

# **An Evaluation of North Shore Public Health Nurses' Child and Youth School-Linked Practice**

**Report for Vancouver Coastal Health  
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## EXECUTIVE SUMMARY

The ability to promote, protect, and intervene early in adolescents' health is a significant public health concern globally. As a means to improve youth health, the BC Government introduced the Healthy Schools Strategy, based on a comprehensive school health framework. In Vancouver Coastal Health, the North Shore Public Health Nursing Child & Youth Team developed plans to provide school nursing in all 12 public high schools in West Vancouver and North Vancouver (School Districts 44 & 45). This evaluation documented the types and perceived effectiveness of public health nursing (PHN) interventions delivered to youth and school communities in the public secondary schools on the North Shore. We used a mixed methods approach, which involved documents review, in-school observations, tracking PHN interventions, and semi-structured interviews with both PHNs and school staff. The PHNs also documented all school-based interventions and activities from September, 2012 to June, 2013 using a tracking tool they had developed.

Nursing interventions were grounded in the PHN Wheel of Interventions. Their approach included up to 3 hours of weekly in-school office hours for appointments and consultations with youth and staff, and varied population-focused interventions: health fairs, health teaching, school health committees, immunizations, provincial youth health surveys, referrals and follow-up of health services for students and their families. The mix varied according to each school's specific population health needs and proximity to after-school youth clinics. Interventions also supported school administrators, counselors, teachers, youth workers, career advisors, and parents.

All school staff described the positive influence PHNs have in schools, and the need for on-site nursing health promotion. Indeed, most staff argued for greater nursing presence; some worried about losing school nurses if budget cuts or shifting priorities took PHNs out of schools again. They felt consistent engagement and ongoing relationships were key to program success.

PHNs described historical service changes that limited their work in schools. They viewed the return to in-school nursing as first steps in restoring a full scope of PHN practice with youth, which was supported by their tracking tools. PHNs also noted positive outcomes from their work in the high schools, including improved access to youth clinics. PHNs wanted VCH leadership to further support their health promotion and comprehensive school health practice.

School staff and PHNs identified very few but similar challenges. Most schools had difficulty finding a suitable site for the nurse that allowed for privacy and confidentiality. Both groups stated the need for formal communication and collaboration plans, to facilitate interprofessional practice and minimize overlap in services.

### Recommendations:

- Ensure the VCH plan includes sustainable implementation of the BC Healthy Schools Strategy, with PHN school nurses as a key approach.
- Research shows a strong link between youth health and number of hours PHNs work in school environments. Expand PHN in-school hours for schools with larger student populations, to improve equity within and across the two school districts.
- Collaborate with SD 44 and 45 superintendents and school boards to integrate PHN in-school practice with formal agreements to meet the aims of comprehensive school health.
- Maintain PHN's specific school assignments to permit continued partnership development and capacity building for school staff and ongoing rapport with youth.
- Evaluate youth health outcomes related to school nursing interventions.

## Introduction

The BC Government introduced the Healthy School Strategy from the internationally recognized framework of Comprehensive School Health (Pan-Canadian Joint Consortium for School Health (JCSH), 2013). Healthy Schools BC is an initiative adopted by the Healthy Families BC strategy (BC Government, 2013). Grounded in the World Health Organization's (WHO) Ottawa Charter for Health Promotion (1986), the Comprehensive School Health approach fosters improvements in students' lives by encouraging partnerships between health, education, and other social sectors. Its four pillars outline areas for integrated and holistic planning for student health: social and physical environments, teaching and learning, healthy school policy, and partnerships and services. Research on comprehensive school health approaches in Europe and elsewhere demonstrates that both learning and health are more effectively achieved when these areas are coordinated (WHO, 1997).

For the North Shore Public Health Nursing Child and Youth Team (PHNs) of Vancouver Coastal Health, the comprehensive school health plan has involved the reintegration of school as a site for public health nursing through several strategies. One of the new strategies included setting up regular office hours in all 12 public high schools in West Vancouver (SD 45) and North Vancouver (School District 44). Beginning September 2012, the PHNs were physically located within each school for at least 2 hours each week for "office hours," to provide public health nursing interventions, although they also engaged with the school staff, students and parents in a variety of other school-based interventions each month throughout the school year. In addition to their school-based nursing practice, the PHNs also worked at community-based youth clinics and immunization clinics where they interfaced with other members of the community. PHN practice included preventive and health promoting strategies for students, staff, families, and communities, such as one-on-one and group consultations (students and/or staff), health teaching, immunizations, health fairs, assessments for referral and follow-up to other services, school health committee membership, and intersectoral collaboration.

According to the North Shore PHN team, other public health services are also integrated into the school setting, which may influence the scope of practice expected of the public health school nurse. On the North Shore, for example, two Nursing Support Services Coordinators and a school based physiotherapist augment the work of PHNs for students with chronic conditions. Some mental health support is also provided through the publicly-funded Child and Adolescent Program. The Environmental Health program supports disease surveillance and facility-related issues, while communicable disease follow-up is primarily done by a regional team.

The North Shore PHN Child & Youth team adapted their practice framework using the Public Health Nursing Wheel of Intervention (Minnesota Department of Health, 2001, see Figure 1). The Canadian Nurses Association recognizes this tool for its evidence-based applicability in public health nursing practice with all populations. There are 17 universal interventions within public health nursing practice, which can be applied at the individual, the community, and the systems level. Within each level of practice, these interventions offer strategies to improve population health and well-being. At the PHN team's request, Dr. Elizabeth Saewyc provided in-service training on applying the PHN Wheel of Intervention to public health nursing care of adolescents, especially in the school setting, in June 2012.

The PHN team also developed a tracking tool based on the Wheel of Interventions, and from September 2012 to June 2013, each nurse tracked her own nursing interventions based on

the Wheel. The team also asked Dr. Saewyc for assistance in analyzing their tracked data, and to help evaluate the effects of their increase in school nursing practice. With the collaboration of the entire PHN team, Dr. Saewyc developed an evaluation design. Jennifer Roy, a public health nurse from a different health authority who was also a Masters in Public Health practicum student, and Sue Foster, one of the North Shore PHNs, served as the primary team with Dr. Saewyc to conduct the evaluation. The evaluation included a literature review of national and international evidence for effective school nursing practice, as well as a descriptive (process) evaluation of the scope of interventions used in the PHN's practice, and a series of interviews with school staff and PHNs about the perceived effectiveness, processes, and challenges of the PHN roles within the schools.

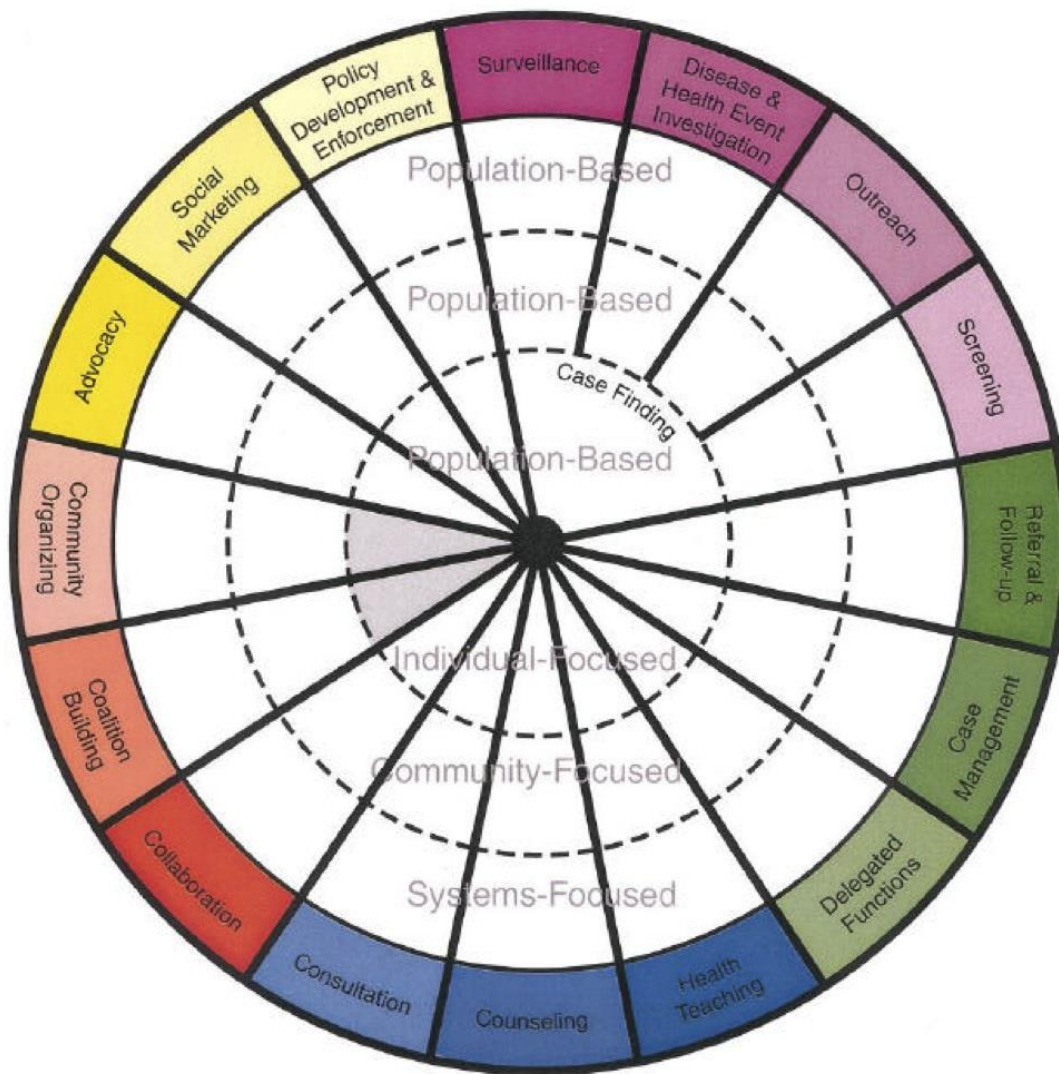


Figure 1. The Public Health Nurse Wheel of Interventions, Minnesota Department of Health, 2001. The primary adaptation by North Shore Public Health Nurses was to substitute the term, “Certified Practices” for the term “Delegated Functions” in the original Wheel.

## Program Rationale and Logic

Public health nursing involves engaging populations where they live, work, and play. For PHNs whose population is school-age children and youth, the school is the environment where the population spends most of its day, so they are more easily reached as a population. As well, changing the environment in schools may have a greater influence on their health and wellness over time. Thus, the expectation is that public health nursing work in the schools will result in improved health outcomes for young people in the short and long term through improving a key social determinant of health. According to VCH, “when students are physically and mentally healthy, they are better prepared to perform academically, function behaviourally, and emotionally and are more likely to reach their full potential as citizens” (Vancouver Coastal Health, 2013). This claim aligns with the Comprehensive School Health framework, where education and health are interdependent and one domain affects the other.

## Relevance to VCH Strategic Framework

The comprehensive school health framework, as implemented by the North Shore PHN Child & Youth team via school nursing practice, supports several priorities within the Strategic Framework for VCH. School nursing promotes better health for the communities of the North Shore through targeted health promotion and prevention strategies with youth, families, and the school community. PHN-focused school health promotion can facilitate a reduction in health inequities by promoting enhanced access to youth-centered nursing interventions, such as education, one-on-one consultation, case management, referrals, and follow-up. This approach also facilitates the coordination of care across the continuum of primary, community, home, and acute care while also permitting population-focused interventions within the public health nursing scope of practice.

## Literature Review

Adolescence is one of the key stages of growth and development that influences life-long physical, mental, and social health (Sawyer et al., 2012). Although adolescents are generally less likely to access primary health care or acute care services than adults, some conditions have their onset during adolescence, especially mental health problems, and so early screening opportunities might be missed. Likewise, young people with chronic health conditions such as asthma and diabetes need help to establish or maintain effective self-care practices during the transition to adulthood. And finally, health and risk behaviours that are established during adolescence set the stage for health throughout adulthood, and may influence some of the key health problems later in life.

If adolescents are not accessing primary care services for regular screening, anticipatory guidance, and needed health care, how do we best help promote health and prevent problems for this age group? In most high income countries, such as Canada, school attendance for adolescents is compulsory, and thus, the school setting is an ideal place for health promotion, prevention and screening, as well as for improving access to needed health services through referrals and case management. Comprehensive School Health initiatives have demonstrated effectiveness in improving educational outcomes, as early research showed promise in improving attendance, reducing discipline problems, and lowering drop-out rates (WHO, 1997). These initiatives have also demonstrated effectiveness in addressing health issues, including reducing



mental health and suicide prevention, reducing violence and aggression, improving physical activity and nutrition, although limited effects for substance use prevention (Stewart-Brown, 2006). Over the years, a number of different models for school-based health services and school health promotion have been developed, but one of the most common approaches throughout the world has been through the use of school nurses: school nursing has been an area of practice in North America and the UK for more than 100 years. However, previous roles for school nurses, especially during much of the 20th century, were limited in scope primarily to first aid, medication administration, and hygiene inspections. In more recent decades, the role of school nurses in many countries has evolved to be more population health-focused, and draws upon the PHN scope of practice.

This brief literature review will address several aspects of school nursing, from the institutional or governmental mandates and organization of practice, to intensity of services or caseload guidelines within various countries, to descriptions of scope of practice, and existing evidence of effectiveness. Several international examples demonstrate the widespread use of school nurses within comprehensive school health initiatives, and offer comparisons to the services provided in the North Shore. Most of the recent research about school nursing focuses primarily on the description of the roles and tasks of school nurse practice (DeBell & Tomkins, 2006). Very little research has focused on specific health outcomes of school-based nursing at the population level, although there is some evidence linked to levels of coverage, and evidence of effectiveness for specific interventions.

Several countries have implemented comprehensive school health practice standards that require a registered nurse (RN) engaged in public health nursing practice in formal roles within the school; these roles are established by legislation or policy. For example, more than half the states in the USA have mandated school nurse presence; in several states, such as Delaware and Wisconsin, they have actually specified specific nurse-to-student ratios (Robert Wood Johnson Foundation [RWJF], 2010). In the UK, Wales has established a legal framework for school nursing services that involves advanced level visiting nurses in the school health role (Welsh Assembly Government, 2009). In Queensland, Australia, a partnership between the Ministries of Health and Education established school based youth health nursing to create a healthy school environment (Barnes, Courtney, Pratt & Walsh, 2004). Throughout Europe, countries have school nurses and/or school doctors (WHO, 2010). And within the past year, the Kingdom of Saudi Arabia issued a royal decree mandating the placement of a school nurse in every school with more than 100 students (personal communication, Deputy Minister of Health, Saudi Ministry of Health). The funding sources for these services vary from primarily local school districts in the USA, to National Health Service in the UK, to mixed models of funding in different countries in Europe, including both Ministries of Education and Ministries of Health, as well as local municipalities.

The allocation of school nurse services varies widely across the world, with some regions assigning full-time-equivalence (FTE) coverage based on nurse-to-student ratios, others assigning coverage based on one nurse per school, and still others assigning a single nurse to cover more than one school (part time school nurse in each school), even to assigning a single nurse to have responsibility to cover as many as 35 schools in Ontario (Community Health Nurses Initiative Group, 2013). The Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services (2000) and the US National Association of School Nurses (NASN) both recommend a ratio of 1:750 for general health promotion, with a lower

ratio when incorporating students with special health care needs or medication administration into the case mix (NASN, 2010). Similarly, Lee (2011) described school nurse to student ratios in Hong Kong as 1:200 for special schools and 1:600-1,200 for international schools. The Welsh government implemented an approximate framework of 1:1200 high school students (Welsh Assembly Government, 2009), while across 37 countries in Europe, full-time school nurse staffing varied from 1:350 in Armenia to as high as 1:2300 in Malta, although most countries fell between 1:600 and 1:1500, and many of the countries with ratios above 1000 felt their ratio was still too high (WHO, 2010). In most of these jurisdictions, school nurses are not the only professionals allocated to core public health functions and health promotion in schools; for example, in most European countries there are also school physicians, and in some places, school dentists or dental hygienists, school counselors/psychologists, dietitians, and health facility inspectors. School nurses still appear to have the largest FTE levels in school health services in Europe, the UK, and the USA.

Is there evidence to inform school nurse ratios and service intensity, or is it merely based on the capacity of national and local economies to afford coverage? Evidence from the USA suggests that a ratio of 1:750 or lower improves school attendance, access to screening and services for students with chronic conditions, and reduces costs for school staff time needed to handle student health issues more than the equivalent cost of the nursing staff (Guttu, Keehner Engelke, & Swanson, 2004; Keller & Litt, 2008; RWJF, 2010). Studies from Milwaukee, Wisconsin, and from North Carolina show improved health and education outcomes when nurse to student ratios improved (Robert Wood Johnson Foundation, 2010). These improvements included increased immunization rates, identification of life-threatening conditions, and greater provision of care to those with acute and chronic physical and mental health illnesses. Milwaukee Public Schools found cost-savings in their education budgets when teachers were able to give back the health care functions they once assumed to the school nurse. In contrast, a study of Massachusetts school nurse activities to implement a mandated School Wellness Program to reduce obesity found that, although the frequency of school nurse activities focused on the healthy promotion aspects of the program were associated with declines in obesity rates among student populations, there was no relationship between staffing ratios and reductions in obesity, although it should be noted that Massachusetts school nurse ratios during the study years ranged from 1:152 to 1:638, with a mean of 1:422, well under the recommended ratios in the USA (O'Brien, 2012). A New Zealand national study of school health professional coverage (primarily school nurses) in secondary schools found improved sexual health outcomes among students in schools where the ratio of health care coverage was 10 hours per every 100 students (Denny et al., 2012); the odds of pregnancy among sexually active students were 2/3 lower in those schools compared to those in schools without school health services.

What are the roles of school nurses in the various regions? The traditional view of school nurses has been focused on first aid, medication administration, health screening and hygiene inspections, which has been criticized as being less relevant in comprehensive school health or health-promoting school approaches (Whitehead, 2012). However, over the past two decades a number of studies have described a level of practice in school nursing that draws on public health nursing practice and population-based health promotion strategies (Barnes et al., 2004; American Nurses Association and National Association of School Nurses, 2011; Godson, 2011; Lee, 2011; Whitehead, 2012; Notara & Sakellari, 2013). Such practice in the USA includes the school nurse as a facilitator of both direct health care and a leader who manages all health strategies and policies within the educational setting (NASN, 2011). In other countries practice includes a



further emphasis on group health education, involvement in school health committees, as well as overseeing and training teachers in school-wide interventions; one such example is the Fit for School program in the Philippines, in which school nurses oversee a program of teachers providing training in daily handwashing, tooth brushing, and bi-annual de-worming treatments to elementary students (Monse, et al., 2010).

These public health nursing approaches have also been incorporated in school nursing in Canada (Andrew, McCall, & Shannon, 2008; Trim, 2011). Canadian organizations for public health, nursing, and school health have acknowledged the unique role PHNs have in school-based practice. PHNs in Canada were recognized for their capacity to assess, synthesize, integrate, implement, and evaluate health promotion and prevention strategies (Andrew, McCall, & Shannon, 2008). Andrew and colleagues viewed PHNs as agents of change that partner with school staff and other public health professionals to improve population health, while maintaining the school's mandate of education. Trim (2011) evaluated the Perth District Health Unit in Ontario for PHN in-school nursing practice, which used health promotion strategies and intersectoral partnership. The school-based nursing program aimed to improve student and family efficacy and resilience, to assist school staff in building capacity to support students. School nurses provided stable and consistent care for physical and mental health conditions. School staff asserted the nurse provided skills that teachers and administration were unable to provide, which allowed teachers to re-focus their attention to their students' learning needs.

Some studies have recognized challenges to the comprehensive role of school nursing for adolescents, especially related to sexual health promotion. Hayter, Owen, and Cooke (2012) articulated a gap in research evidence surrounding the school nurse role related to sexual health promotion in the UK. They studied inherent and unforeseen practice implications: nurses encountered opposition from schools and communities that expected lowered morality as a result of sexual health promotion in schools. However, traditional health services were adult oriented and provided significant barriers to access for youth. Youth desired the specific skill set and knowledge from this specialist nurse role instead of a teacher delivering sexual health curriculum. In New Zealand, Denny et al. (2012) noted the restrictive social, cultural, and political contexts in some regions, with the potential for untoward complications when nurses were unable to provide comprehensive services in-schools, including sexual health services. Access to contraception, pregnancy testing, and sexually transmitted infection testing and treatment, was also complicated by the presence and need for management of other health concerns in places with limited staffing.

What is the evidence for the effectiveness of school nursing? There are only a limited number of population-based or intervention studies that have focused on specific youth health outcomes of school nurse practice. More of the research has focused on increasing access to health care services, of studies on the perceptions of students or school staff of the effectiveness of school nurse practice. However, in addition to the improved sexual and reproductive health outcomes in New Zealand that were described by Denny and colleagues (2012), and the reductions in obesity among students in Massachusetts (O'Brien, 2012), other studies have identified the effectiveness of group-based interventions for smoking cessation (Pbert et al., 2006), coordinated school program to increase physical activity and reduce BMI among ethnic minority children (Wright et al., 2006), as well as case management approaches to improve self-care practices among adolescents with asthma (Taras et al., 2004; Levy, Heffner, Stewart, & Beeman, 2006).

In summary, school nurse practice as a public health nursing role within a comprehensive school health setting is a common role in high income countries around the world. The role is supported through legislative mandates or policies, and is funded through a variety of mechanisms, including within the regional health service, or as part of the education budget. Although the nurse to student ratio varies widely, in high income countries in North America, Europe, and Asia it generally involves at least one full time nurse per school of 500 to 1500 students, and there is some evidence of both health and education outcomes effectiveness and cost effectiveness at these ratios. The evidence for youth health outcomes effectiveness for specific school nursing interventions is more limited, but some rigorous population studies or clinical trials have documented benefits for key health issues that contribute to both adolescent and adult morbidity and mortality.

What are the school nursing practices actually provided in the North Shore secondary public schools, and how do school staff and PHNs perceive the usefulness, benefits and challenges to school nursing within this specific context? These are the questions that guided our evaluation.

## Methods

### Design

The evaluation consisted of mixed methods that included literature review, in-school observations, qualitative interviews, and statistical analysis of the PHN Wheel of Intervention Tracking Tool data that had been collected during the 2012-2013 school year. In implementing the Comprehensive School Health approach, there have been no specific or set goals communicated to the PHNs for monitoring practice and outcomes in the public high schools. At present, the main interventions that have mandated monitoring of PHN activity over time involve immunizations rates, youth clinic attendance and hours, and the reportable infectious diseases, i.e., STI tests conducted. This evaluation did not address these monitored programs, other than tracking the participation of the PHNs in immunizations and youth clinic services as recorded on their tracking tools, and the types of interventions that took place in those settings as reported by the PHNs. As well, since this is a first, primarily descriptive evaluation, it focuses on processes and perceived effects rather than measuring health outcomes within the target population.

Ethical approval to conduct the evaluation was secured through UBC (certificate # H13-01501), and VCH (#V13-01501), with permission to access school staff from the Superintendents of School Districts 44 and 45.

### Development of the PHN Wheel of Intervention Tracking Tool

The PHN team developed the tracking tool to record all school-based nursing interventions and activities at the individual, community and systems levels (see appendix Table 1). The tool, set up within an excel spreadsheet, incorporates key information about the populations served (including numbers, location, age range of youth or adults, collaborating agencies, hours spent), along with the list of potential interventions from the Wheel, color-coded to represent the appropriate sections. In preparing the tool, the PHN team expanded the Health Education intervention to a series of individual topics to check, as they wanted to track the specific types of health education content covered. Administrative staff entered and managed all tracking tool submissions, and forwarded all tracking tool compilations to Dr. Saewyc in June.

The PHNs varied somewhat in their tracking intervals: some summarized their activities on a monthly basis, some for two months at a time, and some at other intervals (mid-month to mid-month, for example, or quarterly). However, by combining the results for the entire school year rather than month by month, the tracking has allowed for descriptive information and insights into the 2012-2013 school year's scope of practice for individual PHNs and for the entire team. After an April meeting, the tracking tool was revised slightly, and again as part of the August meeting. The evaluation to date has focused only on analyses of the 2012-2013 data, and follow-up analyses of the September to December 2013 data are planned for March 2014.

### **Recruitment and Procedures for the Interview Component**

All 10 public secondary schools and 2 alternative/access secondary schools where regular PHN office hours were occurring in the West Vancouver (SD 45) and North Vancouver (SD 44) were approached. One to five school administrators and other key school staff in each school were identified by their school's PHN as part of a purposive sampling approach, but approached by the research team. This method allows focused access to those in administration and other senior leadership positions, as well as those who directly deliver educational support to youth and may work with the PHN for in-school nursing support. School district staff approached included: administration (principals, vice-principals), counselors, teachers, youth support or engagement workers, and career advisor/coordinators. There were different reasons for including each of these roles. For example, principals and vice-principals are gatekeepers to service delivery in the schools, and they also influence partnership between VCH and the school districts. Other staff have a more direct involvement with both the students and with the PHNs, and can provide insight into the effectiveness of collaboration, and the various interventions implemented by the PHNs. Thus, to be efficient and useful, the evaluation needed to be focused around the experiences, observations, and perspectives of key school personnel who were familiar with the PHN's work with youth and staff.

Individual school nurses identified administrators and other key school staff and provided contact information. An email to these school staff invited them to participate in the evaluation, and included a consent form outlining the purpose and methods. School staff received a maximum of two emails – an initial invitation to participate and a reminder. Participation was voluntary and confidential. School staff were interviewed at locations of their choice (23 in-school, 3 in the community). A semi-structured, open-ended interview tool assisted in the interview process, with further probing questions to deepen or clarify responses. A total of 26 interviews were conducted with school staff (24 in person and 2 by telephone).

The Child & Youth PHN team consists of 11 registered nurses (frontline, team leader and manager). All Child & Youth PHN team members for the 2012-2013 school year were invited to participate by two emails – an initial email and a reminder. The emails included a consent form outlining purpose and methods. Participation was voluntary and confidential. As with the school staff, nurse interviews involved a semi-structured set of open-ended questions, with probing questions for further development or clarification. All but one were interviewed about their role in providing public health nursing interventions in school or in supporting those roles. Staff were interviewed at a place of their choice, which was primarily at the health unit (9 in person, 1 by telephone). Interviews were conducted during July and August, 2013, averaged 30 minutes in length, and were audio-recorded and transcribed. All interviews of both school staff and PHNs were conducted by Jennifer Roy.

## Interviews

School staff explored their experiences and observations through semi-structured interviews focused around questions comparing the previous situation of limited (or no) PHN health promotion strategies and office hours in the school during prior years, versus the regular office hours and increase in nursing practice availability for the 2012-2013 school year. Participants reflected on what worked well, and what they wanted to see more of, as well as what presented as challenges, with suggestions for improvement. Participants also described observations or feedback regarding the nurse and nursing practice that they observed from students, parents, and staff colleagues. Interview averaged 15 minutes in length (range: 8 minutes to more than 30 minutes). Interviews were conducted during June through October, 2013. All interviews were audio-recorded and transcribed.

In the interviews with PHNs (both frontline and leaders), they discussed their experiences and observations using similar questions, which were slightly adapted to for the leadership perspective. PHNs compared their school practice when there was no or limited PHN office hours or allowed collaborations, versus the start of regular office hours for 2012-2013 academic year. PHNs reflected on what worked well, and what they would want to see increased. They reflected on supports and challenges, and the manageability of the workload. Finally, they discussed the sustainability of school nursing, and what would be required from themselves, from VCH, and from the schools to be successful and sustainable.

## Analyses

Analyses of the Wheel Tracking Tool data included descriptive frequencies of the types of interventions each PHN engaged in, as well as the number of people served, and the different types of populations reached in the interventions. Statistical analyses also examined potential pattern differences in interventions based on individual nurses, and summed the total estimated number of people served through PHN interventions by the Child & Youth team during the 2012-2013 school year.

For the interview data among school staff and PHNs, qualitative analyses were focused on the perceived effectiveness, benefits and challenges for school nursing, as perceived by each group. The transcripts were coded and organized around manifest content, i.e., the question topics in the interviews, with key findings identified both within and between the two groups. Initial coding by Jennifer Roy was reviewed and refined by Dr. Saewyc.

We presented a mid-point analysis of the interviews to the North Shore Child & Youth PHN team on August 26, 2013, for group discussion and feedback. At that meeting, we made early recommendations regarding modifying the tracking tool for ease of use and enhanced reliability, which our PHN co-investigator, Sue Foster, completed during September. The next edition of the tracking tool also included the four Comprehensive School Health pillars as an overlay on the 17 interventions, to help nurses identify their actions within the Comprehensive School Health framework (see Appendix, Table 3), and an explicit set of instructions for use that the PHNs had agreed upon.

Results of the combined set of findings are presented below. Direct quotes from interviewed school staff and PHNs are presented in text boxes, with only interviewee role, not school district or school, provided to protect the identity of the participants.

## Findings

### Public Health Nursing Wheel of Intervention Analysis

“[The PHNs] like the fact that it gives them some insight into how they actually are spending their time. So that they can start to track and then hopefully review and evaluate and analyze how their time is spent. So I think there’s a lot of excitement about the tool per se and how it helps them be able to substantiate what they do” (Public health nursing leadership)

Tracking tools were provided for the 2012-2013 school year from 8 nurses who were assigned to one or more of the 12 secondary schools within North Vancouver and West Vancouver school districts. The tracking began in September, 2012, and ended in mid-June, 2013, but as mentioned previously, nurses varied greatly in the intervals they used in documenting their practice, so results have been aggregated over the entire school year, rather than month-by-month. The team administrative support provided summary information on the immunization hours/numbers reached and the youth clinics, as all nurses have some portion of their time focused on these activities; immunization drives are conducted in groups across the schools. To the extent that tracking was partial, or the number of people served was reported in words, i.e., “a large group,” these results should be considered the lower bound of services.

#### ***PHNs engage in a large number of activities, with a lot of people, in schools***

A total of 1,075 events/activities were documented over the school year among the nurses, including 995 nurse-specific interventions, plus 80 immunization and youth clinics events. Not counting patients seen in youth health clinics, these interventions involved contact with at least 22,693 people (which is an undercount, as 233 events did not have an actual count of participants, but were listed as “a lot” or “very large”).

The number of people per intervention event ranged from 1 to 800, although the majority of them were groups of 10-30 youth, or 40-60 parents. There were no statistical differences between nurses’ average size of groups; each ranged from 1 to hundreds, with the most common numbers 20-30 youth at a time, which was a common amount for health education classes, and for immunization clinics. The largest group sizes took place in September and April, corresponding with common times for immunization clinics, health fairs, the administration of the provincial adolescent health survey, and community-wide presentations around health issues.

There were variations in the group size based on specific PHN interventions; as expected, the top three with the largest groups involved Social Marketing, Health Education, and Surveillance, while the three interventions which typically involved only 1 or 2 youth were Disease investigation, Case Management, and Referral and Follow-up. When summarizing the interventions that reached the most people overall, Health Education was the largest, with more than 15,000 youth and adults reached by this intervention, followed by Collaboration (9,000+) and Certified Practice, Advocacy, & Consultation (each 7000+).

#### ***PHNs in schools used the full scope of the Wheel***

In tracking the interventions that comprise the PHN Wheel of Interventions (see Figure 1, page 5), every intervention was implemented at least once within the North Shore PHN school nurse practice, although not all nurses used every intervention. Nurses used a median of 13 of the 17 interventions, with a range of 10 to 17 interventions. The most commonly used interventions were Certified Practice, Health Education, Collaboration, and Consultation, while the least often

used were Policy Development/Enforcement, Disease Event Investigation, Case Management, and Social Marketing.

Health education was further disaggregated by topics, so that nurses could document the topics of health education they covered in their schools. All nurses covered all 10 different topics at least once to groups of youth or staff or parents during the school year; the least common topics covered were the anaphylaxis training for staff, head lice and hygiene, and tobacco. The most commonly covered health education topics were communicable diseases, relationships, reproductive health and mental health.

### ***More time is spent in schools than just office hours***

Although nurses provided information about the interventions they implemented during their weekly office hours, many of the interventions in schools occurred outside office hours. These interventions included immunization clinics, which occupied about 20% of staff hours in schools during the course of the year, but was not the sole additional intervention. Other times spent in schools involved: health fairs; health education programs for staff, students and parents; health committees and planning; individual consultations for school staff around health issues for students; and health care referrals and follow-up for students and families. PHNs collaborated extensively with various service providers within the school setting, in health committee meetings or in coordinating care for an individual student. It was not possible to estimate the actual number of hours spent per week or month within the school setting from tracking tools completed during 2012-2013, but it was clearly well more than 2 or hours per week.

### ***Nurses needed more consistent training in using the tracking tool***

The nurses completed their tracking tools in a variety of different ways during the first year. Towards the end of the year, a preliminary meeting to discuss the tool brought to light some of this variation, but also showed that PHNs were regularly engaging during team meetings and in informal consultations with each other in discussing the various interventions in the Wheel, what constituted best practice for the different examples of activities and interventions they engaged in. Some of them also mentioned the process of completing the tracking tool allowed them to reflect on their practice, and provided encouraging insight into how much they actually do in the schools, the wider extent of their scope of practice than they had previously recognized, as well as opportunities for further capacity building with colleagues. As part of the discussions during the August mid-evaluation meeting, the team developed further consensus around how to use the tracking tool, and developed a set of instructions for the tool.

### ***The Tracking Tool offers opportunity for rich practice reflection***

Despite this somewhat inconsistent use of the tool, there was a lot of rich information provided within each tracking tool for PHN's individual practice. With a little more consistency, the data offers the potential for both individualized reports as well as overall summaries for the team. An example of the flexibility of the tracking information is provided in two examples below: tracking an individual nurse's use of a particular intervention over the school year, and tracking the distribution of interventions used over the course in one month by the individual nurse.



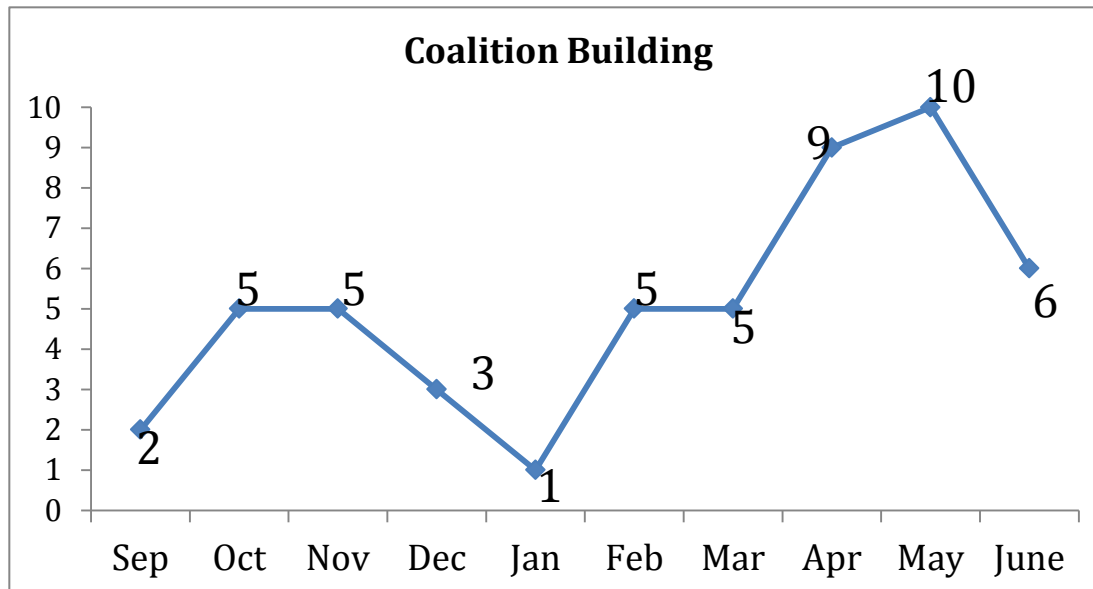


Figure 2. Month by month tracking of the use of coalition building as an intervention by one of the PHNs in the North Shore Child & Youth team

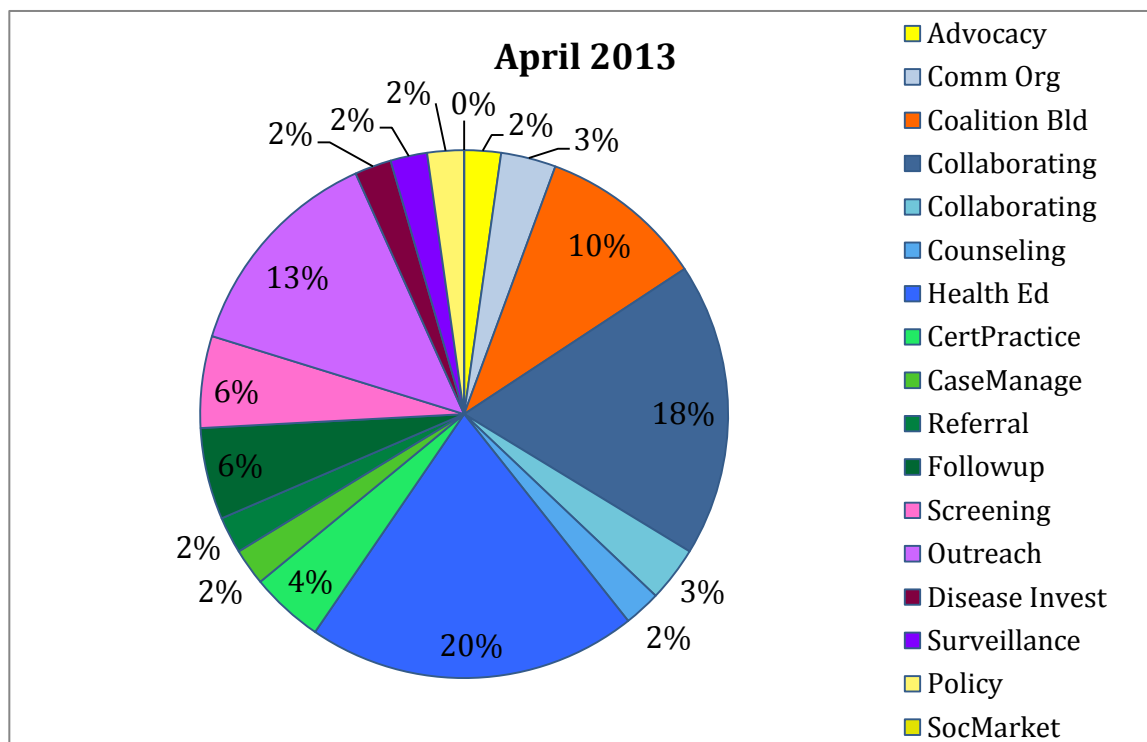


Figure 3. Example of the distribution of PHN interventions used in one month by one of the PHNs in the North Shore Child & Youth team.

## Qualitative Interviews School District 44 and 45 Experiences

### ***School staff experience with PHNs***

School staff experience varied according to the number of years of service, and can be broken down into three groups. First, there were staff with knowledge or experience of previous PHN supports, who experienced program changes when PHNs were removed from schools around 7 years ago (staff with 15 or more years in the schools). Second, several newer staff had no knowledge of previous PHN supports in-school. Finally, a small number of staff had only experienced PHN supports in school as implemented during 2012-2013. Each of these groups offered meaningful perspectives where they could, given the interview questions, but with an overall consensus of the need for PHN practice in schools.

“In the past we have requested nurses to come in and be the specialist or the expert when it came to sex ed and talking to students about those issues. And we were kind of told, well, we’re not supposed to do those kinds of things. Which was a huge, huge loss for the schools because, I mean, I’ve been teaching for 20 years and the health nurse used to be the one coming in to talk about sex ed to the grade nine or grade ten science classes. And even if they were just there for one class to do the cumulative class where the students could submit anonymous questions and they could answer them anonymously, that was a huge thing to have a knowledgeable person in the school” (Counselor)

“Well, when you don’t have it, and I’ve never had it, you don’t realize what you’re missing” (Counselor)

### ***School staff knowledge of PHN scope of practice***

A staff member’s knowledge level for PHN scope of practice primarily depended on the role the staff member held in the school. Administration comprehended the health promotion aspect of PHN practice best. Staff with advanced education comprehended the bigger picture of PHN practice better – most often counseling and administration staff. It also became evident that the more a staff member interacted with the PHN regarding student issues and youth health, the better the PHN scope was understood.

Another factor in staff comprehension for PHN practice capabilities correlated with the school’s student population size and/or mandate of academic delivery. Each North Shore high school received the same number of in-school office hours; thus, smaller schools had a greater number of interactions and understand the PHN scope better. Staff in smaller schools had a greater number of interactions with the PHN; thus, staff experienced these interactions and strategies more frequently. Large schools have multiple vice-principals and each vice-principal may not interact with the PHN; thus, some staff in administration understood less well the PHN approaches.

### ***Youth health prior to regular PHN office hours***

School staff recognized the absence of a PHN in the school resulted in unmet health needs of youth. Staff acknowledged a perceived or real decrease to health care access, often with

staff “filling the gap.” School staff expressed moral distress and anxiety as emergent youth health issues went unanswered or experienced a delayed response. Participants thought awareness and promotion of the youth clinics lacked some relevance, and worried about the under-utilization of the youth clinics. Vaccination programs ran continuously; however, the program ran less efficiently.

“I don’t think the students were well served. They did not get the personal message about the youth clinics so I don’t think they attended the youth clinics very often” (Counselor)

### ***Positive changes since PHN office hours started***

Youth directly benefited from on-site access of PHN clinical skills and education. PHN’s scope of practice to consult, collaborate, assess, refer, intervene, plan and evaluate mitigated the barriers to accessing health care. Youth built trusting relationships that enabled further use of North Shore youth clinics, for expanded health care from PHNs and medical doctors.

School staff increased their awareness of the PHN scope of practice and the youth clinic resource, and this resulted in greater promotion of both. Staff accessed the PHN’s knowledge base which facilitated professional development and curriculum delivery, especially for sexual health. School staff and the PHN communicated more effectively with the outcome of more efficient and effective partnership and planning for student health services, such as health fairs, classroom presentations, guest speakers, and immunizations.

“I can help her to connect to more kids...and have more kids connect to her and access that expertise...part of their role is going into classrooms and doing presentations...so there is that academic component as well that they’re able to contribute. So the more classrooms they get into, the more exposure they have. More kids know of the resource, and more kids will then access it” (Counselor)

### ***Challenges since PHN office hours started***

Staff accepted and appreciated in-school PHN practice. Participants described a few minor procedural and communication items to improve upon when sharing caseloads. As a team, the school staff and PHN worked through these minor challenges which enabled a respectful collaboration while maintaining student confidentiality and staff scope of practice. With surveillance and assessment of youth and school health, the PHN uncovered health disparities and issues that shed a less-than-positive light on a school’s image; however, staff recognized the importance of this unveiling to improve health and well-being.

“So if anything [the PHN practice] helps hold a mirror up so you get an accurate representation of what your student body is wrestling with... it’s offering a deeper perspective on what we have here which I value” (Principal)

Participants highlighted challenges of a practical nature such as a lack of dedicated space to provide confidentiality and privacy. Staff overwhelmingly vocalized the most pressing challenge of not having the PHN practice more often. Given the complex and unpredictable nature of youth health, participants felt strongly the PHN would be well utilized in-school several days a week.

“Well, just not enough time...now that she’s here, you realize that you’re probably just scratching the surface of our population here. Like her day is filled with students coming before school and staying after school here. I could probably double her time here and have her not sit around twiddling her thumbs. So it’s just now you kind of go, oh, gees, now that you know that demand-- it’s hard not to justify wanting to advocate for more because you feel as though that would be good and appropriate use” (Principal)

### ***Feedback from students, parents, and staff***

From direct feedback and observations to inferences of behaviour, participants reported that students, parents, and fellow school staff enthusiastically appreciated and supported all PHN interventions. Participants commented the least regarding parent feedback. Several participants indicated the Parent Advisory Council (PAC) supported the PHN in-school practice.

“The more adults in the building helps...we like to have role models, a calming influence because we have kids with anxiety, depression” and PHN expertise helps (Principal)

“The students always go back again, so that’s a positive, because they won’t go back if they don’t like what’s happening...When she does her group session, they always come out talking about what they’ve been doing...something’s going on which is good. And we never have a fight with the kids to get them into the group, which is – that’s unusual” (Youth Worker)

### ***Going forward the PHN could do more...***

Each participant requested further in-school PHN support. Alternatively, participants hoped to continue with current practice. The PHN and the school staff established strong relationships and partnerships for youth health with the return to in-school office hours. Participants discussed the intent to further integrate the PHN into the school community for continued success of youth health and staff development.

“The better you know the kids, the more service you are to them” (Career Coordinator)

“I think that as schools change and society in general is changing, there’s very few places left outside of the schools where there is this potential to have, like, an umbrella service...I think that communities need to look at...a higher maybe level than even schools...what is the future of a school? And is it becoming a hybrid place where there is a sense of, there’s the education component but there is also a connection to community services” (Principal)

## **North Shore Public Health Nursing Experiences**

### ***PHN experience with in-school practice***

Experience of PHNs echoed a similar pattern to school staff. PHNs with greater than 15 years of service knew the previous role in schools prior to practice changes. The largest group of PHNs joined after in-school practice stopped. A few PHNs knew only in-school practice as implemented for the 2012-2013 academic year.

### ***Youth health prior to regular PHN office hours***

PHNs explained their role limitations to immunizations and occasional teaching or consultation. PHNs perceived their involvement as an after-thought rather than a proactive inclusion in aiding in the restoration or maintenance of youth health. The lack of formal in-school role and responsibilities resulted in spotty and inconsistent links to youth. This lack of ability to help improve youth health frustrated PHNs. PHN leadership explained the need to end the association of PHNs with first-aid services. Roles changed to advance the function of population health through health promotion and prevention. PHNs felt a loss of trust from staff when they were removed from the school. Several PHNs wondered if the frustration and occasional discourteous comment from school staff resulted from the impaired relationship and broken trust.

“[When] I made the transition into child and youth...our role was pretty limited. We mostly did immunization. We were available for teaching, and I would do some teaching at one of my schools. But our role was pretty tough...it had not flourished into how it’s becoming now. It took a long time to get there...my thought is that they’re pretty...upset that we had pulled out of the schools and that we weren’t actively members of the staff like they had been prior” (Public health nurse)

“It was quite difficult to find a plane of intersection where I...could be in contact with youth prior to that. The only contact, really, was through immunization clinics and through youth clinics” (Public health nurse)

### ***Successes achieved***

PHNs identified a multitude of successes from their increased presence in the schools. Their increased involvement included youth, parents, staff, and external service providers. Increased awareness and improved communication between all parties led to greater utilization of clinical and health promotion strategies. PHNs discussed how spontaneous interactions with youth and staff resulted in teachable, health promoting moments that would have not been possible without in-school practice. PHN leadership remarked that PHNs’ level of engagement with the school was based on a comprehensive framework. They viewed PHNs’ as the facilitator of change – PHNs assisted school staff in changing dominant ideology on their response to health and education impairments.

“Building that awareness and availability and accessibility for students and staff that there’s a health contact, somebody there. A resource... And somebody external to the school system as well, I think, is a little bit of a value. ” (Public health nurse)

PHN advocacy reduced barriers and improved health through equity distribution, such as seamless access to hospital and community health care services. This included harm reduction strategies. PHNs worked in collaboration with school staff to solve problems with creativity. This accommodated the context of the school community and the PHN’s level of experience and competency. PHNs improved health promotion through community development and community

partner engagement. Jointly, a few PHNs and school staff worked with sports and recreation programs on the North Shore to create a weekend recreation centre pass card for youth.

“We use our schools as a portal of entry to the community” (Public health nurse)

With a return to in-school office hours, PHNs noticed increased referrals, opportunities to teach, collaboration on curriculum development, and one-on-one consultations with youth and staff. PHNs guided youth through vulnerable developmental stages in their lives. A few of the sensitive issues included mental health referrals and hospitalization, transgender health care access, and therapeutic abortion services. PHNs felt strongly that having one in-school PHN aided in privacy, confidentiality, and maintenance of dignity for the youth and family.

“In the high schools [youth] can consent for their own healthcare, so a lot of them are coming for issues that maybe they don’t want to share with their family right away. Or it’s beyond the scope...[of] seeing a counselor, a youth worker, and the counselor and youth worker feel like, okay, that’s bumping into an arena I don’t know enough about...I would get referrals from them” (Public health nurse)

PHNs in-school presence increased their ability to promote the North Shore youth clinics. In-school nursing practice also assisted in making care seamless when youth attended youth clinic. PHN in-school practice aided youth to access to health education and resources when attendance at the youth clinic was unlikely.

“I think what the office hours have done is that...physical announcement or commitment for nurses to have a regular connection with their school” (Public health nurse leadership)

### *Nurses want more...*

PHNs expressed the need for official direction and communication from VCH (in consultation with the Ministry of Health, Ministry of Education, and local school districts) regarding in-school practice. Further to this need, PHNs wondered if there would be discussion or consideration of their role in elementary schools. Elementary schools feed into the high schools and earlier health promotion and prevention strategies may mitigate health needs in adolescence.

Further to the benefit of PHNs knowing their practice boundaries and expectations was the consistency for school staff and youth. PHNs hoped for a fully integrated comprehensive school health plan that better determined in-school nursing practice. This would permit PHNs to share consistent messaging regarding expectations of the PHN between schools and school districts.

PHNs wanted more time in their respective schools. More time would permit enhanced awareness of their role. More time in the school would also permit enhanced integration into the school community, especially as it related to youth health through case management. PHNs wanted more time to strengthen their presence in schools where youth were active in seeking health promotion and prevention strategies.

“I really believe there’s a bigger role for us, and I think that we could be more of the health link and we could be much better utilized by the school” (Public health nurse)



### *Supports PHN received for in-school practice*

PHNs discussed the following supports they received from North Shore schools:

- Office space , although often shared, which staff accommodated
- Technology, to deliver presentations
- Welcoming environment, although not universal across all 12 public high schools
- Collaborative culture to consult on a youth health issue
- A contact person that assisted in orientation and access

PHNs discussed the following supports they received from their leadership and VCH:

- Technology (lap top, air card, and cell phone)
- Time to attend in-services (although limited number of staff attended)
- Support from PHN leadership to build networks and relationships by being present at the schools; although, the outward expression and positive reinforcement of their work could be more intentional
- Support to seek advice or mentorship and share resource materials

### *Challenges faced*

PHNs explained the complex process to establish a presence in the schools. For youth and staff to seek the PHN on their own initiative it often took a year or longer. This process required patience, adaptability, and insight for PHNs to work effectively. PHNs thought an old mentality of distrust lingered for some school staff. PHNs expressed that these sporadic, unfriendly behaviours impacted relationship building and trust formation in the 2012-2013 academic year. For those PHNs who experienced a slow return to team member status within the school community, it contributed to the challenges of communication and networking. However, many PHNs displayed no concerns with this going forward. PHN leadership was apprehensive of PHNs over committing or school staff asking for too much. This balance rested with the PHN.

Several external influences caused PHNs to worry about the longevity of the in-school nursing practice. Over the past decade, PHNs noticed how their practice regarding immunizations had quadrupled in size for grades 6 and 9. The increased immunizations required more PHN resources and took time away from in-school practice. The potential for immunization rates to influence their health promotion practice in-schools greatly concerned the majority interviewed. Other influences that PHNs have no control over included the PARIS computer software for charting. The software required more time, which reduced youth-centered care. Another challenge for PHNs included the limited scope of clinical skills permitted while on school grounds. The school district and VCH medical health officer set this protocol, and PHNs felt constrained by not being permitted to dispense and/or administer contraception or collect specimens for health testing.

“The longer you’re in the job the more you realize what the potential could be...We look at the wheel of intervention...we could do all this stuff and we should be doing all this stuff. But do we have the time and ability and resources to do all this stuff? No. And so that is a frustration” (Public health nurse)

Adequate space for one-on-one consultations remained a top concern for PHNs. PHNs ethical practice required privacy and confidentiality for youth, parents, and staff. Several sites

had a shared office arrangement that required negotiation for use. PHNs recognized the physical limitations within the school but wondered if alternative arrangements could be found.

PHNs required equipment compatible with their mobile office practice. This included lap tops, air cards for wireless Internet access, and cell phones. Several PHNs complained about the difficulties in relying on technology because of limitations with cellular service and slow software.

### ***PHNs managing the workload for in-school practice***

PHNs were universally confident they met the demands of the in-school practice. The youth clinics assisted in providing further clinical care and follow-up. PHNs commended C&Y team support as a great strength for the success of the program.

As relationships form and trust builds for the in-school nursing practice, PHN anticipated a growth in youth clientele. Given this potential, PHNs wanted to know they will be able to provide health promotion strategies through continued flexible scheduling. PHNs wanted more time to extend their practice to accommodate anticipated growth.

PHN leadership expressed caution for extending PHN interventions to the point of subsidizing school staff personnel for health teachings. Their prudence extended to inequitable practice delivery between schools and school districts if some PHNs provided interventions that other PHNs did not.

### ***Sustainability of school nursing practice requirements***

“I’m always concerned...that they could change health nurses in the school...we’ve been lucky. The health nurse that we have in our school, we’ve worked with her for five or six years ...we trust her; she trusts us. So I’m always concerned about budget time whether they’re going to allow [our school] to have the nurse...I mean, they could take that away. We’re wanting her for more. So it’s those budget constraints that [are] a major concern. And it’s also a change of personnel” (Principal)

PHNs and leadership echoed the same sentiment of building from successes. This included communication, collaboration, and commitment to do good for youth health and school health. Both groups wanted to see continued PHN team building. This included the formal or informal sharing of experiences to permit learning from one another.

PHNs and leadership hoped for further communication and relationship building between VCH and the school districts. They wanted discussion to include PHN scope of practice and the integration of comprehensive school health within PHN in-school functions. Additionally, PHN leadership required adherence to rules in place regarding provision of clinical care during in-school hours.

“I think I’m sort of the liaison between the Vancouver Coastal Health and the school. So I would have to have the good communication in between the two parties. I think I’m the important role in it-- I’m the key. I’m the one that actually connects...I’m the glue, to glue the two pieces together” (Public health nurse)

## Discussion

The North Shore PHN Child & Youth team promoted the health and well-being of youth in the public secondary schools of West Vancouver and North Vancouver through the implementation of a variety of school nurse interventions, including on-site, regular office hours during the 2012-2013 school year. PHNs worked within an equity-sharing philosophy and practiced holistically to understand the context of youths' lives and to build capacity to improve health and well-being. Health is influenced by a complex, interwoven dynamic of the social determinants of health that influence people where they live, work and study (Commission on Social Determinants of Health, 2008; WHO, 1986). PHNs engaged in a multitude of supportive, educational, and health promoting interventions to target some of the root causes of inequity. These strategies benefited youth, parents, families, school staff, and the community. School nursing aimed to reduce vulnerabilities by providing health promotion, prevention, and screening interventions where youth are primarily located. After-school youth clinics complemented and augmented school nursing practice; for example, youth accessed contraceptives and sexual and reproductive health care at North Shore youth clinics, where they may not have been able to access these at school.

School staff and PHNs responded unanimously that school nursing practice needed to continue with regularity and consistency. Everyone interviewed wanted PHN in-school practice expanded, with further integration of the PHN into the school culture and community. A few practical issues required addressing, such as finding adequate space for the PHN to conduct health assessments and provide interventions in privacy. The success after the first year of implementation reflected the skilled professionalism and commitment to high quality youth health promotion.

Continued development of school nursing practice on the North Shore is needed to grow and evolve the program at a community level, and ongoing research and evaluation is necessary to track progress and measure outcomes. With continued commitment from the PHNs to track their nursing activities and interventions, the scope of practice for PHNs focused on youth health will be better understood and recognized. This increased awareness at a local level may also have positive influences on provincial and national policies for school nursing practice, as PHNs and nurse leaders can champion the full scope of practice to benefit youth, families, and communities.

The need and desire to realize the potential of the full PHN scope of practice in school nursing is a welcome sign of progress, yet the role remains underdeveloped. School nurses have scope of practice guidelines from the Canadian Nurses Association (2007) and from the Community Health Nurses of Canada (2008), and the guidelines suggest this scope is dynamic and flexible enough to adapt to community contexts. The schools' mandate is education, yet comprehensive school health expands that mandate to include health education and programs that foster a healthy environment in the school. The PHNs work across both the educational and health sectors, and their professionalism enables them to bridge these boundaries.

There was momentum within the North Shore team to move beyond a focus on the clinic-focused services and immunization delivery, and facilitate further health promotion for youth, family, and community health. Public health nurses were excited about their role in the schools and looked forward to expanding their strategies and approaches, yet funding needs to support school nursing to further promote health and reduce inequities. The capacity within this

workforce is vibrant and largely untapped. Their skills for promotion and prevention are resources that could be enhanced and engaged to a greater degree than is currently the case. PHN scope of practice includes building coalitions and capacities within individuals and within communities; in this way, productivity is maximized for the PHN and for those in they are partnering with.

The tracking tool permitted PHN reflection on practice strengths and areas for further development. It also permitted the team to evaluate trends and strategies as a whole, and assisted in program innovation, planning, and delivery. Evaluation is part of the nursing process, and this study builds evidence to support best practice. This evaluation builds on current knowledge and provides a baseline of school-based nursing practice within the Comprehensive School Health framework for the North Shore.

### **Knowledge Gaps and Limitations**

Future research and evaluation could include the student, parent, and community service providers' experiences as stakeholders in school health. This would permit PHNs, management, and government to deepen their understanding of PHN intervention experience and impact on health outcomes. Future programming could benefit from knowing youth perspectives and wishes for health promotion design and delivery. As well, future evaluation needs to more rigorously capture the outcomes linked to PHN interventions in the schools, whether by capturing outcomes related to intensity of services (nurse to student ratio), or to specific types of interventions. Such evaluation should include cost-benefit analyses, if possible.

The evaluation did not address the PHN involvement and scope of practice for students, parents, and staff in the elementary schools. Several PHNs and school staff spoke to this missing link in health promotion and prevention. Both groups identified how earlier interventions with health promotion strategies and healthy public policy could further improve health equities and outcomes for youth, families, and communities.

### **Policy and Practice Recommendations**

Public health nurses on the North Shore Child and Youth team delivered holistic strategies to youth and those within the school system. Increased access to health care and related resources provides for greater equity in health for this population. Comprehensive school health with PHNs as facilitators and change agents can foster an integrated framework that can be mindful of the balance between education mandates and health outcomes. Everyone involved in this evaluation envisioned a significant potential for program growth. According to PHNs and school staff, youth sought the school nurse for a variety of reasons. PHNs facilitated education and access for a broad range of presenting health issues typical for adolescent growth and development. PHNs were a welcomed support for professional and curriculum development with the North Shore public high schools. The PHNs and the school staff have resolved to continue their well-established partnership for improved health and well-being of youth, families, and school communities of West and North Vancouver.

There are a number of recommendations that flow from this evaluation.

#### **Develop strategic plans and formal agreements to set expectations**

The North Shore service could develop a strategic plan for PHN in-school practice that integrates the four pillars of comprehensive school health, and outline PHN scope of practice responsibilities and limitations in a formal memorandum of understanding between VCH and

SDs 44 and 45. Setting expectations and responsibilities will ensure accountability (for all stakeholders) to comprehensive school health program fidelity for youth health outcomes.

### **Foster health equity through proportional service**

PHN school hours could be proportional to the size of the student population, with large high schools receiving a greater number of hours. Additionally, offer the same interventions at each public high school within both districts, yet ensure that standardized practices that are adaptable to each school's specific needs.

### **Youth-positive, centered care**

Given their role outside the traditional educational structure, PHNs are able to work with youth in a professional caring relationship that affirms health equity, privacy and confidentiality. We recommend the continued practice of PHNs providing weekly in-school office hours, as well as ad hoc meetings and consultations and the group health promotion interventions.

### **Establish school nurse staffing ratios from evidence-based guidelines**

Although the increase of PHN hours in the school are laudable, they still fall quite short of the recommended staffing ratios for school nursing from a variety of sources. Most of the secondary schools on the North Shore have between 750 and 1500 students, yet none of the PHNs have anywhere near full-time roles in the schools. Although this is an ongoing resource issue for the Health Authorities, health equity for adolescents during this important life transition should have downstream cost improvements in health services as they become adults and seniors, but such long-term investments cannot be put off forever.

We recommend the extension of PHN weekly in-school office hours on a gradual basis with the aim of sustainability, in consultation with the school administration and/or school district superintendents, as well as the health authority.

### **PHN clinical pathways and professional development**

Clinical pathways for PHN scope of practice are needed to support nursing practice in schools and in-communities. The North Shore team heard this recommendation during the August, 2013 presentation of mid-point findings, and discussion began. PHNs identified a lack of evidence-based professional development; most PHNs took the initiative to learn on their own, as they have no support from a clinical nurse educator on the unit. PHNs questioned if independent learning and subsequent lesson plan development was the most efficient and effective practice. They also identified challenges to knowledge translation to school staff and youth when they lacked official or sanctioned professional development. There is a need for clinical nurse educator support for the team. Professional in-services will help maintain continuing competence in school nursing. PHNs need employer-provided or employer-paid professional development throughout the year.

### **Building awareness to PHN role**

We recommend the team continue to build on successes and relationships established to-date. Effective partnership requires acknowledgement of the various roles in the relationship. Role clarification and building awareness of the PHN scope of practice is necessary for all levels of school staff (administration, counseling, teaching, and support staff). School staff identified how this could be accomplished for the PHN in a number of ways. Staff suggested attending meetings regularly or at least at the beginning of the year. This included all staff and department meetings. Staff hoped to see PHNs attend grade or school assemblies – to be determined with each respective school, as not all schools conduct assemblies. Further ideas included improved

integration into the school's culture by adding the PHNs name on contact lists, and attendance at school events. Lastly, staff encouraged the identification of the PHN and practice strategies throughout the school via posters, announcements, and newsletters.

### **Support nurse-school relationships**

Relationships over time build trust and strengthen partnership for improved youth health promotion. Stable funding is essential to maintain current PHN hours in schools. Several school staff expressed hesitancy to fully embrace the role of the PHN with uncertainty in future resource allocation of her time. Staff with a greater number of years of service expressed this with greater emphasis, as they reflected on previous experience where the PHN connection ended in the late 1990s and early 2000s. Staff thought students needed a connection to caring, nonjudgmental health care professionals to help build trust in adults. This proactive approach to youth health with health promotion rather than reactive health services is a preferable philosophy for school staff and PHNs. School staff need to feel secure in maintaining these relationships, rather than worry about fractured care and the impact to youth health and education.

We recommend the team assign more hours in school initially for new PHN, to assist relationship formation. Mentor any new school PHNs with the current PHN to foster easier transition for school staff.

### **Documentation**

The PHN Wheel of Intervention tracking tool training development was essential for consistency between PHNs and for ease of administrative support. Surveillance of youth and school health issues required accurate collection of PHN intervention data, for comparisons between schools and for year-over-year comparisons. Although other models of tracking are being developed in other teams across VCH, we recommend continuing to use this tracking tool, as refined by the team, for at least 2 years, to evaluate its effectiveness in capturing practice information for improved planning, quality assurance, and individual nurse practice reflection.

### **Ongoing evaluation**

PHN school nurse practice has limited evaluation and evidence of effectiveness in Canada. We recommend you continue to partner with academic nurses to evaluate PHN practice, including evaluation of school nursing within elementary schools, with an emphasis on expanding intervention beyond processes and description, to tracking health outcomes as well.

## **Dissemination Plan for These Findings**

Superintendents of School District 44 and 45 will receive a three-page summary highlighting the school staff interview findings and themes, with direct quotes from several participants. The PHN Child & Youth team will meet with the lead investigator after receiving this final report, to discuss the evaluation findings, and determine next steps. As well, there are plans by nurse manager to forward copies of this report to the other managers of Child & Youth PHN services within VCH, as well as to managers and executives within VCH. There has been a request by the Ministry of Health for a copy of the report as well. Finally, because this offers some of the first detailed information about the scope of practice actually implemented by PHNs in school nursing within western Canada that incorporates perspectives of school stakeholders as well as the PHN providers, at the request of VCH leaders, the evaluation team will be preparing one or more papers for publication in professional journals in public health or public health nursing.



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**Table 1**  
Public Health Nursing Wheel of Intervention Tracking Tool (2012)

School Year (Fall) 2012																					
Demographics				Nursing Interventions												Health Teaching				VCHHS CBY Team	
Target Population: school PKC, Preschool, Youth, Community (Specify)	Community Partners: WCHS, HCHS, PCHS, Youth Coalition, etc. (Specify)	Total # of Total Time Attendees (HRS)		Assessment	Health Promotion	Prevention	Health Maintenance	Health Promotion	Prevention	Health Maintenance	Health Promotion	Prevention	Health Maintenance	Health Promotion	Prevention	Health Maintenance	Health Promotion	Prevention	Health Maintenance	Health Promotion	Prevention
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TOTAL				15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 2**  
**Public Health Nursing Wheel of Intervention Tracking Tool (2013)**

School Year 2013																									
		Demographics				Nursing Interventions												Health Teaching					MCHMCCY Team 2013		Remarks
Date (dd/mm/yy)	Target Population: African, PAC, Pacific, BME, Community, Other (Specify)	Age	Gender	Community Partners: WPH, ncan, PHS, Youth Coalition, WPH, Other (Specify)	Total # of Total Time (hrs)	Assessment	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion	Health Promotion
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**Table 3**  
Public Health Nursing Wheel of Intervention Tracking Tool with Comprehensive School Health Pillars (2014)

[illegible]



## Appendix

### Tracking Tool Instruction for Use



NS Child & Youth Team  
2013

(DRAFT)

#### **Tracking Tool Instructions**

##### **Purpose:**

To track Public Health Nurses' activities. The Tracking Tool was designed from the "Wheel of Intervention" which was developed by Linda Keller and Sue Strohschein, 2001.

##### **How to use the Tracking Tool:**

1. Recordings are done on a monthly basis from the beginning of a month to the end of the month  
(ie Sept 1 – end of Sept. , Oct 1 – end of October).
2. Enter a PHN activity according to the chapters in the "Wheel of Intervention"

##### **In the:**

- **Date Column:** enter the month and \* day of the activity (\* entering the actual day of the activity is optional).
- **Target Population Column:** be as specific as possible
- **Level Column:** enter, C = Community, I = Individual, or S = Systems
- **Community Partners Column:** be as specific as possible
- **Total # of attendees Column:** be as specific as possible
- **Total Time Column:** be as specific as possible
- **Nursing Interventions Columns:** use the embedded chapters on line for guidance on which interventions to record related to the nursing activity
- **Remarks Column:** be as specific as possible

3. Enter all **ON CALL** activities according to the activities you performed on that day related to ON CALL requests.
4. Enter all **School Immunization Clinics**: enter all the schools you immunized at AND all the schools you charged (per month) and self report the time it took for each clinic.
5. Enter all **extra Youth Clinics, CHCs, Evening Clinics and School Immunization Clinics**, that a PHN does beyond her quota.
6. Enter **Tracking Tool** entries as Advocacy and Surveillance and self report the time it takes to complete the tracking tool entries.
7. **Do Not Enter**: Youth Clinics, CHCs, or Evening Clinics, these will be accounted for in your monthly quotas (to be entered by Taryn).

## Examples of School-Based Interventions along the Wheel

For those who are unaware of how the PHN Wheel of Intervention may be applied within the school setting for comprehensive school health and public health nursing interventions, we offer these examples at individual, community, and systems levels. Most of these are examples from North Shore PHN practice; where an example comes from elsewhere and is not regularly part of North Shore PHN Child and Youth school nursing, that intervention is marked with a \*.

### **SURVEILLANCE**

Monitoring for health problems within a school setting, or outbreaks of disease

- Example 1: Tracking levels of chronic conditions like asthma or anaphylactic allergies that might have school environment exacerbation
- Example 2: Monitoring increase in absences due to flu-like illness, or other infectious diseases, reports to public health system
- Example 3: Helps administer the regional or national youth health survey in classes, i.e., the BC Adolescent Health Survey

### **DISEASE AND HEALTH EVENT INVESTIGATION**

Participation in exposure & contact tracing for infectious diseases/illness/injury

- Example 1: Assessing a student who is ill for reportable and non reportable communicable diseases, such as pertussis, chickenpox, measles, mumps
- Example 2: Assessing and tracing for gastrointestinal illness outbreaks among students
- Example 3: Helping to identify sources of preventable injuries, i.e. concussions, “safe routes to school”

### **OUTREACH**

Identifying and engaging with youth or families at risk for particular health issues

- Example 1: Contacting students who have asthma or obesity to set up a group to foster physical activity\*
- Example 2: Sending E-messages via schools to parents/guardians regarding health information talks both in the school and community settings
- Example 3: Organizing health fairs at both the elementary and high schools around the BC health and career education curriculum

### **SCREENING**

Form of Secondary Prevention commonly part of school nurse roles, screening for:

- Vision, hearing, dental caries (in North Shore, may be separate teams)
- Tracking immunization series completion
- Blood pressure screening of obese youth\*
- Assessing the ability of younger students with asthma to carry their own broncho-dilator inhaler, or students with severe allergies to carry an epi-pen\*
- Individual screening for anxiety, depression, substance use problems, self-harm, eating disordered behaviours

## **CASE FINDING**

Only intervention done solely at individual level, often used in conjunction with outreach or screening

- Example 1: Identifying youth with high levels of absenteeism—possible mental health issues or poor management of chronic conditions, nutritional and disordered eating concerns
- Example 2: Addressing disclosure of physical or sexual abuse, bullying or other victimization

## **REFERRAL & FOLLOW UP**

Variety of health and social services that may be needed by children, youth or their families; important to follow-up to ensure services are received

- Example 1: Referral for mental health assessment of student with severe anxiety, or depression, suicidal ideation, or disordered eating
- Example 2: Referral to prenatal care or termination services for a student who discloses pregnancy
- Example 3: Referral to dentist for child with mouth pain and caries

## **CASE MANAGEMENT**

Less common among school nurses, but may be point of liaison between developmental, educational and health care services for children and youth with special health care needs in the school setting

- Example: Coordinating a team meeting of school counselor, family physician or pediatrician, teachers, and parents for student with severe mental illness or other chronic condition

## **CERTIFIED PRACTICE**

Based on standing orders, or requiring additional specialized training

- Example 1: Administering tx for students with special health needs (asthma nebulizer, catheterizing, tube-feeding, medications)\*
- Example 2: Immunizations, either catch-up for standard schedules (HPV, TD, influenza) or outbreaks (Hepatitis A, Meningococcal)
- Example 3: Pregnancy/STI testing, and contraception provision (only available at some schools on North Shore)

## **HEALTH TEACHING**

One of the most common roles of school nurses, at the individual and group level

- Example 1: Teaching students oral health\* (public health dental hygienist in North Shore)
- Example 2: Session for teachers and staff on recognizing and responding to anaphylaxis, or glucagon administration
- Example 3: Growth and development classes for children in puberty (10-12 year olds), sexual health when requested and aligned with BC curriculum
- Example 4: Teaching children and youth with diabetes healthy nutritional options
- Example 5: Teaching the entire school strategies for coping with stress or anxiety

## **COUNSELING**

Not the same as psychological counseling, more akin to emotional support and being an ear to listen to people's worries and helping them come up with solutions or ways to cope

- Example: Setting up a peer support group for students with cystic fibrosis, or survivors of leukemia
- Facilitating a support group/program for high risk youth engaging in disordered eating behaviours

## **CONSULTATION**

Being requested to identify a range of solutions or strategies to address a health-related problem in school, researching the evidence and presenting the options

- Example 1: Helping a parent identify different strategies for managing a youth with ADHD
- Example 2: Giving School Safety team info re: playground injury prevention from research
- Example 3: Working with School Health Committee to identify evidence-based substance use prevention approaches
- Example 4: Facilitating a nutrition consultation for students in a special sports program

## **COLLABORATION**

School nurses need to work with a variety of other professionals, youth and their families, to achieve health goals

- Example 1: School nurse and PE teachers collaborate to develop strategies to increase student physical activity throughout the day
- Example 2: School nurse collaborates with school counselor and/or vice principal to sponsor a gay-straight alliance in school
- Example 3: School nurse collaborates with parents & youth with severe psychiatric problems around safety monitoring\*
- Example 4: Hosting a community-based parent session on how to be "askable and approachable with your children"

## **COALITION BUILDING**

One of the interventions that is only at the community or systems level, not individual level; brings together organizations to solve a problem or address an issue

- Example 1: Creating a coalition to address student tobacco use, by engaging school staff, local health care providers, cancer society, local shops that sell tobacco, local law enforcement, school's parent advisory council\* (more often done by tobacco reduction coordinator housed under environmental health)
- Example 2: Representing the school on a regional coalition around school-based mental health promotion
- Example 3: Participating in the North Shore Youth Coalition meeting (involving RCMP, West Vancouver Police Department, school and community youth workers, school and community counselors)

## **COMMUNITY ORGANIZING**

A second intervention that is not at the individual level; different from coalition building in that individuals as well as organizations can be part

- Example 1: Setting up and facilitating the comprehensive school health committee
- Example 2: Helping create a youth health council within the school to address health priorities identified by youth
- Example 3: Working with students, the school staff, parents, and vendors in changing snack vending machines\* (mostly done by the community nutritionist)

## **ADVOCACY**

Helping those who have difficulty speaking for themselves

- Example 1: Advocating for adaptive services for a student with disabilities\*
- Example 2: Representing a student group in bringing their health-related concerns to the school administration
- Example 3: Advocating for high schools to have full health services available to all youth onsite
- Example 4: After several unsuccessful referrals to mental health care with long waiting lists, advocating for an increase in mental health staffing allocated to the serving children & youth in the region

## **SOCIAL MARKETING**

Creating public health promotion messages using principles of marketing

- Example 1: Working with students to create posters or YouTube videos about smoking, bullying, safe driving, drugs/alcohol, media, gender issues
- Example 2: Developing a campaign with a variety of activities and events, including local radio or news media, to raise awareness about cancer prevention, or anti-smoking, or the importance of physical activity, or healthy foods for healthy weight
- Example 3: Working with VCH communications dept to establish the use of Twitter as a means of social media messaging for public health/school health purposes

## **POLICY DEVELOPMENT & ENFORCEMENT**

Less of a role in policy enforcement, other than notification of reportable disease, more on policy development

- Example 1: Working with the school health committee to develop an anti-smoking policy to support the BC Tobacco Act of no smoking on school grounds
- Example 2: With other school nurses, developing policy recommendations related to their role in schools (staffing, hours, tasks)
- Example 3: Contributing local data and youth feedback for proposed national health policies related to school health