortality in adulthood are usually well established during childhood (Centers for Disease Control and Prevention [CDC], 2010). With their access to a large percentage of children, school nurses have the potential to be key players in improving the lives of children through education and health promotion. Recent figures show that in the United States there are currently over 45,000 school nurses working in public schools (Ihlenfeld, 2008). There are over 55 million children attending school in the U.S. every day (Center for Health and Health Care in Schools,

2007); nationally, the school nurse to student ratio is approximately 1:1,155, far from the recommendation of Healthy People 2020 objective that recommends 1 nurse to 750 students (U.S. Department of Health and Human Services, 2009). There are several factors affecting these ratios including socioeconomic status, school board philosophies about school nurses, and political factors.

With the upcoming publication of Healthy People 2020, these objectives continue to emphasize the important role that school health care centers and potentially school nurses can have in the future lives of children. They continue to recommend more primary care providers and community health centers along with an increase in the number of people with insurance. Further, Healthy People 2020 continues to reinforce the need for improved services and education offered in schools including health promotion topics such as nutrition, exercise, and sex education (U.S. Department of Health and Human Services, 2009).

There is evidence linking school nurses to improved outcomes. Maughan (2003) analyzed fifteen articles from 1965 to 2002 linking school nurses to various academic outcomes including school attendance and care of chronic diseases and health education. The limitations to these studies included the inability to see a direct link between school nurse interventions and outcomes, a lack of consensus on what were important outcome measures to assess in children with chronic diseases, the inability to measure the long term effects for these interventions, and the generalisability of results as most of the studies chose convenience samples that were not necessarily reflective of the population.

The lay literature is also beginning to show interest in looking at the important role school nurses could play. An article in *USA Today* (Horovitz & McCoy, 2005)

described the challenges one nurse faced in Ohio where a child was having a severe asthma attack at one school while she was attending to a diabetic child with extremely low blood sugar at another school. Pediatrician William Sears (Horovitz & McCoy) states, "Schools without nurses are putting children in harm's way. . . .If we can't afford school nurses, we've got our priorities skewed" (para. 14). In the same article, United States Representative Lois Capps, D-California, a former school nurse, agrees. She worries that staff members at schools without nurses might fail to spot illnesses among students or find they lack the necessary skills needed during emergencies. Horovitz & McCoy conclude, "The absence of qualified nurses — or the decision by a financially pressed school districts not to hire them — leaves unlicensed staff members to dispense medication, treat injuries, diagnose illnesses and handle emergencies" (para. 22). The *LA Times* also addressed the critical issue this past year reporting on the dangerous position California students are placed in as a result of not having a school nurse in every school (Olgilvie, 2011).

In California over 6 million children attend school every day (California Department of Education, 2005-2006). The current budget crisis in California has led to the elimination of school nurse positions creating one of the worst school nurse-to-student ratios in the country – 1 nurse to over 2,000 students (California Department of Education, 2005-2006; Maughan, 2009a). This is far from the nationally recommended ratio. Numerous studies suggest that the presence of school nurses makes a difference in improving student attendance and improving health recovery of school children (Allen, 2003; Guttu, Engelke, & Swanson, 2004; Pennington & Delaney, 2008). With the

prediction of further budget cuts for schools in California, it is imperative that the value of the school nurse be validated to preserve the vital role in this state.

Purpose Statement

The purpose of this study was to obtain evidence to support the assumption that school nurses have a positive effect on school attendance, decrease medication errors, and improve child health. Additionally this study gives voice to the California school nurse. While there is evidence that school nurses make a difference in the lives of children, no studies have specifically examined the perceived value of school nurses from their perspective, nor have the daily responsibilities of school nurses been described or their potential given the appropriate time and resources. This study fills this void by providing evidence about the perceptions of school nurses regarding the vital role they play in children's lives; it also strengthens the growing body of literature linking school nurse presence to improved student outcomes.

Methods

Design

Data from this exploratory, descriptive study came from an online survey of school nurses representing the three major regions of California (Northern, Central, and Southern). See Appendix A for a list of counties in each region. A researcher-developed survey was used to evaluate the following three research questions:

1) What is the relationship between school and nurse factors on student outcomes?
2) How valued do California school nurses' feel?
3) What makes the California school nurse feel valued?

Table 1 describes the constructs that were measured, which included student and nurse outcomes (dependent variables) and school and nurse factors (independent variables). Additionally this table includes the question (s) on the survey from which these data were gathered and the type of each variable being measured. The survey consisted of both forced choice questions and options for elaboration.

Instrument

An internet-based researcher-developed survey entitled "California School Nurse Survey" is attached as Appendix B. See Table 2 for a description of the four components of this survey and the variables measured in each section. These components were demographics, school attendance information, medication administration practices and perceived value of the school nurse. For the third section of the survey, medication administration practices, questions were used and modified with permission from a reliable and valid survey entitled "Medication Administration in the School Setting" (McCarthy, Kelly, & Reed, 2000). This survey was developed in keeping with the National Guidelines for Medication Administration in the Schools and was reported to have had content validity established through a pilot administration with 25 school nurses (McCarthy, et al.). Reliability coefficients from this original survey were not available; however, the same survey was modified and used by Ficca & Welk (2006) who reported test-retest reliability as .83 when completed by three certified school nurses two weeks apart. To ensure content validity of the current survey, three local California school nurses and three school nurses from the National Association of School Nurses (NASN) evaluated it. Their comments and suggestions focused on content of survey, question

wording, additional options for multiple choice questions, and formatting. Suggestions were implemented into the final draft of the survey prior to online posting.

Study population and sampling procedures

The California school nurse population consists of over 2,500 nurses working in public, private, primary and secondary schools throughout California (California Department of Education, 2005-2006). Access to nurses who were members of NASN was obtained from NASN. An email invitation was sent to these members. In addition, an email invitation was sent out to members of the California School Nurses Organization (CSNO) who were not members of NASN thus increasing generalizability. California school nurses were selected for this study because of the poor nurse-to-student ratios in the state.

After calculating an a priori power analysis with a medium effect size of .15, an alpha level of .05, and a power of .80, it was determined that an appropriate sample size of 131 nurses would be necessary to attain statistical significance (Faul, Erdfelder, Lang, & Buchner, 2007). Based on school nurse survey research completed over the last five years, a 40-60% return rate was expected (Ficca & Welk, 2006; Foley, Lee, Wilson, Cureton, & Canham, 2004; Kwasman, Tinsley, & Thompson, 2004; McCarthy, et al., 2000). Therefore, to ensure statistical significance a sample size of at least 200 nurses was sought over a one month period to account for lower return rates and/or incomplete surveys.

Inclusion criteria to participate in this study included school nurses who were currently practicing and licensed in California in one of the Northern, Central, and Southern regions. All eligible school nurses were invited to complete the internet survey.

The survey was designed and posted through Qualtrics, an on-line survey company (Qualtrics, 2010). The survey required no more than 30 minutes to complete and was available for a period of four weeks, during which a weekly email reminder was sent by the investigator to encourage completion of the survey.

Procedure

Approval was obtained from the University of San Diego's Institutional Review Board (IRB) as well as written approval from NASN. The initial survey was posted in October, 2010. An invitation with an explanation of the survey was emailed to all California NASN members. Included in this email were instructions on how to access the survey, description of the research questions and purpose of the survey, and a request to invite other school nurses to participate who were not members of NASN. Upon receiving the invitation to participate, a member of CSNO requested permission to send the survey link to their members; this request was granted upon approval from NASN.

Data Analysis

Descriptive statistics were computed for all variables at baseline and were correlated with one another to answer research questions one and two. In order to analyze the open ended questions and to answer research question three, a horizontal approach was taken (Borkan, 1999). This involved reading through responses multiple times looking for common themes and emotions. Data was coded in the margins of the text and common codes were then grouped together to develop themes.

Results

The survey was originally emailed to 828 members of NASN practicing in California. An additional 328 email invitations were sent to members of CSNO who

were not members of NASN. There were 419 surveys started and 394 completed. Of the 394 responses 382 were able to be utilized for data analysis. Respondents who were retired or who failed to complete more than 50% of the survey were removed from the sample.

Quantitative results

Results were categorized by location in California – Northern, Central and Southern. Seven respondents either left the demographic question regarding the county in which they practiced blank or answered "USA" creating a fourth region labeled as "Other." There were 122 respondents from Northern California, 71 were from Central California and 182 were from Southern California. Table 3 summarizes the demographic information based on region of California. The majority of school nurses in all four regions had been in nursing practice for over 25 years and in school nursing for over 10 years. In Northern, Southern and Other regions a Master's Degree was held by the majority of school nurses. In Central California the majority of nurses held a Bachelor's in Nursing degree. Over 90% in all regions were members of professional organizations, with the majority belonging to NASN and/or CSNO. Over 50% in all regions held a California school nurse certification. The majority of nurses in all regions made between $65,001 – $85,000, were employed by public schools and each served over 2,500 students.

Table 4 provides data about school attendance. The majority of respondents have a method to track attendance, receive referrals for frequent absences, and believe that attendance does improve after their interventions. Over 50% of respondents from all regions left the question blank when asked how many students were sent home in the last

month for health reasons as well as how many had been assessed by the school nurse. Several nurses stated they did not have access to these data and felt there were other issues that needed to be addressed to get to the heart of this issue.

The free text responses to the question asking what else should be asked about school attendance was a much richer source of data. Responses to this question revealed the need to assess factors that school nurses may not have control over such as the role school nurses have in School Attendance Review Boards, parent involvement, and administrative support of school nurse interventions for absences all of which may affect attendance and demonstrates the complexity of the issue. Several commented on how much more effective they could be in attendance matters if they did not have as many students and/or schools to cover. Finally, many school nurses commented that there were fewer students sent home when they were assessing them; however, most did not have actual numbers to substantiate this claim.

Table 5 summarizes the correlations between variables. There was a small positive correlation between number of students the nurse was responsible for and number of students sent home in a month (r = .044) and number of sites the nurse was responsible for with the number of students sent home in a month (r = .038). There was a weakly negative correlation between years as a school nurse and number of children sent home (r = -.005) none of which were statistically significant at the 0.05 level. Further analysis identified a small, negative relationship between years in school nursing and number of medication errors (r = -.039), number of students and number of errors (r = -.004) and number of school sites and number of errors (r = -.024) none of which were statistically significant at the 0.05 level.

Tables 6 and 7 address medication administration practices and medication errors. Over 90% of school nurses in all regions reported that they had written guidelines for medication administration. When asked who else administers medications the school nurses reported that the school secretary administered the majority of medications in Northern and Central California (N = 83 and 43 respectively) followed by a health aide (N = 49 and 39 respectively). In Southern California and Other it was the health aide who administered the majority of the medications (N =92 and 4 respectively) followed by the secretary (N = 88 and 3 respectively).

In looking at the number of errors that had occurred in the last month 249 nurses (65.2%) reported that no errors had occurred; however, several commented that they would not necessarily be aware of the errors or they did not have access to this information. Of the 52 nurses who reported that an error had occurred only 31 (59.6%) went on to answer the question of how many errors had occurred. There were 71 errors noted by these 31 nurses, when asked who committed the errors there were 61 responses. There were a total of 18 errors reported in Northern California, 32 in Central California and 20 in Southern California. Of these answers, the most common person to commit the error was the health aide in Southern California (N = 10) followed by the secretary and other (N = 6 for each). For Northern, Central and Other the person most likely to make an error was "other" (N = 8, 6, and 1 respectively) followed by the secretary in Northern California (N = 5) and health aide in Central California (N =5). In reporting the type of error that was made there were 85 responses. The most commonly reported type of error was "missed dose" for Southern, Northern and Central (N = 14, 8, and 7 respectively). For Other the type of error was selected as "other" (N = 1). Additional factors noted in

the survey responses that contributed to medication errors included parents not bringing medications, students forgetting to report blood glucose levels, and not having the necessary medications at school. This demonstrates the complexity of the issue and shows that many factors affect medication administration.

When asked to rate how valued school nurses felt on a four point scale – Extremely Valued, Valued, Hardly Valued, Not at all Valued – the majority of school nurses in all four regions responded that they felt either "extremely valued" or "valued" (33.2% and 51.3% respectively). Only 10.5% felt "hardly valued" and no one felt "not at all valued." When asked if they felt valued by their communities and their districts, school nurses felt more valued by their community than by their districts (85.3% vs. 71.7% respectively). The factor contributing the most to their perceived value rating in the community was receiving positive verbal comments from someone in the community (80.6%). The factor contributing the most to their perceived valued in the district was receiving positive verbal comments from colleagues followed by keeping their position in spite of budget cuts (68.8% and 61.5% respectively).

Other factors that contributed to their perceived feelings of value by the community or district included awards that were given to school nurses. These included community awards such as "most prestigious award in the City," "service awards," and "district-wide awards." Factors contributing to the value within the district included awards such as the "teacher of the year," "ACSA Regional Central Office Administrator of the Year," and "service awards."

Qualitative Results

To answer research question three, school nurses were asked to list what else contributed to the value rating they gave themselves. Finally, they were asked if they felt their presence made a difference in the health and education of the children they served. The overwhelming majority of school nurses responded "yes" (N=356, 93.1%) and 155 respondents elaborated on why they felt their presence made a difference. These responses included statements by school nurses describing the regular tasks which they are capable of performing in spite of the lack of time and resources and high number of students in their care.

Themes

The following themes were developed from the 106 responses to the question about what else contributed to their value rating: special or unique knowledge school nurses posses, lack of knowledge about the role of the school nurse in the school and in the community, importance of working as a team with other educational personnel including serving on committees, and the effect of budget on their positions.

Unique knowledge.

The following responses demonstrate the special or unique knowledge that school nurses possess:

- Special education expertise;
- I am a student, family, staff advocate and "health expert" at my school site;
- My schools use me as their ultimate resource for health and disease related questions;

- I take care of a lot of complex issues that others do not have the expertise or intrest [*sic*] in doing;
- Teachers, principals, parents are always asking questions, referring, come to me with health related issues regarding children;

This indicates that they are known for their health care knowledge; however, as one nurse noted "I'm usually only valued when there's an emergency. I'm not valued for the educational aspects of my job." This too was a common theme in the respondents.

Lack of knowledge about school nurse potential

The idea that school nurses are only respected for their knowledge on health care issues and little is known or understood in their districts or their communities about other important functions of their role such as education, ability to locate community resources, or advocate for children and families was another common theme. For example, one nurse writes,

> [There is a] lack of knowledge by staff regarding what the school nurse does on a daily basis. For example dealing with various levels of acuity for a large range of health related presentations, acting as a social worker to find community health resources for uninsured/non-Medi-Cal eligible students, especially undocumented individuals, dealing with parents who can be unwilling to follow through with medical referral recommendations.

The lack of knowledge or understanding about the role is also noted in statements such as:

- …administrators making health policy without consulting the nursing staff;

- … when other issues arise that involve nursing issues they often forget to include the nurse;
- … when all else fails, ask the nurse for help;
- The mentality that "we are not in the health care business;"

Team and committee work.

Things that seemed to increase value ratings included good working relationships with other educational personnel, working as a team and being asked to serve on valuable committees. The following statements demonstrate how school nurses are more inclined to feel valued when they are respected and utilized to their fullest capacity.

- Principal feels a school nurse is essential;
- I work closely with school councelors [*sic*] and psycologist [*sic*];
- I am on committees in my department that are valued;
- I work with a great team; teachers, program manager, pschys, behavioralists, OTs, PTs, APE, and SLPS;

Budget concerns.

As found in previous research (Maughan, 2009b), budget concerns play a large part in the perception of value. Many of the respondents noted budget in their response to what affected their value rating. For example:

- … school nurses not cut when budget was cut;

And the opposite, more common response

- During budget cuts, the teachers vote to cut the nurse over classroom aids;
- I feel valued, but if there are budget cuts, I don't feel as valued;

- Students, staff and administrators tell me I am valued, School budgets tell me I am not as valued as I should be;
- There are eleven school psychologists and one nurse – there were 3 nurses prior to the last school year – during layoffs, teachers were all saved and new ones employed, but the two nursing slots have not been saved or reinstated;

In California where budget issues loom large and cuts are continually threatened at multiple levels, school nurses must find ways to advocate for their services in order to maintain their positions.

Of the responses to the question on why does your presence make a difference the following themes were noted: their ability to care for children with special needs, to teach and practice health promotion, to locate resources for children and families in the community, and to be creative and feeling frustrated.

Children with special needs.

The high acuity student load reported by the school nurses in this survey was a significant finding and contributed to their belief of making a difference as noted in these statements.

- Most of the severe children I serve need to be followed by an RN and if this didn't happen they wouldn't have up to date med orders, or correct seizure orders for school;
- … I have a child with Cancer [*sic*] undergoing chemo and trying to maintain her school schedule.… I have another child with almost daily seizures who is at high risk for a head injury especially from Coumadin therapy. We are trying to find a

plan of care that will protect him at school, i.e. wearing a helmet, a one on one aide;

- Case management of students....getting student swallow study done and now student has GT, having student evaluated for sleep study and may possibly need a trach;

The complexity of the health care needs of these children and the abilities of school nurses to care and make a difference in their lives demonstrates the necessity of this role.

Health education and promotion.

Another common theme in asking for reasons why they believed their presence makes a difference was their ability to take every advantage to do health teaching and promotion activities.

- I spend a lot of time talking to kids and their parents about how to stay healthy and be at their top performance in school. I remind the kids that they are our future leaders and how important it is for them to take care of their bodies. I counsel pregnant teens on how to take care of their pregnancy and continue their education. I help kids from troubled families to access resources. The schools that I work in are both in lowere [*sic*] economic demographics and are still in the top performance level of their class in the nation;
- I frequently present to the students and parents; in PE class, in AVID promoting nursing as a profession, in English class discussing my nursing as a profession, during Open House and Parent Involvement days I present health topics to parents which have a direct impact on the students;

- I call my health teaching opportunities the "twenty second health teaching." During this time, I have a golden opportunity to teach them, assess their knowledge, and connect with the students. I believe in the wholistic care of students. Students may not thank you for your help, but come graduation time you can see the growth they made in health and emotionally.

The role of health promoter and educator clearly was an aspect of the role that many nurses found to be crucial.

Locating Resources.

Another important aspect of the role and one which supports school nurses making a difference is that of finding resources as noted by the following responses:

- We see many children with many different needs – we have helped with glasses, hearing aids, etc that make a difference in a child's academic progress;
- Many of our students come from economically disadvantaged households. By advocating for on site dental programs to provide dental care for students whose parents either cannot or will not take them to the dentist, completing mandatory vision screenings at the beginning of the year and making appropriate referrals to ensure that all students are able to see what they need to learn, by connecting parents with appropriate medical coverage resources to ensure medical care for both students and families, … by referring parents of developmentally and/or physically disabled students to appropriate community resources including California Children's Services and Regional Center.

Without many of these resources these children would not be healthy or successful in their education.

Creativity.

The school nurses also reported cases in which they had to be particularly creative in presenting material to students in order for students to pay attention but also to educate them on important health promotion activities which contributed to school nurses' sense of making a difference. One particular story that stood out not only for its creativity but for its impact follows:

- My greatest difference was in my role as Ms. Klinex, the Human Handkerchief, in which I taught a series [of] handwashing [*sic*] lessons to kindergarten and 1st grade.... During the H1N1 pandemic, our kindergarten had record high attendance, presumed from their excellent handwashing [*sic*] skills.

School nurses are able to be creative within the limitations of their settings; this was but one clever example that had a powerful impact on both the school population and the community.

Frustration.

There was also a sense of great frustration in many of the respondents captured particularly well in the following statement:

> I can't believe that there is not a nurse in every school. I cannot believe some of the things I have to train aides to do. I cannot believe parents do not know that a school nurse is not in every school. I cannot believe they don't know that the health clerk is not a school nurse. I cannot believe that the teachers don't know that the clerk is not a nurse or that the school nurse is an RN and has a credential. I cannot believe that we are so overworked, overwhelmed, stressed out, overlooked, and burnt out. I don't think the districts realize all the nurse can do

to help students stay healthy and stay in school. Maybe when we are paid out of different funds what we do for the children will be recognized and protected.

Frustration was heard in many of the respondents due to the many obstacles they face including limited budgets, high numbers of students with complex health care needs, and lack of support; however, it was also evident that school nurses are dedicated to supporting the students and families in their communities and districts in spite of these obstacles.

Discussion

The purpose of this study was to look at the relationships between two important student outcomes, medication administration and school attendance, and to determine if these outcomes could be predicted based on various school and nurse factors. Additionally, with school nurse positions being eliminated in California, the researcher was interested in determining if school nurses felt valued in their current positions and believed they made a difference in their role in spite of the challenges that they faced. It was hypothesized that factors such as number of students, number of school sites, years of experience, education, and the number of children with special health care needs might influence the number of medication errors and the number of children sent home for heath reasons. What was learned was that trying to link these outcomes with these factors was difficult in a survey such as this.

Asking for the number of students sent home in a month and the number of students assessed by a school nurse and sent home did not adequately assess the real issues behind school attendance. As the school nurses reported, factors such as role in school attendance review boards, administration support, and parent involvement all play

a large role in attendance so looking at numbers in a month fails to capture this information. Most of the nurses do have a method to track attendance however having access to this information was not always possible, nor was the nurse always the person responsible for keeping track of this information. Furthermore it is often not the nurse that assesses children in the nursing office to determine which children are sent home. Future research about school attendance will need to look at these other factors and have a more accurate way to assess actual numbers. Two possible ways to obtain this are through chart audits of school offices and researcher observation over a determined period of time.

In regards to medication administration practice and errors, this study supports what was found in previous research looking at medication administration practices (Ficca & Welk, 2006; McCarthy, et al., 2000). Mainly that school nurses are not the primary person administering medications in the school setting; rather this task is most often completed by non-professional staff such as health aides and secretaries. Furthermore the most common type of error in medication administration was missed dose. While these findings are in line with previous research on this issue, it is a concern that school children are potentially being put at risk for possible medication errors by allowing non-professional people to make decisions that require medical expertise. Regarding the discrepancy in number of errors, committed by whom and type of errors, it is hypothesized that it may be easier to recall what type of error was made versus determining an exact number on recall alone, possibly explaining the inconsistency in the total numbers for this question. If administering medication continues to be delegated to non-professional staff, future research should focus on evaluating the training and

overseeing of these staff including the on-going monitoring necessary to avoid potential errors. Using chart audits and researcher observation may be a better way to obtain solid evidence linking medication practices with staff members.

Because of the multiple factors that affect both the outcomes of attendance and medication administration like parent involvement, administrative support, number of special needs children, students forgetting medications or to report blood glucose levels, parents forgetting to bring medications, not having access to the information when filling out the survey plus the high percentages of missing data, determining predictive models between nurse and school factors and attendance and medication error rates was not possible in this survey study. In looking at the correlations it was surprising to see that the more students and sites a nurse was responsible for, the less likely a medication error was to occur. This was most likely due to the small number of nurses reporting on the errors (N = 31). It was not surprising to see that the more years of experience the nurse had the fewer errors occurred and fewer children were sent home. Unfortunately these findings were not statistically significant and due to the small numbers answering these questions no conclusions or recommendations can be drawn. Future research evaluating these variables through a more unbiased method like chart audits may yield more statistically significant results.

In looking at the qualitative component of this survey, it was assumed that school nurses with the large number of children in their care and the continued cuts in their positions may not feel valued. Few studies have sought to explore this question from the school nurses perspective. The responses to this survey clearly indicate that school nurses in California do feel valued and believe their role is important. It is not entirely

clear why the nursing profession and the general public lack an understanding and knowledge of the value of this role. The number of responses indicating a general lack of knowledge about the school nurse is consistent with previous research (Maughan, 2009b; J. A. Smith, 2004; S. G. Smith & Firmin, 2009) and a concern for keeping this position as it is more likely to be eliminated if the public are unaware of the importance of the role. Future research must continue to focus on the important tasks that school nurses carry out regularly. It is also essential that both public and the medical community be made increasingly aware of the importance of school nurses.

Limitations and Future Research

There were several limitations to this study. First the self-report nature of the survey limits the findings as several nurses noted they did not have time to access the data that was required to answer some of these questions and several questions relied on recall of information over a month's time. The generalizability of this study is also limited as the majority of the respondents were members of either NASN or CSNO or both and these results are only from California school nurses. Data on the specific number of school nurses in each region of California was unable to be obtained; however it is known that there are over 2,500 school nurses in California, this survey invited 1,156 nurses to participate so the answers for the remaining 1,344 could be very different from that of NASN and CSNO members. Another limitation, not unusual to previous school nurse research, is the multifaceted nature of many of the outcomes including medication administration and school attendance. As was identified in the survey responses many other things influence these student outcomes including parent involvement, administrative support, role in School Attendance Review Boards, student's knowledge

and motivation which may not be able to be obtained in a survey. Figuring out a way to control for these factors and a better way to measure them will strengthen the link between school nurses and educational outcomes such as medication administration and attendance.

First, using a survey such as this may not be an effective tool in gathering the quantitative data needed to evaluate the role. Many nurses responded that they did not know nor did they have access to the data to answer the questions of how many errors had occurred or how many students had been sent home over a period of a month. Perhaps a better way to glean this information is to go into schools and collect the information from observation and self-report on a variety of practices such as medication administration or attendance as was completed by Canham et al. (2007). They used a medication audit form completed by five school nurses in eight public schools to look at a variety of errors including missing doses, expired medications, inconsistent recording, inappropriate storage, missing orders, inaccurate transcription, and disorganized record keeping.

Additionally, as seen in the results of this survey, the richest data came from the open-ended responses by the school nurses. Continuing this dialogue with future qualitative studies looking at the lived experiences of school nurses from a variety of settings and districts, hearing them speak about the issues and solutions they see as necessary would allow the public and nursing profession to see the value in this role. Additional research should be focused on the education and actual interventions nurses do with respect to various student outcomes. Asking about such things as education on hand washing and the incidences of communicable diseases, discussing how non-medical

staff are trained to administer medications and keeping track of yearly in-services and medications dispensed in the nursing office, involvement in the school attendance review board, are all activities that should require a school nurse presence and could potentially lead to improved outcomes for children thus strengthening the necessity of this role.

Finally, many school nurses responded that they were the sole source of care for many of the children and families in their schools. Here is an important and potentially significant area for future research. As one nurse stated, "I run a free clinic. Ear infections, referrals to doctors and dentists.... school based clinics are the way to go." With Healthy People 2020's continued emphasis on improving access to health care and with the multiple abilities of the school nurse this is another area where school nurses need to let their voices be heard. School based health clinics could be an important and reasonable way to reach many uninsured families. Working in conjunction with school nurses to support and open these types of clinics would highlight the crucial role school nurses could have in their schools and communities.

Conclusion

It would seem obvious that school nurses play an important role in the lives of children from overseeing the administration of medications, to intervening in frequent absences, to helping families find resources that they need. School nursing encompasses all of what nursing excels at – health promotion, patient advocacy, family-centered care – and yet school nurse positions are being eliminated and there is limited professional or public awareness of the critical role provided by school nurses. The wide scope of the role was summarized well in the following nurse's response:

As a school nurse, I decrease barriers to learning by addressing health needs of children. Whether nursing actions are addressing primary, secondary, or tertiary health needs of the school population, nurses are essential to ensure that students are at their optimum level of health, ready to learn. A child who cannot see the white board in the classroom, or has difficulty breathing due to his/her asthma symptoms, or cannot stay focused due to ADHD--these are all children that can benefit from school nursing interventions.

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Table 1

Variable Table and Survey Measurement

Construct	Measure (s)	Survey question	Variable type
Student Outcomes (Dependent Variables)	a) Medication errors b) Students sent home	a) Part 3, question 8 b) Part 2, question 5	a) Continuous b) Continuous
Nurse Outcomes (Dependent Variables)	Perceived value	Part 4, question 1	a) Categorical
Nurse Factors (Independent Variables)	a) Nurse student ratio b) Nurse school ratio c) Years as school nurse d) Nurse education	a) Part 1, question 9 b) Part 1, question 11 c) Part 1, question 2 d) Part 1, question 3	a) Continuous b) Continuous c) Continuous d) Categorical
School Factor (Independent Variables)	a) County/Region of California	a) Part 1, question 8	a) Categorical

Table 2

Survey Components

Section	Questions	Variables measured
Part 1: Demographics	15 questions	**Nurse factors**: • Nurse/student ratio • Nurse/school ratio • Years as school nurse • Nursing education **School factors**: • County of school
Part 2: School attendance	12 questions	**Student outcomes:** • Number of students sent home for health reasons in one month
Part 3: Medication Administration	11 questions	**Student outcomes**: • Number of medication errors in one month
Part 4: Perceived School Nurse Value	10 questions	**Nurse Outcomes**: • School nurse's perceived value in their community and district • Open ended responses exploring their role in children's health.

Table 3

Demographic Characteristics of California School Nurses (N = 382)

Characteristic	N (%) Northern (N = 122)	N (%) Central (N = 71)	N (%) Southern (N = 182)	N (%) Other (N = 7)
Degree				
BSN	36 (29.5)	30 (42.3)	28 (15.4)	1 (14.3)
Other Bachelors	4 (3.3)	4 (5.6)	10 (5.5)	1 (14.3)
MSN	52 (42.6)	15 (21.1)	67 (36.8)	3 (42.9)
Other Masters	13 (10.7)	13 (18.3)	56 (30.8)	1 (14.3)
Other	15 (12.3)	7 (9.9)	14 (7.7)	1 (14.3)
PhD	0	0	2 (1.1)	0
Missing	2 (1.6)	2 (2.8)	5 (2.7)	0
California School Nurse Certification	88 (72.1)	38 (53.5)	110 (60.4)	3 (42.9)
NASN Membership	107 (87.7)	63 (88.7)	159 (87.4)	7 (77.8)
CSNO Membership	111 (91.0)	66 (93.0)	161 (88.5)	5 (71.4)
Salary				
< $25,000	0	2 (2.8)	0	1 (14.3)
25,000 – 45,000	16 (13.1)	4 (5.6)	8 (4.4)	0
45,001 – 65,000	38 (31.1)	20 (28.2)	30 (16.5)	1 (14.3)
65,001 – 85,000	49 (40.2)	36 (50.7)	90 (49.5)	3 (42.9)
85,001 – 105,000	16 (13.1)	7 (9.9)	43 (23.6)	1 (14.3)
>105,000	3 (2.5)	2 (2.8)	8 (4.4)	1 (14.3)
Missing	0	0	3 (1.6)	0
Number of Students				
<500	17 (13.9)	9 (12.7)	16 (8.8)	0
501- 1000	13 (10.7)	2 (2.8)	24 (13.2)	1 (14.3)
1001 – 1500	17 (13.9)	11 (15.5)	21 (11.5)	1 (14.3)
1501 – 2000	21 (17.2)	8 (11.3)	19 (10.4)	0
2001 – 2500	11 (9.0)	13 (18.3)	15 (8.2)	2 (28.6)
>2500	39 (32.0)	28 (39.4)	79 (43.4)	1 (14.3)
Missing	4 (3.3)	0	8 (4.4)	2 (28.6)
School Type				
Private	3 (2.5)	2 (2.8)	6 (3.3)	0
Public	114 (93.4)	65 (91.5)	165 (90.7)	7 (100)
Charter	1 (.8)	1 (1.4)	5 (2.7)	0
Juvenile camps	0	0	2 (1.1)	0
Other	3 (2.5)	3 (4.2)	3 (1.6)	0
Missing	1 (.8)	0	1 (.5)	0
Characteristic	**M (SD) Range**	**M (SD) Range**	**M (SD) Range**	**M (SD) Range**
Years as nurse	28.9 (10.5) 2 - 50	26.1 (9.9) 6 - 48	27.1 (12.1) 3.5 - 53	22.4 (12.1) 11- 41
Years as school nurse	12.1 (8.8) .9 - 48	13.8 (8.7) 1 – 31	12.9 (9.2) .3 - 34	8.2 (4.2) 3 – 16

Table 4

School Attendance

Characteristic	N (%) Northern (N = 122)	N (%) Central (N = 71)	N (%) Southern (N = 182)	N (%) Other (N = 7)
Method to track attendance				
Yes	80 (65.6)	61 (85.9)	146 (80.2)	5 (71.4)
No	42 (34.4)	10 (14.1)	35 (19.2)	2 (28.6)
Missing	1 (.8)	0	1 (.5)	0
Referrals for freq. absences				
Yes	106 (86.9)	63 (88.7)	161 (88.5)	6 (85.7)
No	16 (13.1)	8 (11.3)	11 (6)	0
Missing	0	0	10 (5.5)	1 (14.3)
Attendance improve				
Yes	97 (79.5)	60 (84.5)	146 (80.2)	5 (71.4)
No	6 (4.9)	2 (2.8)	8 (4.4)	0
Missing	19 (15.6)	9 (12.7)	28 (15.4)	2 (28.6)
Characteristic	**Northern California M (SD) Range N = 24**	**Central California M (SD) Range N=19**	**Southern California M (SD) Range N=70**	**Other M (SD) Range N = 1**
Number sent home for health reasons in last month	90.8 (.25) 11 - 900	212.9 (.21) 6 - 2010	128.5 (29.2) 0 – 2,000	Unable to calculate
RN assess	11.5 (.17) 0 - 30	30.8 (.16) 3 -175	41.4 (.25) 0 - 600	5 (0) 5

Table 5

Correlation Matrix for Attendance and Medication Administration

	Number of medication errors	Years as school nurse	Number of students	Number of school sites	Number of students sent home
Number of medication errors	1.00	-.039	-.004	-.024	-.005
Years as school nurse		1.00	-.068	.080	-.005
Number of students			1.00	.006	.044
Number of school sites				1.00	.038
Number of students sent home					1.00

Table 6

Medication Administration

Characteristic	N (%) Northern (N = 122)	N (%) Central (N = 71)	N (%) Southern (N = 182)	N (%) Other (N = 7)
Med guidelines				
Yes	115 (94.3)	70 (98.6)	170 (93.4)	6 (85.7)
No	4 (3.3)	1 (1.4)	3 (1.6)	0
Missing	3 (2.5)	0	9 (4.9)	1 (14.3)
Who Administers (multiple ans)				
RN only	12	13	43	2
Health Aide	49	39	92	4
Secretary	83	43	88	3
Parent	34	19	47	1
Teacher	43	20	46	1
Self admin.	77	32	81	2
Principle	18	9	26	0
House Parent	2	2	3	0
Other	20	14	23	0
Meds by RN only (multiple ans)				
Insulin	63	40	98	3
Rectal	41	28	57	3
Other inject	21	16	27	2
BP/pulse monitoring	15	15	23	1
Other	6	6	9	0

Table 7

Medication Errors

Characteristic	N (%) Northern (N = 122)	N (%) Central (N = 71)	N (%) Southern (N = 182)	N (%) Other (N = 7)
Med errors in last month				
Yes	16 (13.1)	12 (16.9)	23 (12.6)	1 (14.3)
No	82 (67.2)	49 (69)	115 (63.2)	3 (42.9)
Don't Know	20 (16.4)	10 (14.1)	31 (17.0)	2 (28.6)
Missing	4 (3.3)	12 (16.9)	13 (7.1)	1 (14.3)
Reported on number of med errors	11 (68.8)	9 (75)	11 (47.8)	0
Missing N (%)	5(31.3)	3 (25)	12 (52.1)	1 (100)
Characteristic	**Northern California N = 18**	**Central California N = 32**	**Southern California N = 20**	**Other N = 1**
Committed error (Multiple answer)				
Health Aide	2	5	10	0
Secretary	5	3	6	0
Student	1	1	2	0
RN	1	1	1	0
Parent	2	0	0	0
Other	8	6	6	1
Type of error (Multiple answer)				
Missed Dose	7	8	14	0
Wrong med	2	1	4	0
Not document	3	4	6	0
Overdose	3	1	3	0
No auth.	7	2	8	0
Other	3	2	6	1
Characteristic	**M (SD) Range N = 18**	**M (SD) Range N = 32**	**M (SD) Range N = 20**	**M (SD) Range N = 1**
Actual number of med errors	1.6 (.13) 0 – 4	3.6 (.14) 0 – 20	1.5 (.14) 0 – 3	N = 1 Missing data unable to calculate

Appendix A

California Counties by Region

Region	Counties	
Northern California	• Alameda • Alpine • Amador • Butte • Calvares • Colusa • Contra Costa • Del Norte • El Dorado • Glenn • Humboldt • Lake • Lassen • Marin • Modoc • Mendocino • Napa • Nevada	• Placer • Plumas • Sacramento • San Joaquin • San Mateo • San Francisco • Santa Clara • Shasta • Sierra • Siskiyou • Solano • Sonoma • Sutter • Tehane • Yolo • Yuba
Central California	• Fresno • Inyo • Kern • Kings • Madera • Mariposa • Merced • Mono	• Monterey • San Benito • Santa Cruz • Stanislus • San Luis • Santa Barbara • Tulare
Southern California	• Imperial • Los Angeles • Orange • Riverside	• San Diego • San Bernadino • Ventura

(Buyhorseproperties.com & Griffith, 2010; Central California," 2009; Northern California," 2009; Southern California," 2009)

Appendix B

California School Nurse Survey

Part 1. Demographics

1. How long have you been an RN? _____

2. How long have you worked as a school nurse? _____

3. What is your highest degree:
   □ Bachelors of Science in Nursing
   □ Other Bachelors Degree (please list) _____
   □Masters in Nursing □ Other Advanced degree (please list) _____
   □Doctorate of Nursing Practice □ PhD _____
   □ Other _____

4. What certifications do you hold? (check all that apply)
   □National School Nurse Certification □Family Nurse Practitioner
   □ Pediatric Nurse Practitioner
   □ California School Nurse Certification □Clinical Nurse Specialist
   □Other _____

5. What is your salary range?
   □ <$25,000/year □ $25,000 – $45,000/year □ $45,001 – $65,000/year
   □ $65,001 – $85,000/year □ $85,001 – 105,000 □ Over $105,000/year

6. Are you a member of any professional organizations?
   □ Yes □ No

7. If yes, which organizations are you a member of? (check all that apply)
   □ NASN □ CSNO □ NAPNAP □ ANA □ APHA □ASHA □STTI
   □Other _____

8. In what county (ies) is your school district? _____

9. Approximately how many students are you responsible for?
   _____

10. How many hours a week do you work as a school nurse?
    _____

11. How many school sites are you responsible for?
    _____

12. What level of students are you responsible for (check all that apply)
    □Infants/toddlers □Preschool □Elementary
    □Middle/Junior high school □High school □ Adult
    □ Transitional □ Other _____

13. What type of school are you primarily responsible for?
    □ Private □ Public □ Charter □ Juvenile Camp
    □ Other _____

14. What is the current student enrollment in your school district?
    □ Under 1,000 □ 1,000 – 2,499 □ 2,500 – 4,999
    □ 5,000 – 9,999 □ 10,000 – 24,999 □ Over 24,999
    □ Don't know

15. The Federal Maternal and Child Health Bureau defines children with special health care needs as: "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children general." Approximately what percentage of your caseload is children with special health care needs as defined above?
    □ 0 -10% □ 11– 25% □ 26 – 50% □ 51 – 75 %
    □ 76 – 100% □ Don't Know

Part 2: School Attendance

1. Do you have a method to track the students assessed in the nursing office?
   □ Yes □ No □ I do not assess children in a nursing office

2. If yes, does this method include the outcome of the visit? (For example: sent home, returned to class)
   □ Yes □ No

3. Does this method include who assessed the child?
   □ Yes □ No

4. Do you keep a record of the number of children sent home over the course of a school year?
   □ Yes □ No

5. In the last school month, approximately how many students in your school(s) have been sent home for health reasons? _____

6. In the last school month, approximately how many children did you personally assess and send home? _____

7. Who else in your school assesses children to determine whether or not they are sent home or returned to class? (For example: health aide, secretary)

   _____

8. What percentage of students in your schools progress to the next grade?
   □ 100% □ 80 - 99% □ 60 – 79% □ 50-59
   □<50% □ Don't Know

9. Of those not progressing, how frequently do you believe their lack of progression is related to their frequent illness/absences?
   □ <50% □ 50% □>50% □ Don't know

10. Do you receive referrals for students who are frequently absent for health related issues?
    □ Yes □ No

11. If yes, does attendance improve after a school nurse intervention?
    □ Yes □ No

12. What have I not asked that you feel is relevant to your role in school attendance?_____

_____

Part 3: Medication Administration Practices

1. Do you have written guidelines for medication administration in your school(s)?
   □ Yes □ No □ I do not give medications □ Don't know

2. If you have written guidelines for medication administration do these cover (check all that apply)
   □ Prescription Medication
   □Non prescription Medication
   □Experimental
   □Off label
   □Alternative
   □Other _____

3. Do you administer all the medications in your school(s)?
   □ Yes □ No

4. If no, who else administers medications (check all that apply):
   □ Health Aide □ Secretary □ Parents/guardian
   □ Teachers □ Students/Self administer □ Principal
   □ House Parent □ Other _____

5. Are there medications that only you administer?
   □ Yes □ No

6. If yes, which medications (check all that apply):
   □ Insulin □ Rectal Medications □ Other Injectable Medications
   □ Those requiring BP or pulse monitoring □ Other _____

---

7. Have any medication errors occurred in the past month?
   □ Yes □ No □ Don't know

8. If yes, approximately how many medication errors occurred in the past month?_____

9. If yes, who was responsible for the medication error? (check all that apply)
   □Health aide □Secretary □Student
   □Myself □Parent □Other _____

10. If yes, what type of medication error(s) have occurred (check all that apply):
   □ Missed dose □ Wrong medication □ Not documented
   □ Overdose □ Medication administered without documented authorization
   □ Other _____

11. What have I not asked you that your feel is relevant to medication administration at your school (s)?

Part 4: Value of the School Nurse

1. Please rate on a 4 point scale how valued you feel in your role as a school nurse
   □ 1: Extremely Valued □ 2: Valued □ 3: Hardly Valued
   □ 4: Not valued at all

2. Please list any factors that contribute to the value rating you gave yourself:

3. Do you feel valued by the community in which you work? (parents, children, general population at large) □ Yes □ No

4. If yes, which of the following factors contributed to your being valued? (check all that apply)
   □ I have received positive verbal comments from someone in the community
   □ I have received positive written comments from someone in the community
   □ I have been asked to do a presentation for a community function

---

□ Other:_____

5. Do you feel valued by your school district (school board, teachers, parents association etc.)? □ Yes □ No

6. If yes, which of the following factors contributed to your feelings of value within your school district? (check all that apply)

□ I have received positive verbal comments from colleagues
□ I have received positive written comments from colleagues
□ I have held my position as a school nurse in spite of budget/position cuts in my school district
□ I have been asked to attend school board meetings
□ I have been asked to present information at school board meetings
□ I have been asked for my opinion regarding health issues
□ I have been asked for my opinion regarding the importance of the school nurse in the school setting
□ Other: _____

---

7. Do you have your own office in at least one of your schools? □ Yes □ No

8. If yes, please describe where your office is located within the school in relation to other administrative offices:

9. Do you believe your presence as a school nurse makes a difference in the children you serve? □ Yes □ No

10. Please explain your answer

California School Nurse Survey

Future Research

Considering the deteriorating health of children, the current status of California's budget, and the impetus for school-based health centers by the current federal administration, the timing was right for a study documenting and evaluating the importance of California school nurses. Given the findings and limitations of this study, the following recommendations for nursing practice, research and education are provided.

Implications for future research, education, and policy

School nurses need to create an image of their role as being indispensable. This includes continuing to conduct research linking specific student outcomes to school nurse presence; becoming strong collaborators with other disciplines (medicine, psychology, social work, and educators) to demonstrate how such collaboration improves the health and educational well-being of the students as well as bringing about positive change within the community, and documenting these efforts in both the public and science literature. Nurse scholars, in collaboration with school nurses, must find ways to utilize all resources available to improve children's health. This should include demonstrating the effectiveness of school nursing. The data that I have collected from this study has potential for more detailed and follow up analysis including sharing these findings with such organizations as the National Association of School Nurses, the California School Nurse Organization, and Board of Registered Nursing all of whom have requested copies of this report. Working with these agencies in the future will help promote and enhance the school nurse role.

School nurses must continue to work with a variety of people in their communities to obtain funding and support staff to organize and coordinate school-based health centers. This includes working with community leaders, politicians, staff, and key

administrative personnel within their own school districts. School nurses must advocate for the work they do and ensure that school administrators and the public are aware of the wide range of services provided by this group of professionals. Without the support of communities and local, state, and federal governments, school nurses are unlikely to influence the health of children. Currently, only a small percentage of schools have school-based health centers (Center for Health and Health Care in Schools, 2007; Gustafson, 2005), presenting a challenge and opportunity for school nurses. School nurses can influence children's lives through the establishment of such centers. I have a new appreciation for the important role and opportunity school nurses have in these centers. Becoming involved in the National Assembly on School-Based Health Care is a long term goal. In addition, I am interested in opportunities to partner with local school nurses in developing these types of school-based health centers in conjunction with Biola University, my current employer.

School nurses must be active in the political system in their state and community. Through assignments which include meeting with state representatives, writing letters to politicians both locally and nationally, attending city council meetings, and drafting recommendations for future legislative changes on current legislation, I hope to encourage my students, future school nurses, to be actively involved in politics.

I have also learned much from the development of this survey which will help me in future research using survey methodology. First, the scope of this survey was, in hindsight, too large. Focusing on one outcome rather than three will shorten the amount of time it takes to complete the survey as well as allow respondents to gather data on one outcome. Several nurses responded that they did not have the time to look up the

information being requested. By only focusing on one outcome, respondents may be more inclined to take the time to look up this information.

In looking at the development of the questions, it would be more accurate to concretely measure certain things like medication errors and student attendance rather than relying on recall. One possible way to do this is to develop a tool to audit charts in the school nurse office. While this is undoubtedly time consuming it will lead to more consistent and valid results. Further, in my role as an educator, I have access to students in need of research projects, so having them conduct chart audits would be a beneficial exercise.

Additionally, I have learned how crucial the development of survey questions is in order to gather the type of data needed for statistical analysis. For example, in asking about the number of students sent home, some school nurses reported this as a percentage which was not data that could be utilized in statistical analyses. Regarding medication errors, there was not a way to link the number of errors with the type of errors or the person committing the error so this data was also challenging to utilize for statistical analysis. Instead of asking for the number of errors committed, having a list of the types of errors that could occur and having respondents list the number after each type would have yielded more usable data for statistical analysis and a more valid results in regards to medication errors. Because the questions in this current survey regarding medication errors were unable to be linked directly there were some inaccuracies in the data – 71 reported errors, committed by 61 people, and 85 different types of errors. It would be more conducive to complex statistical analysis and more reliable results if questions were specific and concise in what information was needed.

There were many other factors identified by the school nurses that affected the findings of this study. Factors such as parent involvement, administration support of school nurse interventions, role of the school nurse in different educational focused committees like the School Attendance Review Board, and the role of parent teacher associations all of which can influence school attendance and medication errors according to the participants. Determining how to control for these factors will lead to stronger evidence linking school nurse presence to student outcomes. Another suggestion for future research is to conduct follow up interviews after the survey was completed. It would have been both beneficial and interesting to gather together a group of school nurses who responded to this survey to further discuss the survey and hear their stories and suggestions for improvement. I was impressed and inspired to learn about the incredible tasks school nurses do on a daily basis, confirming what I suspected, that school nurses are valuable and necessary. I can only imagine a greater appreciation after spending time interviewing school nurses. Finally, finding a way to evaluate the cost benefit of school nurse interventions is another area for future research.

Nursing education also has the potential to be influenced by this study. One way is through creating partnerships between schools with poor nurse to student ratios and nursing schools. This approach has led to improved student outcomes (Adams & Scheuring, 2000; Schwartz & Laughlin, 2008). Through such partnerships, children can receive desperately needed health care and health promotion programs provided by student nurses and their expert faculty. In addition, the partnerships create a unique community health clinical experience for professional level student nurses, encouraging them to consider school nursing as career options. Finally, this type of partnership

showcases the important role of the school nurse, and could be an avenue for joint research projects validating the efficacy of the school nurse in school children's academic achievements, which could bring about additional funding and legislative action for school nurse positions (Adams & Scheuring). I look forward to continuing the relationships I have with local school nurses and looking for increased opportunities to develop these partnerships with Biola University and local schools. I will also continue to emphasize the role of the school nurse in my pediatric theory course providing necessary information on this vital role and continuing to encourage students to consider school nursing as a future career option.

School nurses need to advocate for effective education for those entering the field. The National Association of School Nurses recommends a minimum of a baccalaureate degree for all newly hired school nurses. It may be worth considering and advocating for a Doctorate of Nursing Practice (DNP) as the entry level degree for school nurses especially here in California where the majority of the respondents held a master's degree (58%). Considering the increasing complexity of school nursing, the need to work with and within communities, and the need to design, implement, and evaluate school health programs, a DNP may be a future goal for entry level school nurses. Including information on how to be an effective school nurse and how to empower that role is important to include in the education of nurses at the baccalaureate or higher level. This education should include a strong emphasis on public health nursing, to effectively implement the school nurse role. This may be an important educational strategy to use to get nurses educated at the baccalaureate or master's level to become involved with the

discipline of school nursing, while providing them with the leadership, policy, and change agent skills necessary to make this role successful.

Conclusion

The school nurse role emerged in the early 1900s out of a need for improved health and better living conditions for the poor. The pioneers in school nursing accomplished their goals by treating and addressing the needs of children in schools, going into the communities where children lived, and advocating for improved access to health care, better living conditions, safer work environments, and better hygiene practices. While many of the infectious diseases that affected school children in the 1900s are no longer an issue, many of the other problems the early school nurses faced still affect today's children. These include limited access to care, poor living conditions, environmental hazards, and non-English speaking parents. Much like school nurses in the 1900s, nurses today are responsible for the health of many students and provision of care in a large number of schools. With the recent passage of the Affordable Care Act there is increased funding available for community clinics such as school based centers as one method of reaching large numbers of uninsured families (U.S. Department of Health and Human Services, n.d.). School nurses have the potential to be leaders in this health policy change and need to take advantage of this opportunity.

Children who are healthy learn better. School nurses have a long history of caring for children's health needs through a variety of methods – screening, education, and basic health care. School nurses have an important role to play in the future lives of children. I look forward to continuing my research in conjunction with my fellow school nurse

colleagues to support the revitalization of this role by advocating for school nurses, helping patients and families understand this role and utilizing them appropriately.

References

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Appendix A

California School Nurse Survey

Part 1. Demographics

4. How long have you been an RN? _____

5. How long have you worked as a school nurse? _____

6. What is your highest degree:
   □ Bachelors of Science in Nursing
   □ Other Bachelors Degree (please list) _____
   □Masters in Nursing □ Other Advanced degree (please list) _____
   □Doctorate of Nursing Practice □ PhD _____
   □ Other _____

4. What certifications do you hold? (check all that apply)
   □National School Nurse Certification □Family Nurse Practitioner
   □ Pediatric Nurse Practitioner
   □ California School Nurse Certification □Clinical Nurse Specialist
   □Other _____

5. What is your salary range?
   □ <$25,000/year □ $25,000 – $45,000/year □ $45,001 – $65,000/year
   □ $65,001 – $85,000/year □ $85,001 – 105,000 □ Over $105,000/year

6. Are you a member of any professional organizations?
   □ Yes □ No

11. If yes, which organizations are you a member of? (check all that apply)
    □ NASN □ CSNO □ NAPNAP □ ANA □ APHA □ASHA □STTI
    □Other_____

12. In what county (ies) is your school district?_____

13. Approximately how many students are you responsible for?_____

14. How many hours a week do you work as a school nurse?
    _____

11. How many school sites are you responsible for?
_____

12. What level of students are you responsible for (check all that apply)
□Infants/toddlers □Preschool □Elementary
□Middle/Junior high school □High school □ Adult
□ Transitional □ Other _____

14. What type of school are you primarily responsible for?
□ Private □ Public □ Charter □ Juvenile Camp
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16. What is the current student enrollment in your school district?
□ Under 1,000 □ 1,000 – 2,499 □ 2,500 – 4,999
□ 5,000 – 9,999 □ 10,000 – 24,999 □ Over 24,999
□ Don't know

17. The Federal Maternal and Child Health Bureau defines children with special health care needs as: "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children general." Approximately what percentage of your caseload is children with special health care needs as defined above?
□ 0 -10% □ 11– 25% □ 26 – 50% □ 51 – 75 %
□ 76 – 100% □ Don't Know

Part 2: School Attendance

12. Do you have a method to track the students assessed in the nursing office?
□ Yes □ No □ I do not assess children in a nursing office

13. If yes, does this method include the outcome of the visit? (For example: sent home, returned to class)
□ Yes □ No

14. Does this method include who assessed the child?
□ Yes □ No

15. Do you keep a record of the number of children sent home over the course of a school year?
□ Yes □ No

16. In the last school month, approximately how many students in your school(s) have been sent home for health reasons? _____

17. In the last school month, approximately how many children did you personally assess and send home? _____

18. Who else in your school assesses children to determine whether or not they are sent home or returned to class? (For example: health aide, secretary)

    _____

19. What percentage of students in your schools progress to the next grade?
    □ 100% □ 80 - 99% □ 60 – 79% □ 50-59
    □<50% □ Don't Know

20. Of those not progressing, how frequently do you believe their lack of progression is related to their frequent illness/absences?
    □ <50% □ 50% □>50% □ Don't know

21. Do you receive referrals for students who are frequently absent for health related issues?
    □ Yes □ No

22. If yes, does attendance improve after a school nurse intervention?
    □ Yes □ No

12. What have I not asked that you feel is relevant to your role in school attendance?_____

_____

Part 3: Medication Administration Practices

3. Do you have written guidelines for medication administration in your school(s)?
   □ Yes □ No □ I do not give medications □ Don't know

4. If you have written guidelines for medication administration do these cover (check all that apply)
   □ Prescription Medication
   □Non prescription Medication
   □Experimental
   □Off label
   □Alternative
   □Other _____

3. Do you administer all the medications in your school(s)?
   □ Yes □ No

4. If no, who else administers medications (check all that apply):
   □ Health Aide □ Secretary □ Parents/guardian
   □ Teachers □ Students/Self administer □ Principal
   □ House Parent □ Other _____

_____

5. Are there medications that only you administer?
   □ Yes □ No

6. If yes, which medications (check all that apply):
   □ Insulin □ Rectal Medications □ Other Injectable Medications
   □ Those requiring BP or pulse monitoring □ Other

---

7. Have any medication errors occurred in the past month?
   □ Yes □ No □ Don't know

8. If yes, approximately how many medication errors occurred in the past month?_____

9. If yes, who was responsible for the medication error? (check all that apply)
   □Health aide □Secretary □Student
   □Myself □Parent □Other _____

10. If yes, what type of medication error(s) have occurred (check all that apply):
   □ Missed dose □ Wrong medication □ Not documented
   □ Overdose □ Medication administered without documented authorization
   □ Other _____

11. What have I not asked you that your feel is relevant to medication administration at your school (s)?

Part 4: Value of the School Nurse

1. Please rate on a 4 point scale how valued you feel in your role as a school nurse
   □ 1: Extremely Valued □ 2: Valued □ 3: Hardly Valued
   □ 4: Not valued at all

2. Please list any factors that contribute to the value rating you gave yourself:

3. Do you feel valued by the community in which you work? (parents, children, general population at large) □ Yes □ No

4. If yes, which of the following factors contributed to your being valued? (check all that apply)
   □ I have received positive verbal comments from someone in the community
   □ I have received positive written comments from someone in the community
   □ I have been asked to do a presentation for a community function

---

□ Other:_____

5. Do you feel valued by your school district (school board, teachers, parents association etc.)? □ Yes □ No

6. If yes, which of the following factors contributed to your feelings of value within your school district? (check all that apply)

□ I have received positive verbal comments from colleagues
□ I have received positive written comments from colleagues
□ I have held my position as a school nurse in spite of budget/position cuts in my school district
□ I have been asked to attend school board meetings
□ I have been asked to present information at school board meetings
□ I have been asked for my opinion regarding health issues
□ I have been asked for my opinion regarding the importance of the school nurse in the school setting
□ Other: _____

7. Do you have your own office in at least one of your schools? □ Yes □ No

8. If yes, please describe where your office is located within the school in relation to other administrative offices:

9. Do you believe your presence as a school nurse makes a difference in the children you serve? □ Yes □ No

10. Please explain your answer

_____