

Research Report: *Hanging by a Thread? OH&S in the Ontario Nursing Curriculum*

Despite high injury rates in nursing and among young workers, there is very little research about the occupational health and safety (OH&S) training *student* nurses receive.

This report is the result of a survey that was distributed to all of the English-speaking Bachelor of Science in Nursing (BScN) and Practical Nursing (PN) programs in Ontario. Thirty-seven responded: 20 BScN programs (7 universities and 13 colleges) and 17 PN programs. Questions were asked about general health and safety, safe lifting practices, personal infection control, sharps and issues related to violence. The objective was to determine where (and how) different aspects of OH&S training are currently incorporated into the Ontario nursing curriculum, identifying key expedients and impediments – best practices, opportunities, barriers – to more extensive training.

That student health care workers are at increased risk of occupational injury has something of a ‘taken for granted’ quality: it is frequently noted in academic and statistical reports, but with very few North American studies dedicated to the topic. The research that does exist tends to be qualitative and consistent, emphasizing that both socialization processes and structural issues impede OH&S in nursing. In school, there is a need to keep up the pace and develop a reputation as hardworking, competent and willing. In the ward, there is a need to get work done quickly: time pressures and staff shortages often encourage unsafe shortcuts.

For most schools, OH&S topics are ‘threaded in’ where possible and when time permits. Although this approach has the potential to create a systemic ‘culture of safety’, the information provided tends to be general and brief introductory material rather than specific and detailed. In other words, this approach is unlikely to establish a *firm* baseline of knowledge.

There are a number of ways to include more extensive training: hepatitis B vaccinations, mask-fit testing, instruction on N95 respirators and WHMIS should be mandatory. Other possible solutions include utilizing case studies, having students compare OH&S policies to what they observe in the ward, instructor training and more teaching materials. This training can be provided through a specific OH&S course or, more likely given time pressures, through more and more substantive threads. Ultimately, student nurses need to be much more aware of the very serious risks they face – first as students, and then as nurses.

If you have any questions, comments or feedback about the study, I can be reached at (647) 456-9616 and at gsf14@queensu.ca.

Thank you,

- Shayna Frawley

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TABLE OF CONTENTS

Introduction.....	1
The Context of Nursing.....	2
The Structure of Nursing in Ontario.....	3
Socialization in Nursing.....	6
Educating Nurses in Ontario.....	8
Occupational Injuries and OH&S Training in Ontario.....	10
Occupational Injuries and Young Workers.....	11
The Study and Results.....	12
Methodology of the Study.....	12
Hours Devoted to OH&S.....	13
WHMIS & General OH&S in Nursing School.....	14
Musculoskeletal injuries in Nursing.....	14
Survey Results: Safe lifting and Transferring in Nursing School.....	17
Infection Control and Nursing.....	19
Survey Results: Personal Infection Control in Nursing School.....	20
Sharps and Needlestick Injuries and Nursing.....	22
Survey Results: Sharps and Needlestick Injuries in Nursing School.....	23
Violence and Aggression in Nursing.....	24
Survey Results: Violence and Aggression Training in Nursing School.....	27
Variations: different programs at the same college & both ends of collaborative BScN programs....	30
Attitudes of Nursing Schools Towards OH&S Training.....	33
Findings and Recommendations.....	36
Barriers to More Extensive Training.....	37
Opportunities for More Extensive Training.....	38
Training for instructors: Minerva, OSACH, CPI, and CCOHS.....	38
Mandatory requirements.....	39
OH&S Reviews.....	40
OH&S issues included on Nursing Care Plans.....	40
Changes to the Curriculum: a specific course or more substantive threads.....	40
A seminar on Non-violent Crisis Intervention.....	41
Injury Statistics and Injury Prevention.....	41
OH&S observations in clinical: a policy/practice gap assignment.....	41
Case Studies.....	42
WorkSmart Campus.....	43
OH&S information in textbooks.....	43
Standardized OH&S materials from the College of Nurses of Ontario.....	44
Training for all Health Care Workers.....	44
More Research.....	45
Conclusion.....	45
Works Cited.....	48

Introduction

For reasons that are both inherent and obvious, health care systems tend to have a great deal of practical and symbolic importance. Canada spent over \$160 billion dollars (10.6% of the GDP) on health care in 2007 and more people work in Health and Social Services than any other area of the public sector. Health care is often celebrated as a source of pride or condemned as source of frustration: it can usually be found at the top of the list of issues that matter most to Canadians.

Nurses serve on health care's front lines, and nursing itself has a great deal of practical and symbolic importance. In 2006, Canada had 252,948 Registered Nurses (90,061 of them in Ontario) and 67,300 Licensed Practical Nurses (25,084 in Ontario) (Canadian Institute for Health Information, 2007). Nurses perform a wide range of important procedures and spend the most face-to-face time with patients. Nursing is consistently ranked as one of the most trusted professions in this country (Leger Marketing, 2007). At any given time, thousands of Canadians depend on nurses for their immediate care.

Health care is not considered an especially hazardous field for young people to enter, although its occupational injuries are higher than Ontario's average and higher than traditionally dangerous sectors like Mining. Student nurses work directly with patients in health care centres, often beginning in their first semester. Although they are especially vulnerable as young, inexperienced workers in a profession with high injury rates, there have been few studies of the OH&S training student nurses receive, especially in North America. When safety issues are addressed in the academic literature in relation to nursing, it usually concerns the safety of patients.

This paper examines where (and how) OH&S training is currently incorporated into Ontario's nursing school curriculum, identifying barriers and opportunities for more extensive training. Musculoskeletal injuries (MSIs), infection control, needlestick (NSI) and sharps injuries (involving any sharp instrument, such as a scalpel) and violence are identified as the key, nursing-specific injuries. MSIs account for the majority of workplace injuries in nursing: unsafe lifting and transferring techniques play a large part in this. Nurses care for people suffering from a number of contagious diseases, and are responsible for giving injections, administering IVs, and working with numerous other sharp instruments. Violence is more prevalent in health and community care than any other sector in Ontario. The study also attempts to gauge the attitudes of schools towards OH&S training – do they feel that enough is offered? How much does training vary between schools? Does information focus on the safety of the nurse or the safety of others? When safety issues are included, how much emphasis do they actually receive? And is there much variation

between different programs at the same college, or both ends of a single collaborative program?

A 7-page survey was distributed to the 55 English-speaking college and university nursing programs in Ontario. Many respondents were program coordinators or deans. Ultimately, 20 BScN and 17 PN programs responded. Interviews were held with program coordinators and representatives from the Ontario Safety Association for Community and Health Care (OSACH).

The Context of Nursing

Health care has never been an easy sector to work in, emotionally, mentally or physically. Nurses are present during the best and worst moments of many lives. They must continuously update their practical and theoretical knowledgebase, as new technology and best practices are discovered. Their jobs are also quite physically demanding: nurses work on their feet all day (and often feel run off them), often twisting, turning, bending and lifting. That is to say, the nature of health care work means that it will always be *difficult* work, even in ideal circumstances. While the health care system is a major source of pride for Canadians, even its biggest cheerleaders admit that it is not ideal – and even its biggest critics admit there is no quick panacea for its problems.

In 2005, 4% of employed Canadian women worked as nurses, and nurses made up 2% of the entire workforce (Shields & Wilkins, 2006). It's not an overstatement to say that, at one point or another, every Canadian will depend on a nurse or nursing team. In fact, it may be something of an *understatement*: we rely on nurses as babies (and, later, as parents of babies), as children (and as the adult children of parents), when we are sick, and when loved ones are sick. Nurses are responsible for promoting and protecting the health of all Canadians. To practice, a nurse must register with the College of Nurses of Ontario (the CNO) as a Registered Nurse (RN) or Registered Practical Nurse (RPN)¹. RNs must obtain a 4 year Bachelor of Science in Nursing (BScN) degree from a university or a college in collaboration with a university; RPNs must obtain a 2 year Practical Nursing diploma from a college.

The CNO describes nursing as a discipline where “science meets art to restore, maintain and advance the health of individuals, groups and communities”. That is to say, nursing is a profession where technical skill is combined with equally dexterous emotional labour. Nurses are expected to draw on a wide breadth of knowledge to make logical decisions while maintaining a compassionate, affable and empathetic front. Canadian nursing students learn a model of their profession that emphasizes *caring for others* and a *scientific knowledge base* as its pillars (Reutter et al, 1997).

¹ “Licensed Practical Nurses” or ‘LPN’ is used in some other jurisdictions. RPN is used in Ontario and throughout this report

The Structure of Nursing in Ontario

Nurses operate in a context of staff shortages, high turnover, workload increases, an aging workforce and an aging general population. It's not uncommon for a nurse to work in centres that constantly operate at (or very close to) 100% capacity. In 2008, the Ontario Nurses' Association (ONA) estimated that there will be a shortfall of 78,000 RNs by 2011 and 113,000 RNs by 2016. In many ways, the profession is still recovering from the 1990s:

the largest employment displacement of nurses in recent Canadian history, characterized by massive layoffs as well as sharp increases in casual, part-time, temporary, and contract work. It is difficult to conceive of another highly skilled profession where almost 50% of the members are flexible workers (Grinspun, 2003).

Baumann & Blythe (2003, 1562) describe the main impacts of this 'restructuring' as the "redesign of patient care processes and changes in workforce composition, organizational structure, decision-making processes, and the responsibilities of management and front line staff", including downsizing, mergers and amalgamations. It can still be very difficult for nurses, particularly new nurses, to find steady, permanent, fulltime jobs. In 2005, 62% of RNs and 56% of RPNs worked full-time; about 20% of Canadian nurses had more than one part time job. While 18% of part-time RNs would prefer full-time hours, the same was true of 42% RPNs. Part-time positions are more likely to go hand-in-hand with inconsistent and constantly changing hours. For example, less than half of nurses always know their schedules in advance, about two-thirds of nurses know their schedule at least a month in advance, and 8% of RNs and 16% of RPNs know their schedules no more than a week in advance (Shields & Wilkins, 2006).

Ontario's government has tried to combat these issues in a number of ways. They guarantee new nurses 7.5 months of fulltime work, set a target rate of 70% of nurses in full-time positions, allocated \$500 million to attracting new nurses, and hope to add 9,000 nurses by 2011/12. These efforts are impeded by "high levels of reliance on casual or part time nurses" (Occupational Health and Safety Agency for Healthcare in BC (OHSAH) et al., 2004, 4). In many cases, hours still come on a 'feast or famine' basis depending on the immediate needs of the hospital.

These issues are exacerbated by high rates of absenteeism, an aging workforce that is not renewing itself and an increase in workload. Nurses use more sick hours than any other occupational group (. The absentee rate for nurses was 15.5 (17.2 for RPNs, 13.8 for RNs) in 2005, compared to 14.2 for the health care and social assistance sector and 9.8 for all services (Shields and Wilkins, 2006). In 2002, the Canadian Labour and Business Centre estimated 7.4% of Canadian RNs missed work every week. Nurses *cannot* work when they are ill because they care for people with

compromised immune systems, but stress and emotional burnout also play a role in the absentee rate. For example, RNs and RPNs that were dissatisfied with their jobs missed an average of 25.6 and 28.7 days each year respectively in 2005 – 1 in 3 nurses reported that "their physical health had made it difficult to handle their workload" within the last month (Shields & Wilkins, 2006, 64).

if the rate of absenteeism among nurses were lowered to that of the rest of the labour force, some 3,500 full-time nursing positions would be regained immediately... The Canadian Nursing Advisory Committee calculates that if nurses working part-time out of necessity rather than choice had been converted to full-time in 2001, it would create 2,592 full-time positions (ONA, 2008).

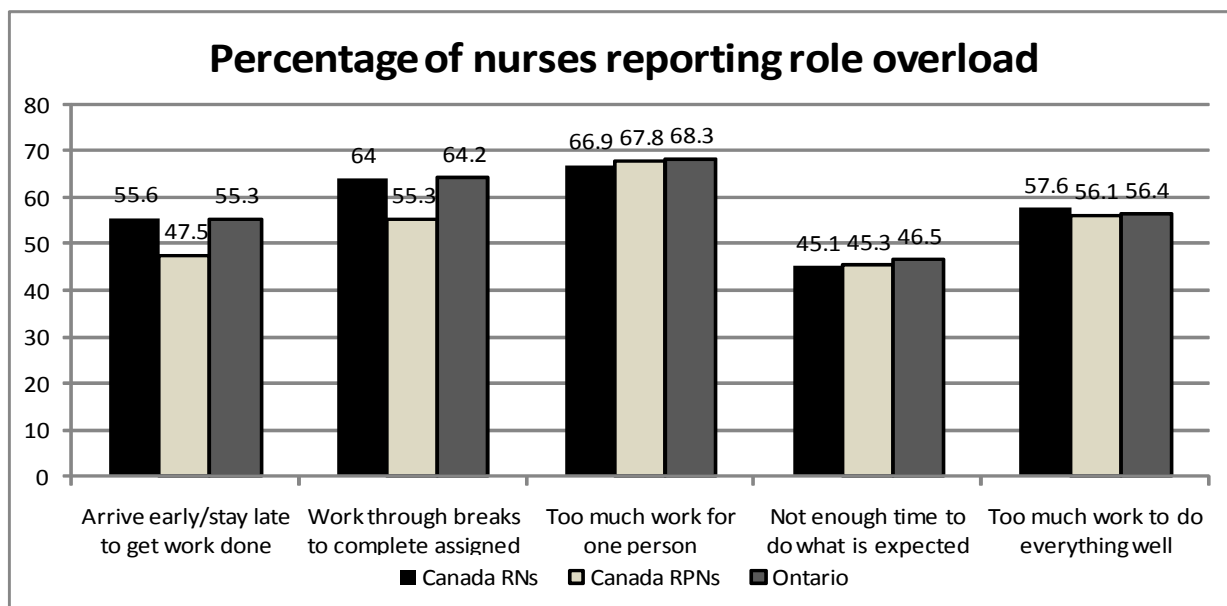
In 2005, almost a third of female nurses described their jobs as having high levels of job strain (Shields & Wilkins, 2006, 46). Figure 1 looks at the percentage of Canadian RNs, Canadian RPNs and Ontario nurses that report habits and situations consistent with role overload, whereas Figure 2 measures the percentage of nurses that describe low workplace autonomy. A 2002 study of Ontario acute care hospitals by Shamian, Kerr, Lasschinger, and Thomson found that 'control over practice' had a positive relationship with general health and a negative relationship with burnout. Nurses that do not feel they have autonomy or control over practice miss an additional 7.3 and 6.5 days every year respectively (Shields & Wilkins, 2006).

The average age of an RN was 45.9 in 2007; the average age of an RPN was 45 in 2005 (ONA, 2008). In 2002, 68% of RNs were older than 40; today, almost 25% of nurses are over 55 (Funston, 2008). Nurses aren't the only group whose average age is rising, but in 2004 almost twice as many RNs retired than graduated. In 2002, just 2% of RNs and 3% of RPNs were between 20 and 24 (O'Brien-Pallas et al., 2003). While there are a number of reasons for this, difficulties in finding and maintaining a secure, full-time position, heavy demands, and undervalued and underpaid work are clearly among them. In other words, as Baumann and Blyth (2003, 1570) suggest, "when hospitals reduced their commitment to staff, the latter reciprocated".

Support staff are responsible for a number of jobs that are essential in health care centres, and their numbers have also decreased. The Advisory Committee on Health and Human Resources (2002, 17) found it has become the responsibility of many nurses to "deliver meals, clean up spills, search for staff to replace other nurses who call in sick, walk back and forth to blood banks or pharmacy stations, or serve as hospital porters...".

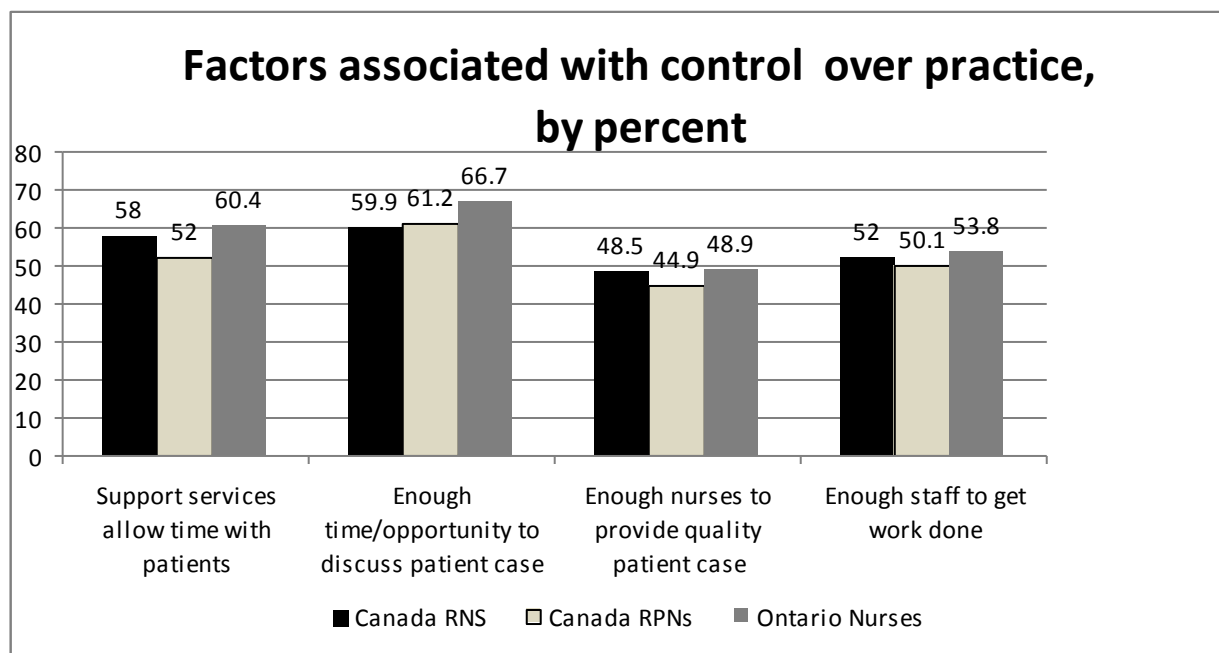
In 2002, RNs worked almost 25,000 hours of overtime a week, which, according to the ONA (2008) "amounts to 7,000 full-time jobs over a year". In 2005, 53% of RNs and 45.5% of RPNs reported regular overtime, for a weekly average of 5.4 hours (Shields & Wilkins, 2006).

Figure 1



SOURCE: Shields, M., & Wilkins, K. (2006). *Findings from the 2005 National Survey of the Work and Health of Nurses* (Report No. 83-003-XPE). Retrieved from the Canadian Institute for Health Information, http://secure.cihi.ca/cihiweb/products/NHSRep06_ENG.pdf, pg. 137.

Figure 2



SOURCE: Shields, M., & Wilkins, K. (2006). *Findings from the 2005 National Survey of the Work and Health of Nurses* (Report No. 83-003-XPE). Retrieved from the Canadian Institute for Health Information, http://secure.cihi.ca/cihiweb/products/NHSRep06_ENG.pdf, pg. 141.

A 2004 study of Ontario hospitals by O'Brien-Pallas et al. found the probability of having a high lost-time claim rate (over 2.59 claims for every 100 FTEs) increased by 70% for each quartile increase in the percentage of RNs that worked more than one hour of overtime hour each week. Fatigue is just part of the reason high rates of overtime contribute to occupational injuries. Overtime is more of a symptom than a cause: not having enough people to handle the workload (whether because of recruitment problems, hospitals operating at full capacity, or the large number of nurses that are not at work on any given day) put all nurses at increased risk of occupational injury. About two-thirds of the nurses in the study reported 'high' or 'moderate' levels of emotional exhaustion. In addition, about a quarter reported upper or lower back pain 'all of the time' and about 40% said they had pain 'some to all of the time'. Somewhat puzzlingly, these nurses also had quite "positive views of their overall health status", although "the daily reality for nurses in the workforce is inconsistent with this rating"(O'Brien-Pallas et al., 2004, 355). In other words, nurses may have accepted occupational injuries and high levels of stress as 'the way it is.'

It's not difficult to see how OH&S is undermined in this context: "while there has been an increased focus on prevention and safety programs, their impact was undermined by general changes within the health care sector" (OHSAA et al., 2004, vi). Fewer nurses are responsible for more tasks. They care for people who quite literally depend on them: the 'need for speed' is partially motivated by an individual's need to keep up with daily assignments, partly through management and peer pressure (as is discussed below), and partially out of a normative concern for the health and comfort of people who are ill.

Spending the most face-to-face time with patients also means that nurses are most likely to bear the brunt of their frustrations. Working with other nurses (and, in the health care hierarchy, under physicians) means that nurses often bear the brunt of health care worker frustrations too. Although the problems with Canada's health care system are not exactly hidden, where nurses are situated in this context can slip under the radar for others trying to navigate it.

Socialization in Nursing

As students, future nurses are taught that *caring for others* is ultimately what separates them from other health care workers. While in *practice*, the real emphasis has always been on the technical aspect of nursing, the idea that nurses provide 'holistic emotional labour' is constantly reinforced. According to Dingwall and Allen (2001, 65), nurses are expected to use themselves "as a means toward an end" whether this is the mitigation of suffering or the promotion of recovery",

simultaneously “caring for” and “caring about” the patient. One result is

a measure of professional demoralization because nurses are not doing the work they are trained to value. Nurses graduating from a range of educational programs encounter a ‘reality shock’ when they discover that what they are actually called upon to do... is so far distant from what they have been led to expect (Dingwall and Allen, 2001, 66).

Teaching nurses that they are ‘carers’ first and workers second may also encourage them to put the needs of others before their own. Kneafsey (2000) traces the Victorian origins of modern nursing to the present-day ‘ward culture’ which demands long-standing (though not necessarily safe) routine practices, self-sacrifice, altruism and hard physical labour. An American nursing student in Melia’s 1984 study explains the focus on ‘hard work’ this way:

"if your friend is working you should be helping her and not sitting down talking to a patient. You feel chatting to a patient is not working, it's more pleasure – yet, each nurse knows that to talk to a patient is very important" (Melia’s, 1984, 140).

A US study investigating whether "burned out nurses eat their young?" found that greater numbers of nurses experienced verbal abuse from patients in *total*, but nurses were cited as the most frequent *source* of verbal abuse (Rowe and Sherlock, 2005). Indeed,

given the central focus of caring... it is paradoxical that the literature reveals interpersonal conflict among nurses (traditionally called ‘horizontal violence’ or ‘bullying’) as a significant issue confronting the nursing profession (McKenna, Smith, Poole, and Coverdale, 2003, 91).

Their report of recent graduates found over a third felt emotionally neglected, were stressed about conflict on the ward, and believed opportunities for learning had been blocked by others, while almost 60% reported that they were undervalued by their peers. A Canadian study found 45% of female nurses and 51% of male nurses reported that they had low co-worker support (Shields & Wilkins, 2006).

Farrell’s 2001 literature review considers why bullying is prevalent among nurses, and why young nurses in particular are frequently targeted. Nurses have traditionally taken on an undervalued and subservient role, facing “societal perceptions of nursing related to gendered stereotyping, subordination to doctors, low academic standards, limited career opportunities and poor pay and conditions” Brodie et al. (2004, 721). Nurses tend to be valued less than the people they work with, and may gravitate towards those with more status, distancing themselves from most of their peers. Routines and expediency have always been emphasized in nursing because tasks that are not finished during one nurse’s shift must be completed during breaks or passed on to the next person. Infighting is a safe way of lashing out. For example, reflecting on an early experience, an American

nurse in reported

now, years later, I believe I understand... in mocking my questions, Jean was probably expressing her own frustrations about feeling powerless and undervalued because she, too, was discouraged from questioning a physician's order (Purpora, 2005, 34).

Workplace cultures where bullying is the norm tend to be self-perpetuating: older nurses bully young nurses, and the cycle repeats itself as “students begin to assimilate such tactics into their nursing practice, as they identify with becoming a nurse during their education program” (Randle, 2003, 299). These problems are all exacerbated by insufficient support systems. It can be difficult to see how structure and socialization contribute to a less than ideal culture when you are in the middle of it.

As a result, the value placed on altruism, hard work and expediency are propped up by peer pressure. Nurses that do not fit into the norms and routines of the ward can be ostracized (or even sabotaged) by their coworkers, and the pressure to conform is extremely strong. This culture of conformity is reinforced with high levels of horizontal violence. So, for example, a nurse that tracks down lifting equipment or asks for help when moving patients may be mocked for being too delicate to lift manually by coworkers that are annoyed at being held up.

Educating Nurses in Ontario

Student nurses typically attend home visits with cognitively well patients in their first semester. A ‘practical’ or ‘clinical’ co-op placement in a hospital or other health care setting follows in the first or second semester. Maintaining the respect and support of faculty and those they work with in clinical is extremely important. Student nurses are closely supervised, and these individuals possess a number of carrots and sticks and can create or impede a positive clinical experience: a nurse can take students aside and show them how to do a new task, or view students as an opportunity to unload routine and unimportant jobs. As a result, nursing students are constantly preoccupied with ‘keeping up appearances’. They struggle to “meet the expectations of those with whom they worked, especially those in authority... attain passes in their examinations and acquire a satisfactory report from each ward on which they worked”, and handle the often conflicting expectations of professors (“do it correctly”) and ward nurses (“do it quickly”) by “learning, on their own admission, to “fit in with whatever seemed to be expedient at the time” (Melia, 1984, 142).

A Canadian study by Reutter et al. (1997) found students are socialized in different ways in each year of the BScN program (although it's safe to assume PN students go through a similar

process). In first year, they *Learn the Ideal* of nursing as ‘caring with a scientific knowledge base’. Most of this learning is passive, occurring in the classroom or through observing and assisting others, although students do practice basic key skills (communication, giving medication and injections, taking vital signs, bathing patients). In second year, both tenants are shaken and students *Confront the Reality*. Although they are responsible for more tasks, they are still *student* nurses, and very aware that their scientific knowledge base is incomplete. At the same time, the conflict between what it taught in the classroom and what is actually practiced comes into focus. Individual patients and families, time constraints, and the expectations of coworkers and colleagues often act as barriers to ideal care. But students, “because of their inexperience, do not feel comfortable ‘rocking the boat’ by confronting other staff members about practices that could be modified... Moreover, they realize that speaking out could jeopardize their own (and subsequent students’) learning experiences”. Students are more inclined to conform than challenge. For example, a UK student nurse reported that although professors “tell you that if you don’t want to do something because it’s wrong, then don’t do it... we’re afraid it will go against us and that’s one of my worries if I say I don’t want to do something, how is that going to affect my reference” (Randle, 2003, 397). Although OH&S is not addressed by Reutter et al., other research suggests that part of this conflict relates to the safe practices taught in class and unsafe practices constantly observed in clinical:

in addition to adopting shortcuts themselves, nurses role-model or even coach and encourage students to take up these timesaving practices without critically examining the potential risks they introduce. The “need for speed” is often the impression students take away when watching experienced nurses in action and, often, they are eager to learn. These situations expose nursing students to a well-known dissonance: they learn one way in school, but that is not the way it’s done in the “real world” (Day and Smith, 2007, 140).

By third year, students are more comfortable in clinical, gaining confidence as they develop their own nursing style. They also become more assertive, at least “when unit policies and procedures interfere with... capabilities to carry out what they believe to be optimal care”, though not “about the less than optimal care they observe” (Reutter et al., 1997). That is to say, student nurses begin to accept that factors outside of their control mean that the ideal is not always met, but do their best to ensure the care they personally deliver comes as close as possible. The problem is that they are much more likely to speak up when their ability to care is impeded – not necessarily when their ability to carry out their job safely is impeded. One study of nurses and midwives found that nurses were generally passive rather assertive. When they did act assertively, it tended to be out

of a sense of responsibility to the patient, although their level of education or knowledge about the particular task and work environment were also important supporting factors. Management response, fear, and the reactions of colleagues served as barriers to assertiveness (Timmins and McCabe's, 2005 43).

Returning to Reutter et al., undergraduates feel much closer to *nurse* than *student* in their final year. This is seen as a 'last chance' to ask a lot of questions, learn and practice new skills and say "I don't know" while still not expected to know everything but familiar enough with most tasks that their competence is not constantly questioned. At the same time, the transition after graduation is rarely smooth. New RNs and RPNs may once again feel much closer to *student* than to *nurse*, as they struggle to navigate through new expectations and demands (especially from colleagues and related to time pressures). They are individually and directly responsible for patients for the first time, and the need to "quickly gain the respect and admiration of colleagues whose acceptance is critical to their professional development" remains (Duchscher, 2005, 156). Nurses continue to juggle what they learned in school with what they are expected to do in day-to-day practice. In Melia's study (1984, 139), one nurse described the former as 'what's "proper" and the latter as "what's going on" – which strategy nurses used depended on what seemed most appropriate at the time.

Occupational Injuries and OH&S Training in Ontario

An average of almost two people each week were killed on the job in 2006 – 101 workers in total, 10 of them under the age of 25. In addition, about 5 workers die every week as the result of occupational disease. Every day, 1,400 lost-time claims are registered with the WSIB, and workers whose claims are approved spend an average of 13.8 days off work due to their injuries. As a whole, occupational injuries cost Ontario \$15 billion dollars each year (Industrial Accident Prevention Association, 2008).

Health care accounted for 6.1% of the Province's total injuries and 7.3% of lost-time injuries in 1997; in 2005, the numbers were 8.2% and 9.6%. Although it is not considered to be an especially dangerous field for young people to enter,

research on the Canadian workforce consistently indicates that health care workers have a greater risk of workplace injuries and more mental health problems than any other occupational group, with nursing personnel having considerably more sick time than those employed in other occupations (OHSAA et al., 2004, i).

Over 16 million nursing hours (equivalent to almost 9,000 fulltime positions) are lost each year as a result of injury and illness. In 2002, overtime, absentee wages and replacement costs for

RNs alone was estimated to cost between \$962 million and \$1.5 billion annually (Canadian Labour and Business Centre). The health care sector's lost-time injury frequency rate is higher than Provincial average, and higher than a number of traditionally (perhaps inherently) more hazardous sectors like Pulp and Paper, Mining, and Electrical and Utilities. Ontario's lost-time injury frequency has declined by 34% since 1998, but health care's rate has only declined by 6% (OSACH, 2007, 2-3).

Occupational Injuries and Young Workers

It's generally known that young people have a disproportionably high injury rate, and sometimes thought that the younger the worker, the greater the risk. The 20 to 24 year-old cohort actually accounts for 70% of the lost-time injuries and 86% of the occupational fatalities in Ontario's 'Young Worker' category (which includes youth between the ages of 15 and 24). New workers of *any* age are four times more likely to get injured on their first four weeks on the job (Ontario Ministry of Labour, 2007).

A 2006 study found young workers in Ontario had the lowest injury rate in Canada (Breslin, Smith, Mustard, and Zhao, 2006). While workers are clustered in safer jobs in Ontario, the Province's strong focus on OH&S also plays a part. In 1998, the Ministry of Labour began to incorporate safety lessons into the Ontario high school curriculum. The initiative has been so successful that similar age-appropriate programs have been introduced in elementary school (where young students discuss the safety precautions Humpty Dumpty could have taken and how much weight is dangerous to carry in a back pack), colleges and universities.

A recent study of OH&S and nurses concluded by stating

occupational health and safety must be better integrated in the orientation and job description of workers, and better aligned with the delivery of quality patient care. In addition, health and safety in the workplace should be an integral part of the training syllabus for new workers (OHSAN et al., 2004, 77).

In other words, although OH&S is on the radar, it needs to be closer to the top of the list. School is the optimal time to provide information on OH&S training. Just as a teenager in their first job may find it difficult to perform certain tasks or challenge established ways of performing them, a student nurse in their first clinical placement struggles through inexperience while learning how to be a nurse. Staff shortages, time pressures and urgent patient needs mean, as Kneafsky argues (2007, 366), "new nurses are socialized into a culture where it may be easier to knowingly conform to dangerous ward practices rather than undertake safe techniques".

Student health workers are especially vulnerable because they "lack experience and skill, even though they are eager to learn new procedures", and because they tend to downplay the former and emphasize the latter (Osborn, Papadakis & Gerberding, 1999, 45). As they are constantly being evaluated formally (by those responsible for their assessments) and informally (by those working alongside them), they want to appear capable and competent. It is important to not *seem* inexperienced, 'difficult', or inclined to shirk arduous tasks (e.g. the nurse that insists on mechanical equipment or extra hands instead of lifting a patient themselves). The result is often a reluctance to refuse unsafe work, seek help when it is needed or report injuries when they occur. Students constantly struggle to be perceived as 'insiders' rather than 'outsiders' (Gray, 1999). They are also typically in their late teens and early twenties, an age

when you don't see yourself as being vulnerable. You see yourself as being young and quick and agile. The last thing that crosses your mind is your own safety. What the younger practitioners don't realize is that there's also a cumulative load factor – that as they get older, it's the general wear and tear over a period of time that impacts their wellbeing (J. Sikorski, personal communication, June 10 2008).

The Study and Results

Most schools report that they 'thread' OH&S in where it fits and where time permits. A drawback with this approach is that information is likely to be general rather than specific, and may be lingered on or rushed through depending on time. One interview subject said that in both health care centres and school, OH&S may be "piecemeal or not even referred to... it's a non-issue", because for some professors and people in management positions, "they don't think about it, there's no 'value' to it":

they're not learning about safety from a *system perspective*. It's something that they won't take seriously if safety, in terms of a *safety culture*, is not weaved through... the problem with that is it creates the attitude health care has.

Methodology of the Study

Surveys were distributed to the 55 Nursing programs in Ontario: 20 BScN (13 colleges, 7 universities) and 17 PN responded. Respondents were asked about information or training student nurses receive on safe lifting, infection control, sharps and NSIs, and violence. In an attempt to gauge the real emphasis on personal OH&S, they were asked whether training tended to focus on the comfort and safety of the individual nurse or 'others' (i.e. patients). Respondents were also questioned about the emphasis placed on OH&S: they could answer "High" (extremely important and addressed often), "Moderate" (important and addressed often), "Some" (somewhat important

and occasionally addressed), or “Little” (not especially important and rarely addressed). They identified areas where more OH&S could fit into existing courses and specific barriers to more extensive training. They were asked if student nurses generally receive adequate OH&S training.

There are flaws with any methodological approach, and it’s worth quickly highlighting some here. It’s possible that two respondents representing the same program from the same school would return different surveys: even extremely involved faculty do not know exactly what goes on in every classroom. It can be difficult to take a clear snapshot of what is currently offered. There is also the issue of program overlap. BScN programs offered at colleges work in collaboration with universities. Typically, these students take most or all of their courses at the college for the first 2 years, and then take most or all of their courses at the university for the last 2 years. Although respondents were asked to describe how much OH&S training was offered at *their* school, some college BScN programs may have estimated how much training students receive in *total*. The typical disadvantages of self-reported data also apply. Given the nature of the study, some respondents may have exaggerated the amount of training they offer. Others may have been more concerned with getting through the survey quickly than providing accurate answers. These issues would exist no matter how the data was collected. On the whole, surveys were the most efficient way of gathering information. Everyone was asked the same questions in the same way. If one respondent was unsure of the answer, they could ask another faculty member to complete it.

Hours devoted to OH&S

Asking how many hours of training students receive is an especially messy question. While OH&S is certainly incorporated into lesson plans, the amount of time actually devoted to any subject varies. Nursing curriculums tend to be especially full, so professors constantly make judgment calls about what to emphasize (what is taught in class in detail) and what to jettison for the sake of time (what students are told to review from textbooks on their own time). Any concept has the potential to be rushed over if the class is running behind schedule. On the other hand, any concept taught in the classroom has the potential to be constantly reinforced in clinical or labs, depending on the professors involved and, again, how much time there is. Respondents were asked how much time was spent on training related to safe lifting and handling, personal infection control, sharps and NSIs and violence. For Figure 3 and 4, that at least some estimates on the high end of the spectrum reflect the time spent reinforcing the subject, while estimates on the low end reflect

how much time is spent in classrooms alone. Other respondents may have included *any* training related to lifting and infection control, rather than narrowing the topic to *personal* infection control. The real value of asking how many hours are devoted to a particular subject is that it allows one to compare how much focus is given to one topic versus another. Although they are twice as long, PN programs spent more time on average on safe lifting, sharps and NSI training and issues related to violence (concerning violence against the nurse and violence in general). Both programs spend an equal amount of time on infection control, on average.

Figure 3

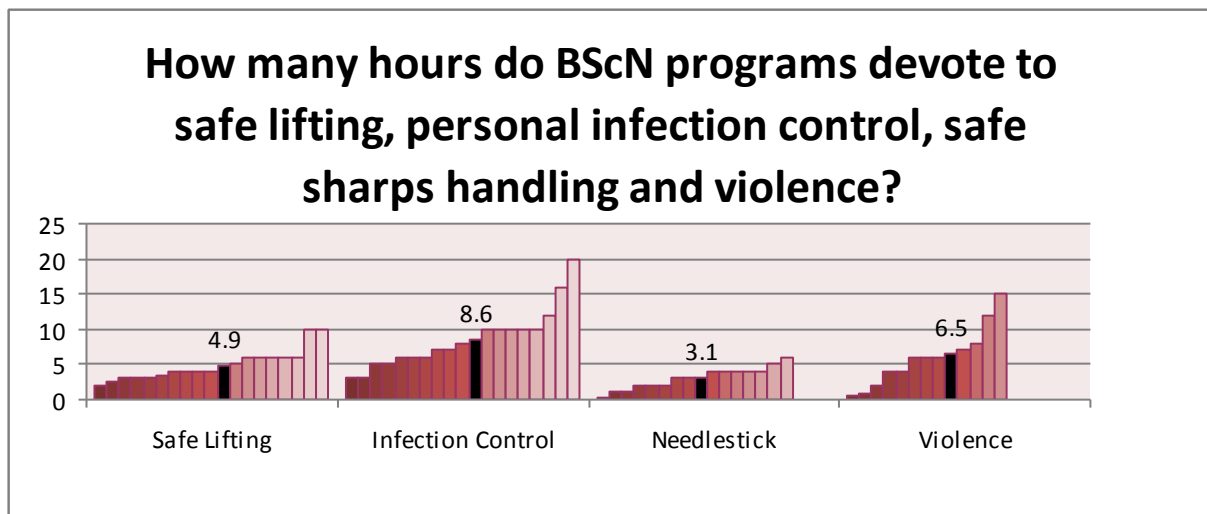
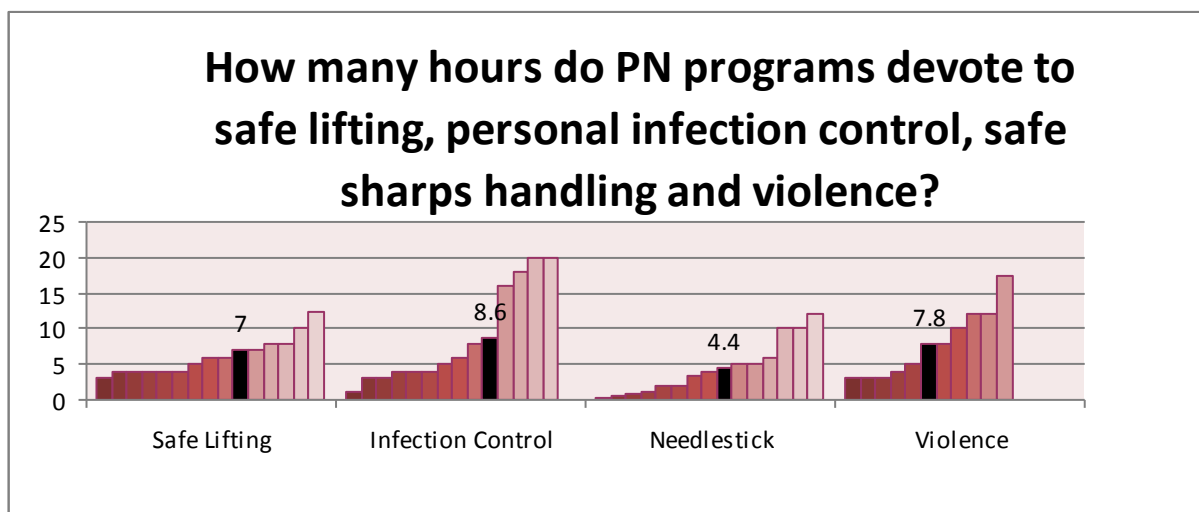


Figure 4



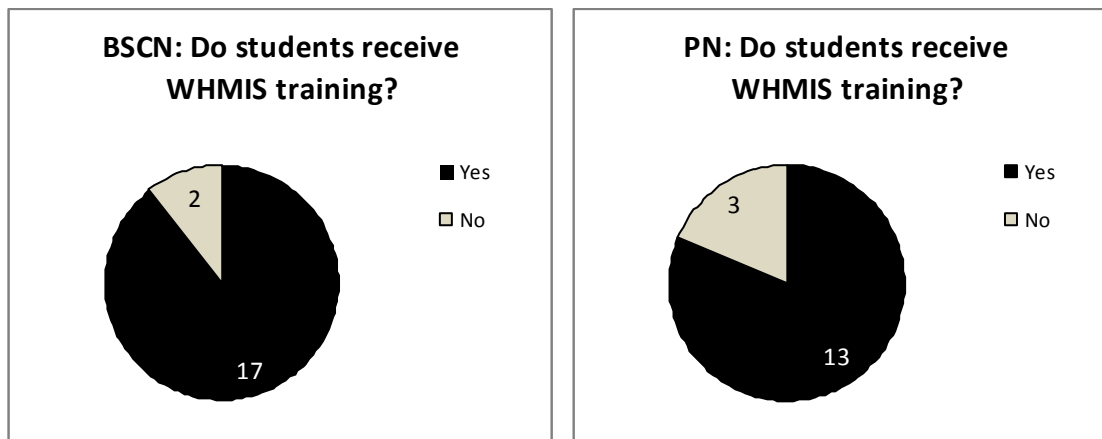
WHMIS and general OH&S in Nursing School

Most Canadians are familiar with Workplace Hazardous Materials Identification System

(WHMIS) on a need-to-know basis, even if they are unable to precisely define all eight symbols. WHMIS is a national standardized hazard communication system that includes a number of training programs, Material Safety Data Sheets (MSDS) and hazard symbols. Although employers have a legal obligation to explain what MSDA and hazard symbols are and what they mean, this material is simultaneously important for personal safety, a marketable skill, and easily glossed over by employers. As such, formal WHMIS training is increasingly being incorporated into curriculums. As Student nurses work with and around a number of dangerous substances (in labs as well as health care centres); WHMIS represents a very basic level of OH&S education.

About 10% of BScN programs and almost 20% of PN programs do not provide any WHMIS training (Figure 5). When WHMIS is taught, it is usually in first-year lab classes, preparation for clinical courses or part of the orientation to a health care centre. Some schools offer reviews (mandatory or voluntary) in later years for at the start of courses with a lab component or before new clinical rotations. A formal assessment of student knowledge is occasionally incorporated into this training, by requiring certification as an entry requirement, using online tests, or holding a one-time, pass-or-fail training session.

Figure 5



WHMIS can also be delivered collaboratively. Some programs team up with other departments within (or affiliated with) the school, but teaching hospitals are the most common partner – indeed, health care centres are primarily responsible for WHMIS training in some cases. The problem with this approach, as one school reported, is that training “might be inconsistent”. That is to say, the focus and depth of OH&S training can vary widely between locations. If it is safe to assume that some hospital orientations provide student nurses with detailed and comprehensive training, it is also safe to assume some training is extremely brief. A number of respondents

indicated that they would like to see much more training related to the policies of health care centres.

Musculoskeletal injuries in Nursing

“A student will ask about a drug, they will ask about a medical condition. But I would say it’s very rare they ask about moving and handling”

- A nurse mentor in a UK teaching hospital (Kneafsey, 2007, 369).

When Shamian, Kerr, Lasschinger, and Thomson’s (2002, 160) asked Ontario nurses to rate their level of back and neck pain on a scale from 1 (no pain) to 5 (constant pain); the average response was 2.62. Although it’s quite common for these injuries to go unreported, as many as 60% of nurses may suffer from upper-body musculoskeletal disorders, and 72% may suffer from lower-body musculoskeletal disorders (OHSAA, 2004, i). MSIs account for just over 55% of the lost-time injuries in the health care sector (about 10% higher than the Provincial average) (OSACH, 2007, 6-7). Repetitive movements, patient transferring, awkward postures and moving equipment are the top four self-identified causes of workplace pain among nurses (Shields and Wilkins 2006).

Although lifting and handling is both high risk and an everyday task (according to Shields and Wilkins (2006), 75.6% of RNs and 84.5% of RPNs lift and transfer patients regularly), safe lifting is not necessarily given the attention it deserves (Nelson, Fragala, Menzel, 2003). Mechanical equipment is not always available or user-friendly, and busy nurses are not always willing to track down or utilize these aids – especially when it is much more expedient to manually lift or transfer a patient. A Canadian study found 31% of the nurses whose jobs required them to lift or transfer did not have access to mechanical aids; 33% of the nurses that *do* have access to these aids reported that the devices were not always available (Shields and Wilkins’s study, 2006, 39-40).

Manual lifting techniques once considered to be ‘safe’ are not necessarily so – “early studies focused on men, and nursing still consists primarily of women”, and people in these studies “were asked to lift a box with handles” (Nelson, Fragala and Menzel, 2004, 33). Studies about the most ergonomically correct way to lift and transfer people were based on standardized objects with equally distributed weights (not patients of different sizes with different ailments, who may not be able to assist the nurse or may not want to be moved) and did not take the physical differences between men and women into account. Manually lifting patients is not a task that can be done the exact same way every time – it changes, depending on the needs, physical characteristics and abilities of the individual patient. Nurses often lift with their arms and shoulders rather than their legs, as

many tasks, such as feeding, bathing, or dressing a patient, may have to be performed while bent forward with the torso twisted. Also, high-risk tasks performed on a horizontal plane [i.e. a bed or stretcher] are common, including the lateral transfer of a patient from bed to stretcher or repositioning a patient in bed (as Nelson et al., 2003, 33).

Developing a ‘nurse’s back’ has almost become expected and accepted, with “many nurses failing to even report their injuries” (Kneasfsey, 2000, 589). Back injuries are not always immediately apparent, nurses may not know they can or should report them. , and may be deterred by the extensive paperwork often involved. It seems that quite a number of people develop their nurse’s back while still in school. A Finnish report found that 31% of students were experiencing back pain prior to attending, and this number jumped to 72% by graduation, and to 84% after five years of nursing practice (Videman et al., 2005).

The importance of safe lifting is something that needs to be constantly emphasized because it is constantly undermined: lifting patients is the means to an end and not an end in itself, and nurses are always under pressure to get work done quickly. An English study found 71% of student had been asked to lift or handle a patient in an unsafe way, and 74% had been asked to lift a patient without equipment. Just 42% reported that lifting equipment was used ‘always’ or ‘most of the time’, and 49% reported that safety checks on this equipment were ‘never’ or ‘hardly ever’ done (Cornish and Jones, 2007).

Students often felt awkward about refusing unsafe practice, going so far as to create excuses (“I said I had to use the equipment to get it signed off in my skills book”) or avoiding certain staff members (Cornish and Jones 2007). Although 86% of nursing students correctly identified safe and unsafe lifting techniques, 94% admitted to sometimes using the latter rather than the former. Peer pressure from coworkers was the most common reason given, followed by lack of time, lack of equipment, and lack of staff. Less than 4% provided reasons originating with patients themselves (such as pain) (Swain, Pufahl and Williamson’s 2003).

This suggests that unsafe lifting is usually the result of structural and socialization issues – time pressures, a lack of equipment – rather the nature of care work or pressing patient needs.

Survey Results: Safe lifting and Transferring in Nursing School

BScN programs spend an average of 4.9 hours on safe lifting; responses ranged from 2-10 hours. Ten responses were below the average, 9 above. Although they do not last as long, PN programs one hour more on safe lifting than BScN programs. PN responses were more varied, ranging from 3-20 hours; 9 below the average, 5 above and 1 equal.

Every respondent answered the question “does information about lifting tend to focus on the safety of ‘others’ or the safety of the individual nurse?”. The clustering around ‘equal’ in Figure 6 is not surprising. Moving patients is an everyday task for nurses, and it makes sense to adopt an inclusive definition of ‘safe’ when teaching them how to lift properly. Just over half of BScN respondents said that their emphasis on safe lifting was ‘high’, compared to almost two-thirds of PN respondents (Figure 7). One BScN program reported ‘Little’ emphasis on safe lifting. Depending on the school and program, students may learn about when to use mechanical lifts (and practice

Figure 6

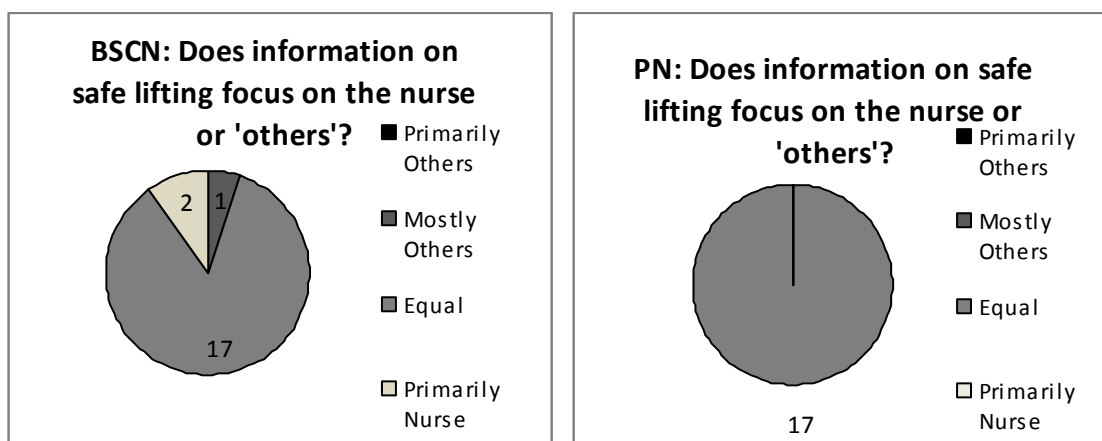
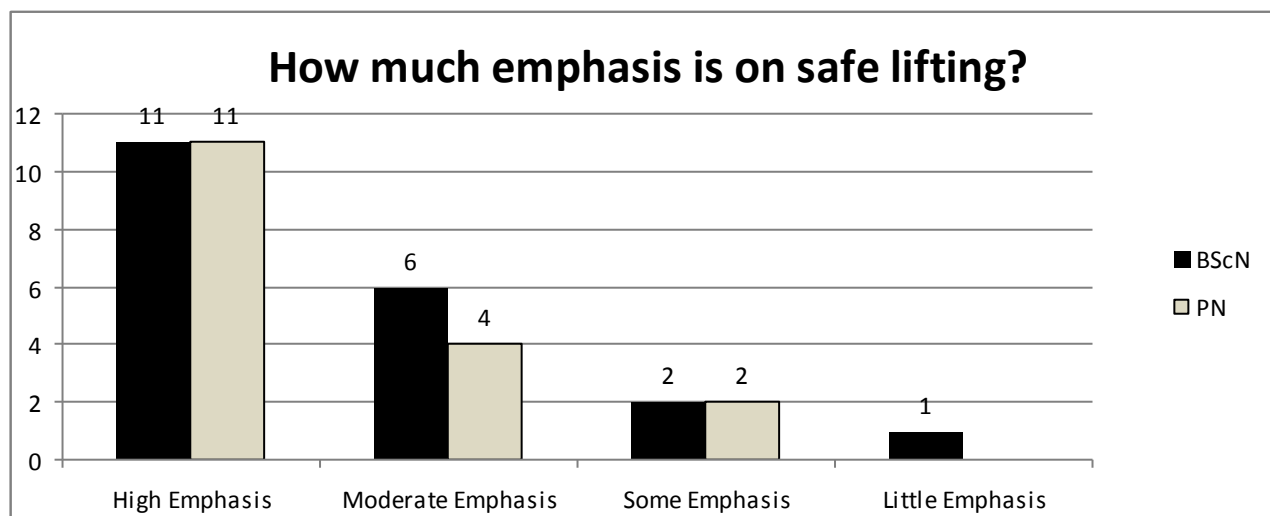


Figure 7



using them) in school labs, training sessions in the hospital, or as they encounter “specific patients and specific devices” in clinical co-op. Safe lifting is typically taught in first year, in introductory health and nursing courses and labs.

A number of schools devote an entire class to lifting techniques; one respondent spends an entire day. A BScN program includes injury statistics for nurses in this lecture. A few schools use online tutorials, videos and demonstrations. The ‘theory’ behind proper lifting is incorporated into some lessons; this seems like a logical point to reinforce information about strains and repetitive injuries. Lesson plans may also include risk assessment techniques, although the focus tends to be on the patient rather than the caregiver. One PN program reported that the goal of their training is to teach nurses “how to determine what clients require regarding transfers and lifts”.

Attitudes towards safe lifting also varied between respondents. Although one BScN program reported that safe lifting was “reinforced throughout each clinical day”, research suggests that what is actually reinforced is usually not safe. Indeed, lifting is the one area where more supervision and direct contact with nurses in the hospital might not translate into safer practices. Another BScN respondent said that they do not always see OH&S “modeled well in clinical, particularly lifting, moving and transfers”

Infection control and Nursing

“Days after the placement began, we were quickly pulled out of the hospital: SARS had arrived. As students, we were confronted with the reality of the environment in which we would be working. The risks associated with the profession, as well as the vital role that nursing plays became harshly obvious”

- Final year nursing student J. Cryderman (Registered Nurses' Association of Ontario, 2004)

In 2003, “health care workers were on the firing line... For the first time in more than a generation, Canadian health care workers faced a deadly infectious disease for which there was no effective treatment” (Singer et al., 2003, 1342-1343). During the crisis, one study estimated “the probability of SARS infection was 6% per shift worked” for nurses that came in direct contact with the infected, although those who wore a surgical or N95 mask had significantly fewer infections (Loeb et al., 2004). Health care workers made up 43% of individuals ultimately infected with SARS in Canada, or 109 of the 251 cases; a number of them inadvertently infected family members and close friends. Two nurses, one nurses’s aid and a physician died as a result of the infection.

That “facilities have insufficient base-line staff, especially full-time workers and are too reliant on overtime, casual, and agency workers” exacerbate this and similar crises in a number of ways: nurses that work in more than one location may spread disease, hospitals reliant on similar, shallow pools of temporary labour may need to operate without enough workers (Baumann, Blythe, Underwood and Dzuiba, 2004, 4). One third of Canadian nurses have concerns about the availability of personal protective equipment, 45% have doubts about the effectiveness of existing

equipment, 15% of believe that their health care centre does not have reasonable infection-control measures, 51% believe it would not be able to control an outbreak and 48% are worried about contracting an infectious disease in the workplace (Shields & Wilkins, 2006, 39-40).

Almost 60% of GTA nurses felt their health was compromised during SARS (Campbell, 2006c). Although 82% were required to wear personal protective equipment, almost 30% were not provided with equipment at the start of the outbreak. And although almost 80% of workers were given masks, only 5% "had been fit-tested and/or trained and instructed in the care, use, and limitations" (973). Nurses were confused over what they were supposed to do, reporting "they kept changing the protocols. Everyone was going day to day because no one knew for sure", "directions changed every shift. You really didn't know what could be happening" and "...communication was not consistent throughout the hospital i.e. each unit seemed to be doing thing[s] different" (991).

Had there been a better theoretical and practical understanding of infection control devices, the risk of contracting SARS would have been much lower than 6% per shift worked. Although SARS is not a typical case and masks are unnecessary in most situations, nurses do come in constant contact with contagious people. Surgical masks do not provide sufficient protection against very contagious diseases that are spread by very small airborne viruses or bacteria (as is the case with SARS or, more commonly, tuberculosis), as these masks do not seal tightly to the face. A properly fitted N95 Mask will filter particles that are larger than 0.3 microns (or 0.0003 millimeters) and has a filter efficiency of 95% -- but it must be fitted to the individual's face to confer these benefits.

Survey Results: Personal Infection Control in Nursing School

More time is devoted to personal infection control than other subjects, with both programs reporting an average of 8.6 hours. BScN responses ranged from 3-20 hours; 10 below the mean and 8 above it. PN responses ranged from 1 to 20; their average is positively skewed as 7 were below the mean and 4 above. All but 2 respondents said the focus of this training is equally on the nurse and others (Figure 7). Half of BScN respondents and almost 60% of PN programs said there was a "High" focus on personal infection control (Figure 8).

Information about infection control tends begin early and continue across the curriculum, typically covered in chemistry, biology, surgical nursing, pathophysiology, psychology and general

Figure 7

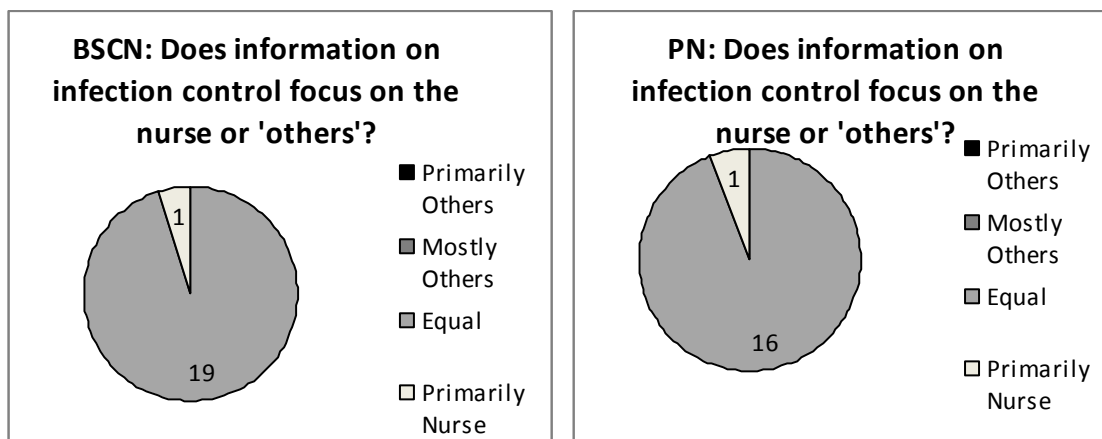
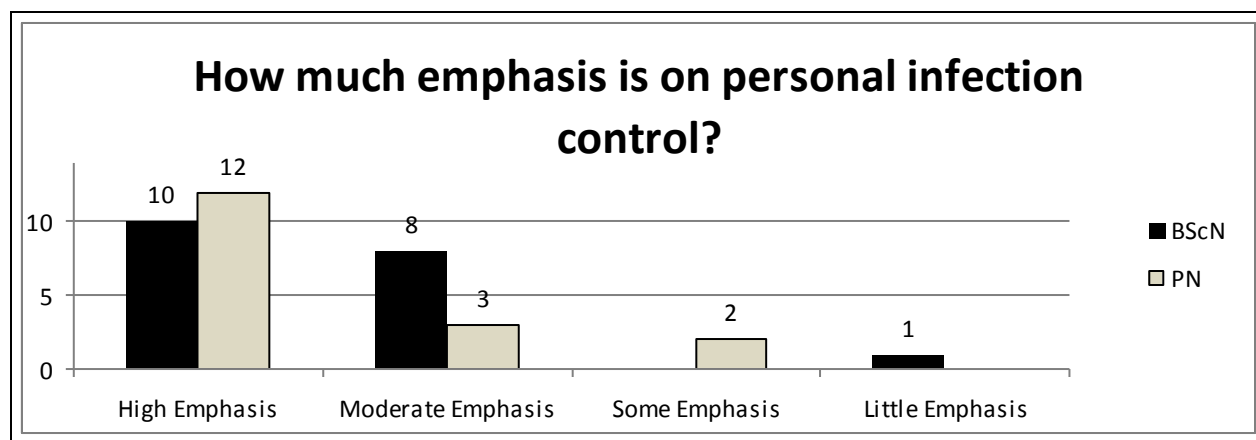


Figure 8



health and nursing classes. Students are taught when and how to use and remove gowns, gloves, masks and goggles. One school mentioned that new infectious diseases (MRSA) and the number of old infectious diseases that are currently making a comeback (TB) means that providing this training has become much more complex (and much more important). A PN program reported that “good OH&S behaviours (especially regarding infection control) are not always modeled well in the workplace (i.e. clinical settings)”. Another mentioned hand sanitization as a specific example.

The majority of programs provide instruction on N95 respirators and mask-fit testing (Figures 9 and 10). For a PN program, whether students received mask-fit testing depended on their clinical placement. There is quite a bit of variation in how schools go about this training: students are retested and retrained periodically, while it is a one-time and/or isolated event in others. In a similar vein, some schools review infection control information at the start of each rotation.

The importance of mask-fit testing and N95 respirators are covered in some classrooms,

Figure 9

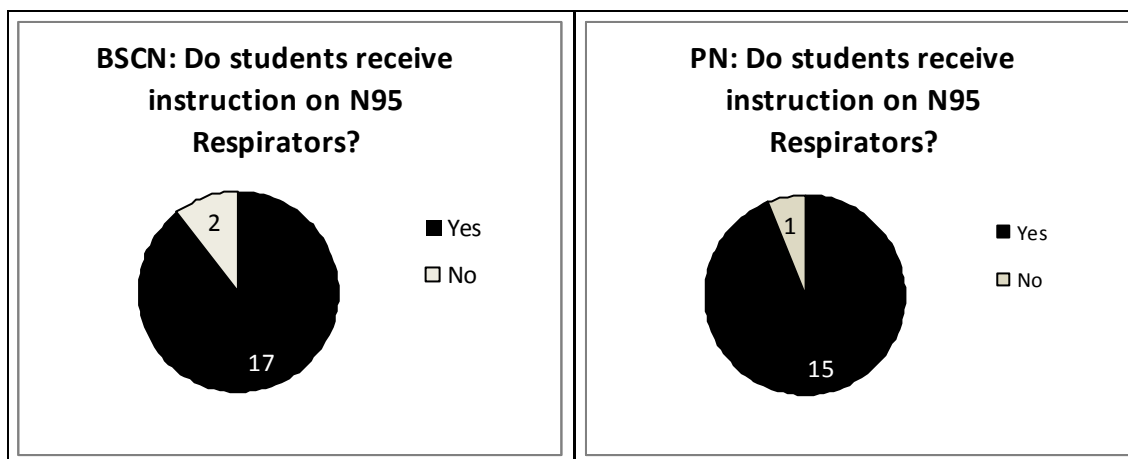
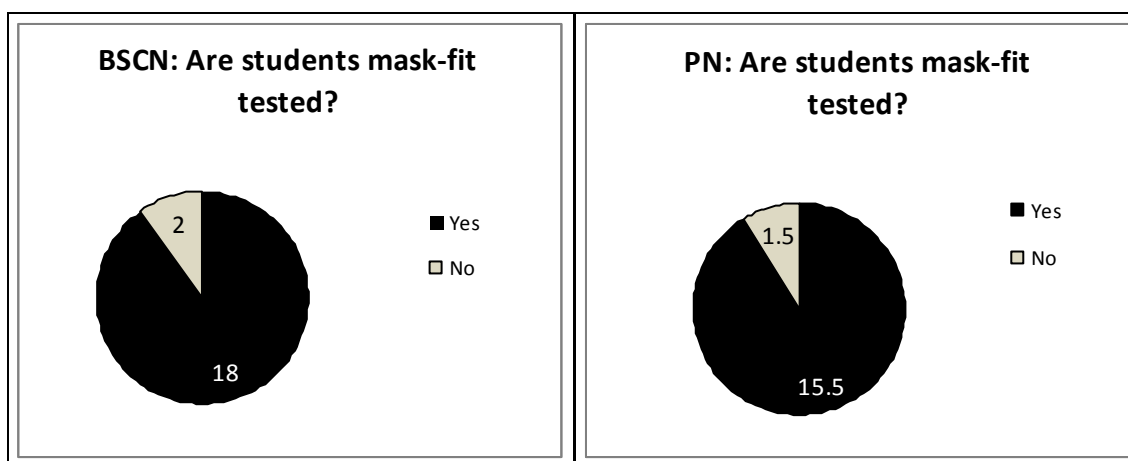


Figure 10



while other students “do not receive much information other than the fitting”. A PN program uses the fit exercise as an opportunity to discuss its importance, while another uses the SARS crisis as a case study. One respondent was not sure if N95s were offered, because mask fit testing was contracted out. Problems of this kind are likely to become more common as more and more schools contract out similar services.

Sharps and Needlestick Injuries and Nursing

“While most needlestick injuries do not lead to transmission of infection, the uncertainty about the outcome can also cause considerable distress associated with anxiety from fear of contracting a fatal disease, thus these injuries are not inconsequential. Needlestick and related exposures remain a significant health concern for HCWs. Each year, thousands of HCWs are affected by psychological trauma during months of waiting for serological results. Other personal consequences can include postponing of childbearing, altering sexual practices, discontinuing breast feeding, experiencing side effects of prophylactic drugs, infection, chronic disabilities, loss of employment, denial of worker compensation claims, liver transplant, and premature death”.

-(OHSAA et al., 2004, 9).

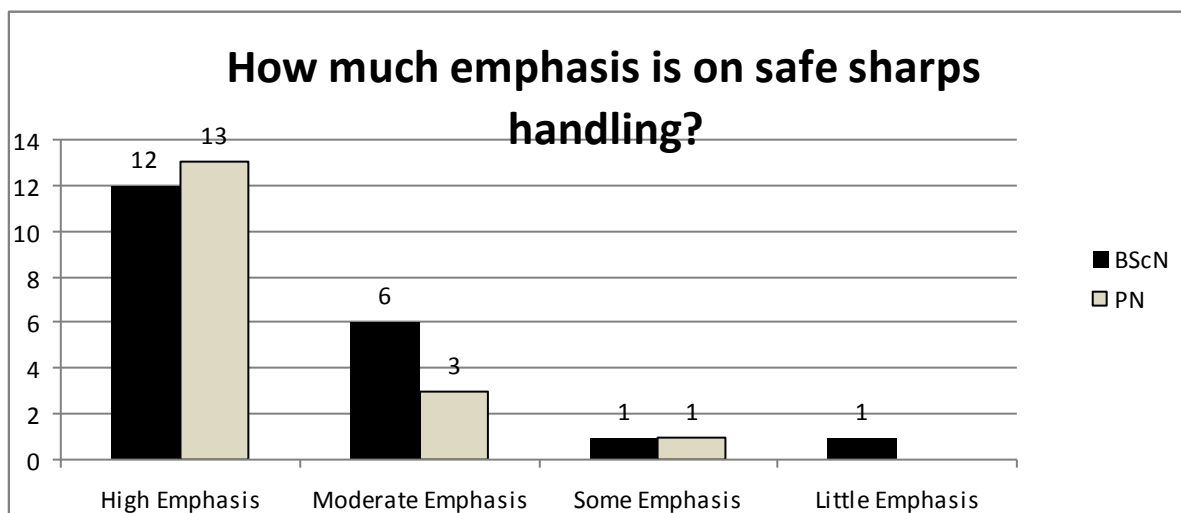
In 2005, a study found half of Canadian nurses responsible for providing direct care for patients had suffered a non-sterile needlestick or other sharps injury; in Ontario, 10.8% of RNs and 11.1% of RPNs suffered a non-sterile needlestick or other sharps injury in the past year (Shields and Wilkins, 2006). From 1996-2006, nurses were responsible for 61% of all reported needlestick injuries in Ontario. Nurses were responsible for 70% of total occupational exposures to HIV in Canada (and 75% of the occupational exposures to HIV due to NSIs) in 2000. Nursing and medical students and medical residents were responsible for 4% of occupational exposures to HIV (and 5% of the occupational exposures due to needlestick injuries). The Canadian Centre for Occupational Health and Safety (2005) reports that the exposure rate to HIV, Hepatitis B and Hepatitis C was 4.88 per 100 fulltime equivalents for Canadian RNs and 2.33 for Canadian nursing students from April 2000 to March 2001.

A study of final-year nursing students at the University of Western Ontario discovered over a quarter sustained a non-sterile injury (i.e. NSI, cut or splash of bodily fluid in the eyes, nose, or mouth) within the past year (McCarthy and Britton, 2000). Although about half of students were "unsure of the bloodborne pathogen carrier status of the source patient", 41% of total injuries were not reported (562). Students are often reluctant to report these injuries, even in cases where the needle may not have been sterile, afraid that it would make them seem inexperienced or incompetent.

Survey Results: Sharps and Needlestick Injuries in Nursing Schools

Both BScN and PN programs spend less time on sharps and NSIs than the other subjects. BScN spend an average of 3.1 hours, ranging from 20 minutes and 6 hours. PN programs spend an average of 4.4 hours, ranging from 25 minutes to 12 hours. In both cases, 8 schools were under the mean and 6 above it. Sixty percent of BScN programs and over three-quarters of PN programs reported that their emphasis was "high" (see Figure 11).

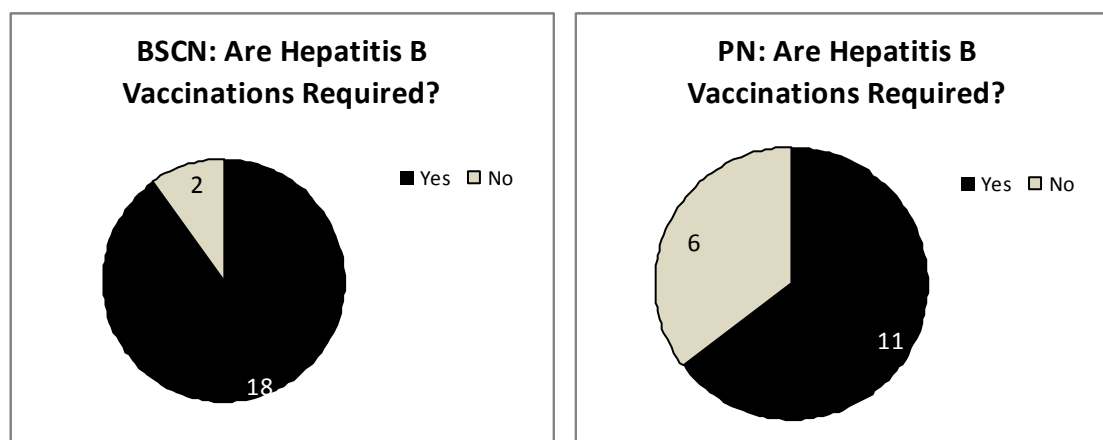
Figure 11



Although their inexperience may leave them more vulnerable to NSIs, student nurses are less likely to report them. As Hepatitis B is spread through contact with bodily fluids like blood, requiring vaccination against the virus makes a good deal of sense. These vaccinations are required by the majority of BScN programs, and almost two thirds of PN programs (Figure 12).

Most schools include information on what to do when handling sharps or if a NSI occurs

Figure 12



Quite a few emphasized the importance of safe and immediate disposal, and a number offer training on safety-engineered and ‘needleless’ needles (as of 2008, needleless needles are the *only* needles used in hospitals)². A BScN program provided instructions on “what not to do”, while a BScN program and 3 PN programs reported that students are taught to never recap needles. Two PN programs provided instructions on “how to dispose of sharps if there is no sharps container in the room”;

² there are also plans to require safety-engineered needles in long-term care facilities, psychiatric facilities and laboratories in 2009, and in home care settings, doctor's offices and ambulances in 2010

another BScN program emphasizes that nurses should “always have a sharps container close”. One of each program mentioned that instructions were given on the “protocol following NSIs”. A BScN program provided information on NSI protocols during WHMIS training.

Violence and Aggression in Nursing

“What shocks you as a new student is when the patient freaks out and you have absolutely no clue what body language to use, how to speak, or how to respond. And then you just stand there and say nothing, you get emotionally involved and you do precisely what you shouldn’t do”

-- German student nurse (Nau, Dassen, Halfens & Needham, 2007, 941).

On a Saturday morning in 2005, nurse Lori Dupont was murdered by anesthesiologist Marc Daniel in the recovery room of a Windsor hospital. Only one other nurse was scheduled; this was the first time the two had worked in such close proximity since Dupont had ended an abusive relationship with him the year before. Daniel was diagnosed with bipolar disorder after attempting to commit suicide in front of her; during a 3-month leave from work he had been trying to extort her for several hundred thousand dollars, leaving angry notes and old photographs of a semi-clothed Dupont getting dressed on her car in the parking lot, and constantly calling her and her mother.

A number of nurses issued formal complaints against Daniel, for verbal and sexual harassment (calling nurses “stupid” in front of patients, inappropriately touching and kissing others, making sexually explicit suggestions). One nurse reported that Daniel’s behavior was “demoralizing”, “frightening” and “like living with abuse”; he had angrily broken the finger of another nurse in the operating room. Before and after their deaths, their hospital maintained that this was more of a personal issue between Dupont and Daniel than a workplace harassment issue (Pedler, 2006; Schmidt, 2006a).

This attitude is not uncommon in health care centres, although violence and harassment against nurses is high. Nurses are more likely to be assaulted at work than prison guards, police officers and workers in banks (Kingma, 2001). They are vulnerable in this area because of the nature of their jobs – in any given day, nurses have numerous unsupervised one-on-one interactions with people that are in pain, suffer from mental illnesses, are extremely frustrated and may view nurses as a source of this frustration; the fact that nursing is a female-dominated profession is also significant (Hesketh et al., 2003).

In 2005, one study found 25.5% of Ontario RNs and 39.4% of Ontario RPNs were physically assaulted in the past 12 months, and from 1996 to 2002, 58% of the claims made by Ontario healthcare workers to the WSIB were "directly related to violence" (Shields and Wilkins,

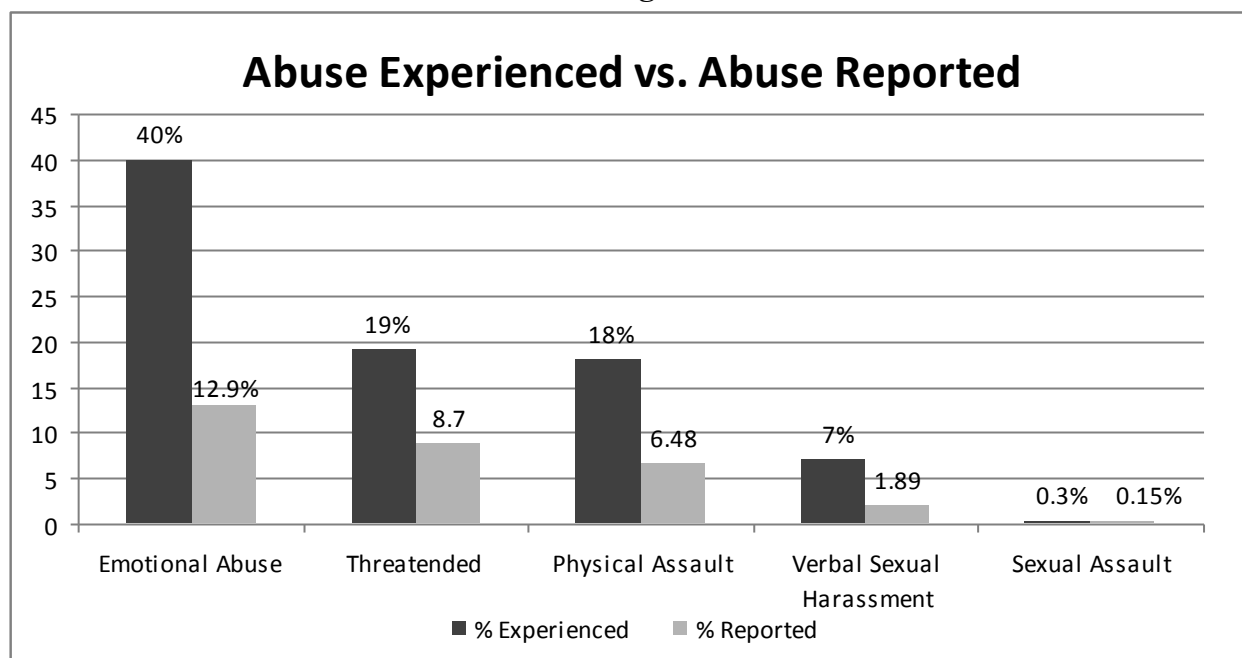
2006). This sector accounts for a third of the total injuries due to violence, and has more lost-time claim injuries related to violence than any other (OSACH, 2007). Bruises and other surface injuries are the most common result, but it's safe to say that the long-term impact from these types of injuries is psychological.

“Horizontal violence” (bullying or harassment between nurses) is ubiquitous in nursing. A US study found 79% of nurses experienced verbal abuse from patients, 75% from other nurses, 74% from doctors, 68% from families of patients, 37% from residents and 24% from interns; nurses were most likely to be ‘repeat offenders’ (Rowe and Sherlock, 2005). In Ontario in 2005, 44% of RNs and 48.3% of RPNs had been emotionally abused by patients in the past year, 9.9% of RNs and 5.0% RPNs had been emotionally abused by physicians, 9.7% of RNs and 13.0% of RPNs had been emotionally abused by coworkers, and about 17% had been emotionally abused by a patient or visitor (Shields & Wilkins, 2006).

A study of hospitals in Alberta and British Columbia asked nurses whether they experienced abuse in their past five shifts: 40% experienced emotional abuse (32.2% of these incidents were formally reported), 19% were threatened (43% were reported), 18% were physically assaulted (36% were reported), 7% were verbally sexually harassed (27% were reported), and 0.3% were sexually assaulted (50% were reported) (Hesketh et al.'s 2003). That is to say, half of sexual assaults are not reported, just over half of the verbal threats are not reported, two-thirds of emotional abuse is not reported, and almost three-quarters of verbal sexual harassment is not reported (Figure 13). While patients were the most common source of *physical* abuse, emotional abuse was more evenly distributed among patients, patient families and coworkers (indeed, about a 25% came from physicians and other nurses).

Underreporting is likely the result of many factors. Not all violence-related injuries are intentional (when the patient has dementia), nurses may be willing to give people in difficult situations the benefit of the doubt (if very severe verbal abuse follows some bad very news), may be

Figure 13



Source: Hesketh, K., Duncan, S.M., Estabrooks, C.A., Reimer, M.A., Giovannetti, P. Hyndman, K. & Acorn, S. (2003). Workplace violence in Alberta and British Columbia hospitals. *Canadian Journal of Nursing Research* 63(3), 311-321.

afraid of repercussions (if coworkers are involved) or just consider it 'part of the job' (especially if one is likely to experience abuse several times a month). Before her death, Lori Dupont refused to file a complaint against Mark Daniel because she felt

in the pecking order at a large medical facility with almost 2,000 employees, Dupont repeatedly told friends, a nurse ranked well below an anesthesiologist, one of a small group of operating room specialists in huge demand (Schmidt, 2006b)

Because of their youth and inexperience, "of all health professions and grades, student nurses are at the greatest risk of being the victim" (Beech, 2001, 204). In Ferns and Mearabeau's (2007) UK study of nursing students found half had been verbally abused, a third had witnessed other students being verbally abused, and two-thirds were aware of incidents where students were verbally abused. The problem is that a nurse that does not know how to deescalate the situation may end up inadvertently escalating it. One may think of abuse as a triangle, with verbal abuse forming the base. Most incidents go no further, but some escalate to physical threats, and some of these incidents escalate to physical attacks.

Violence and Aggression Training in Nursing School

Survey questions related to violence had the lowest response rates. While some non-respondents opted out because violence-related training was the responsibility of the health care centre or the other half of the collaborative program, others may have opted out because little time is spent on this issue. BScN programs reported an average 6 hours on all training related to violence, ranging from 0.5 hours to 15 hours (the average is quite positively skewed, as 8 of 12 responses were below the mean). Practical nursing programs spend slightly more time on issues related to violence, with 7.8 hours, ranging from 3 to 17.5 (5 of 10 estimates were above the mean). PN programs are more likely to spend *any* time on violence the individual nurse may encounter: all but one PN program provides instruction on this topic, while over 20% of BScN programs do not (Figure 14).

For PN programs, the *focus* of violence-related training was equal in most cases (Figure 15). The picture painted by BScN programs is quite different: two-thirds reported equal training, almost 25% said violence-related training focused mostly on others; 1 said training was *primarily* on others.

Respondents were also asked about how much emphasis was placed on violence “in general”,

Figure 14

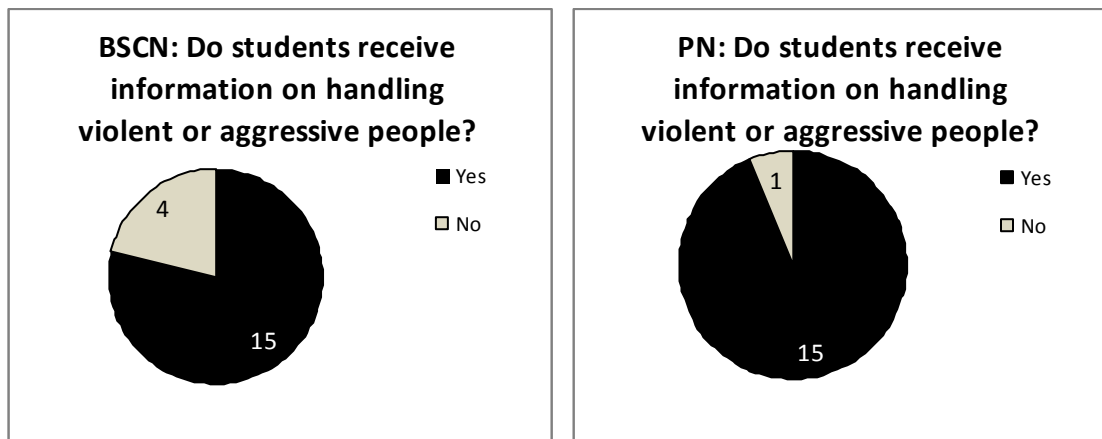
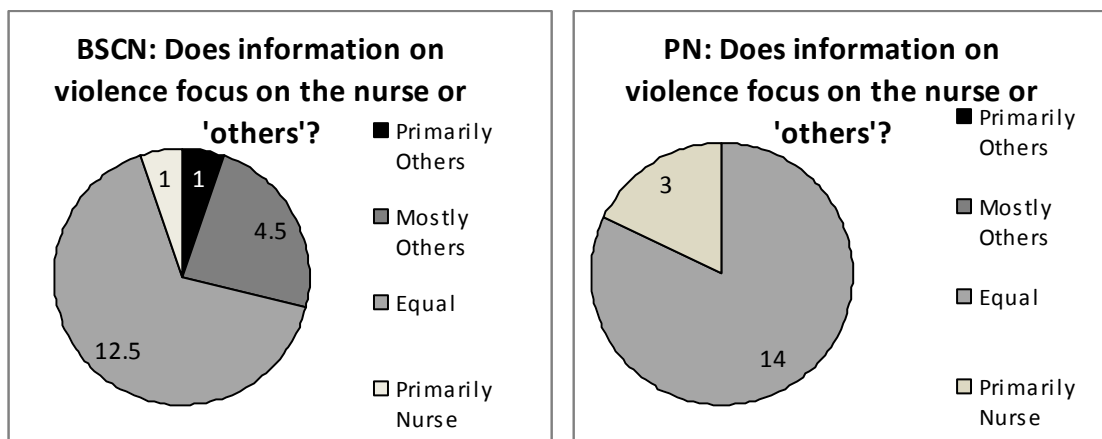


Figure 15



and how much emphasis was placed on injury prevention for nurses dealing with violence in the workplace (Figures 16 and 17). A greater proportion of BScN programs (56%) answered “High” or “Moderate” for violence and aggression in *general* than for violence and aggression against *nurses*. Three BScN programs reported “Little” emphasis on violence the individual nurse may encounter. For questions regarding the emphasis of safe lifting, infection control, sharps or NSIs, and violence in general, no more than one respondent said there was “Little” attention paid to the subject. PN programs reported slightly more emphasis. Ten described their emphasis as “High” or “Moderate” for violence in general and 11 reported their emphasis was “High” or “Moderate” for violence nurses may encounter. Six respondents said there was “Some” or “Little” emphasis for violence in general, compared to 5 for violence the nurse may encounter. This was also the only time PN programs reported “Little” emphasis on *any* training.

Figure 16

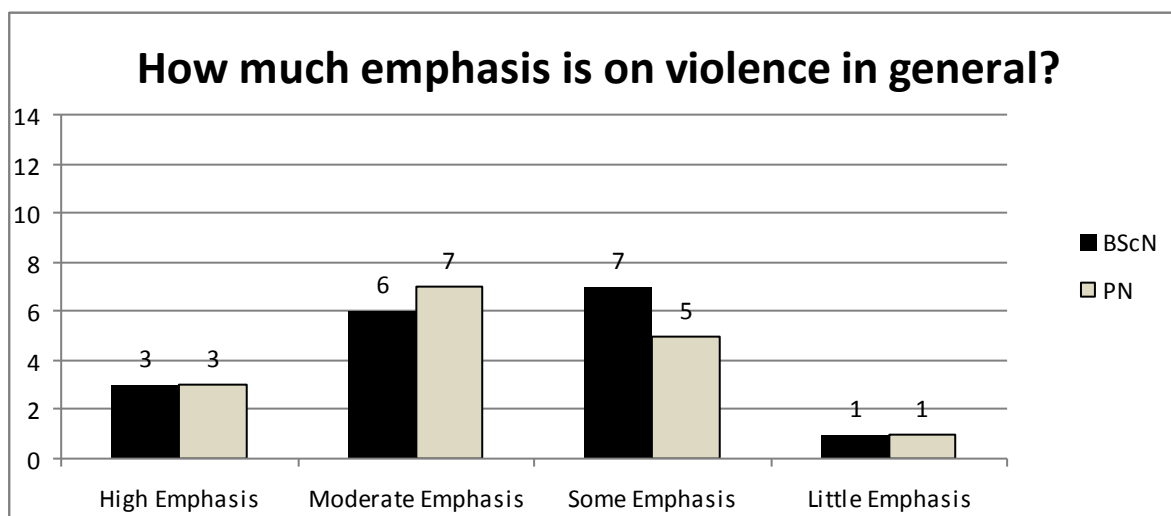
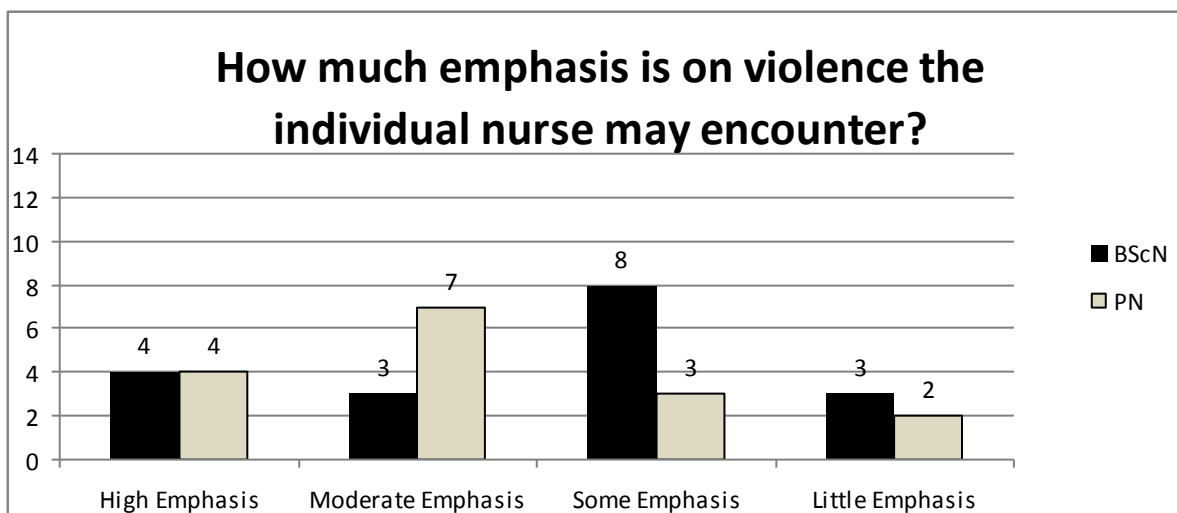


Figure 17



Nevertheless, a number of issues related to violence and aggression have been incorporated into the nursing program in recent years. For example, most student nurses receive training on the theoretical causes of violence (in sociology and psychology), domestic violence, child and elder abuse. Every respondent indicated that students receive information on patients who have been abused; this certainly would not be the case even ten years ago.

Fewer schools reported that *students* receive training on handling violent and aggressive people; responses tended to fall on either the high or low end of the spectrum. Some schools reported that there was very little formal training related to violence that the individual nurse may encounter. Violence-related training also tends to occur in upper year courses, long after the first clinical placement. Most schools that cover violence the individual nurse may encounter do so within existing courses on effective communication (how to ‘read people’ and respond appropriately), mental health nursing, and preparation for home visits. A minority offer stand-alone classes devoted to deescalating situations that may become violent. The extent of training can vary within a single school depending on which centre students work in and which classes they take (for example, a PN school said that training on handling violent and aggressive people occurred “briefly, depending on clinical placement”). The Crisis Prevention Institute’s ‘Non-violent Crisis Intervention’ program (which includes theoretical and practical scenarios, risk assessment, de-escalation strategies, verbal intervention techniques and personal safety techniques) is most common model used. A PN program reported that in 2008, this training went from ‘required’ to ‘voluntary’, as a result of time constraints and a lack of instructor availability.

Some schools include role playing and demonstrations in their training; two used case studies

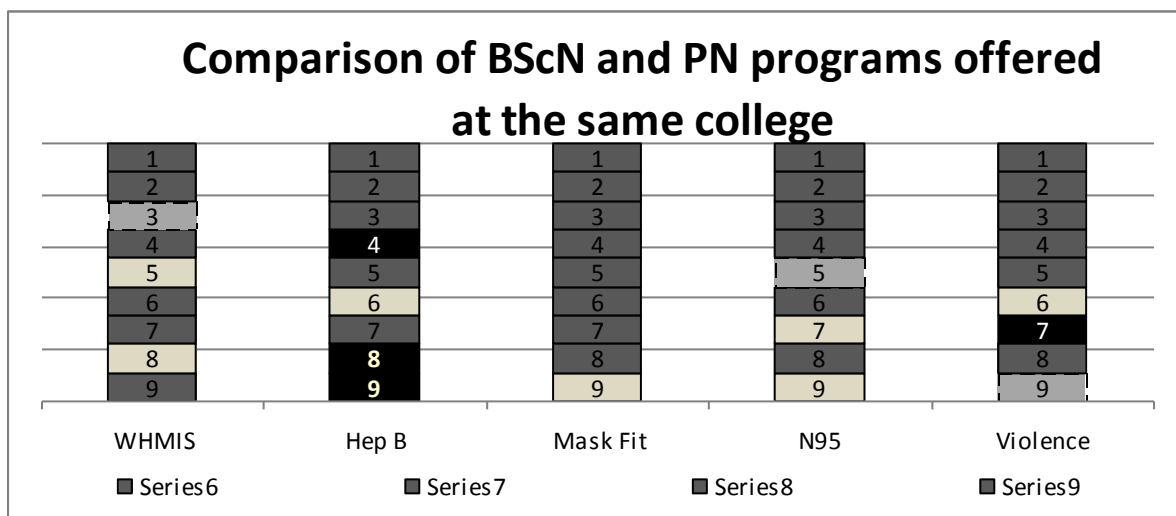
(one related to Lori Dupont). Another program mentioned that violence was a ‘professionally sensitive’ topic following the Dupont murder, and said its students had participated at night vigils. Another school has had the police hold a 3 hour session on safety protection, but this is not offered every year because of scheduling issues. Horizontal violence was only mentioned once, by a BScN program that is planning to include some information about this in their curriculum next year.

Variations: different programs at the same college and both ends of collaborative BScN programs

In 9 cases, a single college returned surveys for both BScN and PN programs. In 6 cases, both the college and university involved in a single collaborative BScN program returned surveys. There were 4 university-college pairs, and 2 cases where a single university offered a collaborative program with 2 different colleges (2 ‘university-college-college’ pairs). This group served as a case study in the amount of variation between programs.

In Figure 18, a dark grey cells indicates both programs required or offered the training in question, black cells indicate that only the BScN required or offered the training, white cells indicate only the PN program required or offered the training. Grey cells with dotted lines indicate one respondent did not answer the question, making a comparison impossible.

Figure 18



Just 2 pairs gave identical responses. In 2 cases, PN students would receive WHMIS training while BScN students attending school at the same college would not. In 3 cases, Hepatitis B vaccinations would be mandatory for BScN students but not PN students, and the reverse was true in one instance. One PN program offered mask-fit testing while the BScN did not. Two PN programs provided instruction on N95 respirators while the BScN program did not. Finally, one

BScN program and one PN program offered violence-related training while the other program at the respective school did not. Figure 19 does the same comparison for the university and college involved in a single collaborative BScN program. Only the university required WHMIS, Hepatitis B vaccinations and mask-fit tests in 3 separate instances; all schools provided training on N95 respirators. In 4 (evenly-split) cases, only 1 program offered training related to violence.

The hours spent on OH&S training at the same College also varied by program. For safe lifting and infection control, BScN programs tended to cluster around the higher end of the spectrum, while the reverse was true for violence-related training. Figure 20 compares the emphasis on safe lifting, Figure 21 examines infection control training and Figure 22 looks at sharps and NSI.

In all cases, 5 pairs gave identical responses. In 3 of the 4 cases where responses were different, the PN program had greater emphasis. When the issue turns to violence in Figure 23, fewer respondents gave estimates and fewer comparisons are possible. This time, only two pairs gave the same response, indicating less coordination.

Figure 19

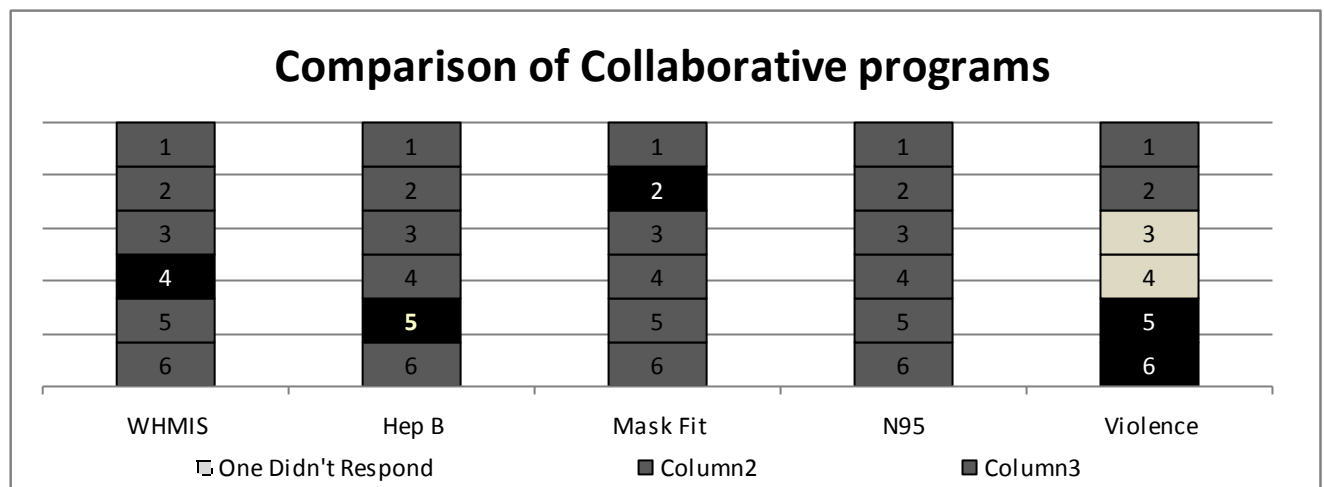


Figure 20

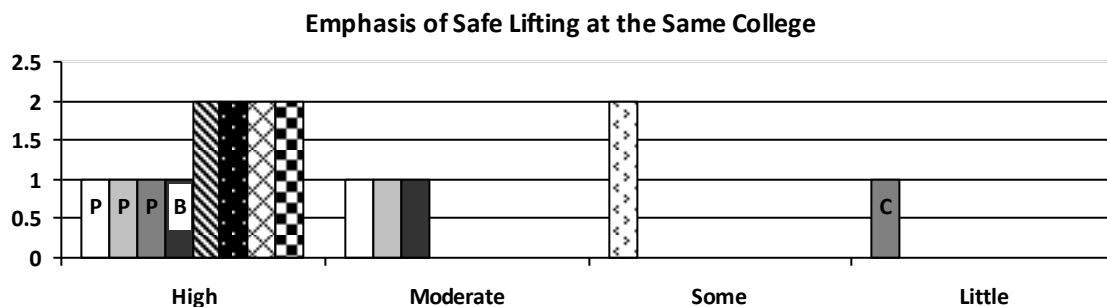


Figure 21

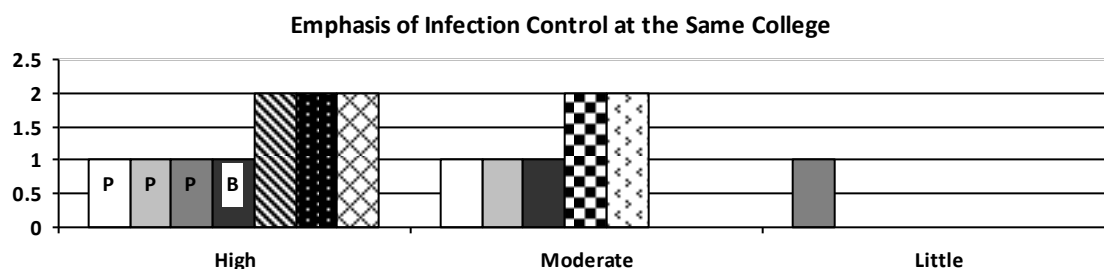


Figure 22

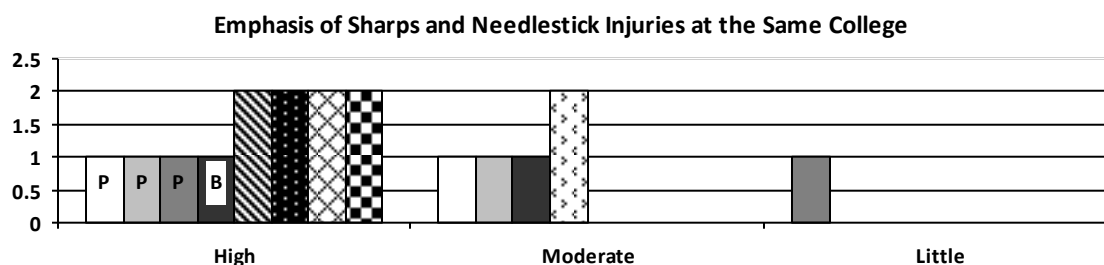
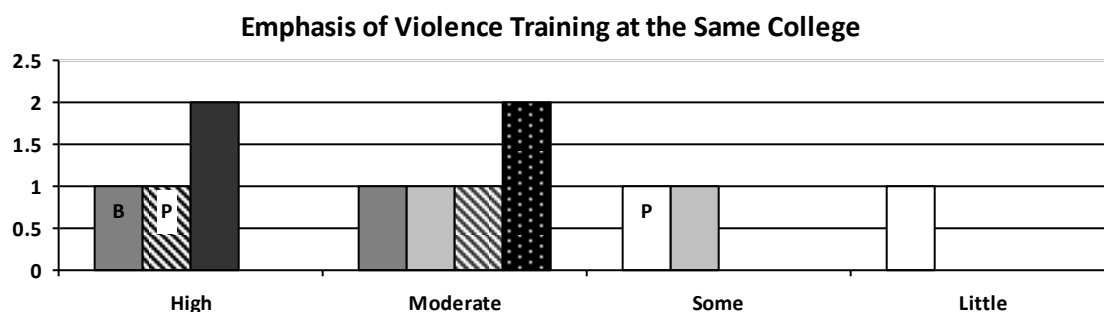


Figure 23



Turning now to universities and colleges involved in a single collaborative, colleges tended to spend more time on every subject except violence. The responses to emphasis on safe lifting and infection control were identical (Figure 24). For the university-college-college pairs, the unaffiliated colleges gave the same response which was different than the university they were affiliated with. Figure 25 looks at safe sharp handling: the college described higher or equal emphasis in every case. Just 4 pairs responded to the question about violence-related training (Figure 26).

These figures reveal that there is not necessarily a great deal of 'collaboration' as far as OH&S is concerned. BScN and PN programs at the same school are both administered as part of the Faculty of Health Sciences and have many of the same requirements. One would assume the two faculties communicate and compare to a much greater extent than related faculties in other

Figure 24

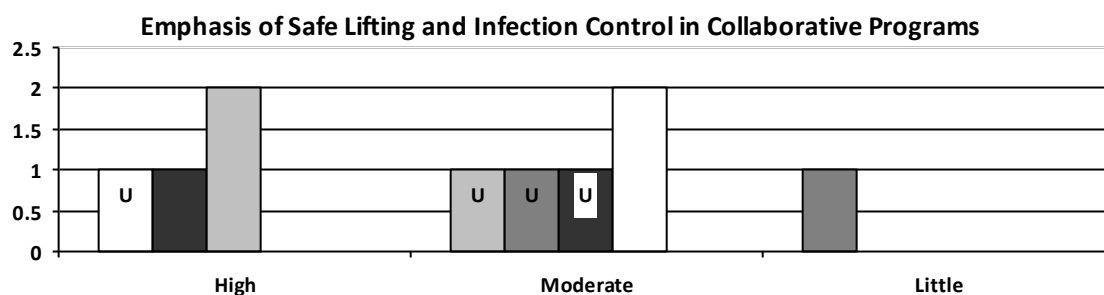


Figure 25

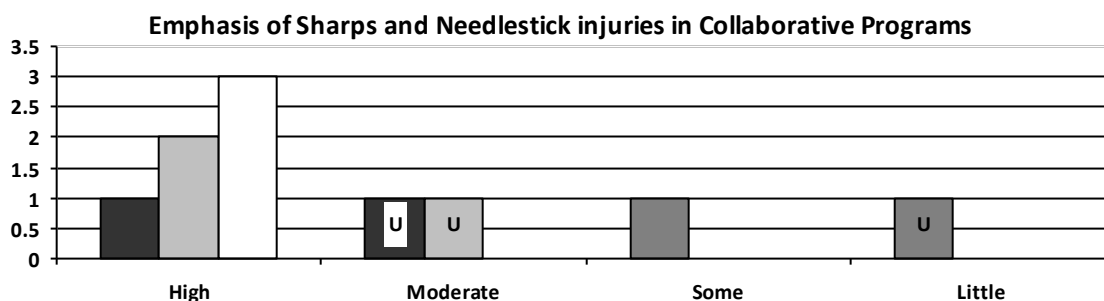
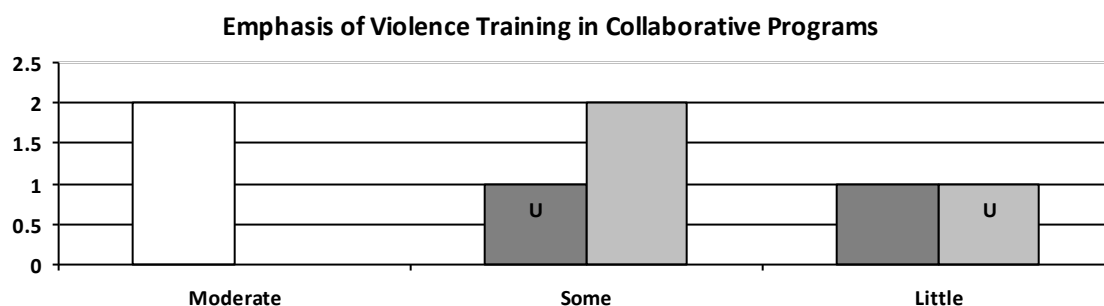


Figure 26



departments, especially because they both must arrange co-op placements. In addition, both ends of BScN collaborative programs presumably work together to ensure that students ultimately receive a holistic picture without too much overlap. One would also expect longer university programs to provide more training in *every* case. Typically, BScN students in collaborative programs take most of their classes at the college for the first two years, spending more time at the university in later years. It seems that OH&S requirements are not carefully coordinated.

Attitudes of Nursing Schools Towards OH&S Training

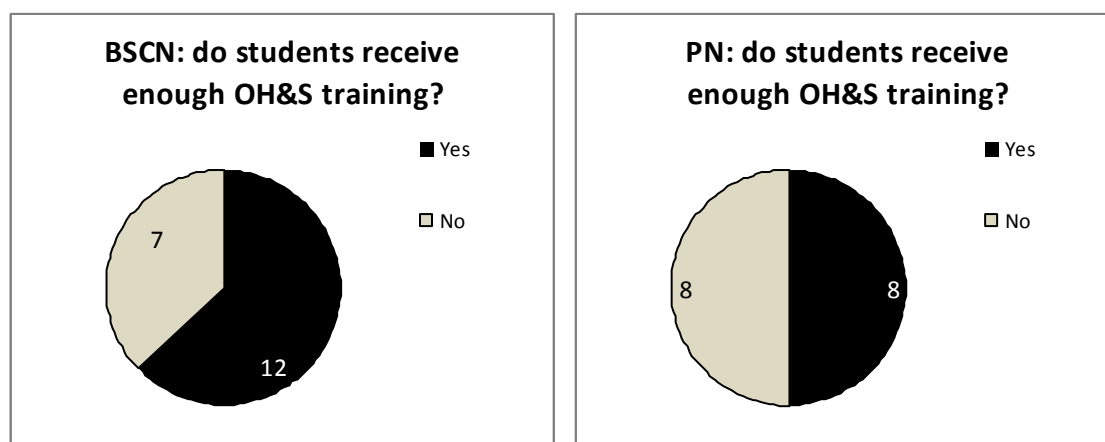
Respondents were asked if they thought student nurses receive enough OH&S training in general (Figure 27). PN programs were split right down the middle. Almost two-thirds of BScN

programs said that students receive enough training, although they spend less time providing it.

Attitudes roughly fell into three categories: those that felt enough training was offered given the busy context, those that felt training was mostly adequate but that more should be offered, and those that felt current training is inadequate.

A number were satisfied with training (it “needs to be threaded through the way it is, with ‘just in time’ learning – it is taught when they need it”). Others reported that good relationships and good communication between hospitals and schools benefited students. Some schools did not see complacency regarding OH&S as appropriate. One traced the feeling that schools were doing well to “lack of validity of need”, because “instructors teaching core courses don’t see the need as they are too removed from the field” (an example of this would be the respondent who said OH&S “does not fit in other courses!”). A respondent reported that “basic principles are addressed, but more complexity and in-depth preparation is needed to meet new stresses and strains in safety”, while another said schools only provide “training as introductory material”.

Figure 27



Most schools do incorporate OH&S and safety into their lessons, and no one is deliberately cavalier about it. Indeed, comments like “we have so much to cover that it is difficult to get it all in. Most instructors are *very* conscious of safety and talk about it appropriately when they can” are also quite representative. On the other hand, some respondents said the feeling that it wasn’t practical to include more training is ungrounded: “I don’t know why there should be barriers, as there are many experts in this area who can be brought in...”.

There is a difference between covering OH&S on the surface and covering it systemically. Ideally, OH&S should be integrated into all aspects of training. OH&S needs to be closer to the top of the list of priorities. This is often referred to as ‘a culture of safety’ or ‘safety from a systemic

perspective'. For example, one school changed clinical shifts because they were concerned about student nurses walking through the parking garage alone at night. Another school that reported:

We do health and safety assessment at all of the college campuses; we discuss home safety and do a health assessment of the client environment; we include safety issues on nursing care plans... we look at a full range of potential injuries, such as chemical, shock, choking, etc. and discuss prevention and intervention.

In contrast, most schools do not include OH&S issues on nursing plans – instead, the patient's illnesses are listed and it's up to the student nurse to research it, including the safety precautions they should take. Textbooks typically do not include detailed information on OH&S.

One way programs are getting around the large amount of content they need to cover is by shifting their focus: rather than concentrating on content, they concentrate on teaching students to be critical thinkers. A program reported that “clinical hours are not a priority in more arts-based program”, and that this leads to “a feeling that prophylaxis will avoid the need for safety training. For example, students are taught appropriate communication techniques, therefore things will not escalate, therefore there will not be violence”. The issue is that there *will* be violence, and students must know how to handle it.

A school that used to offer OH&S training for students in the PN, BScN and Personal Support Worker programs noted that attendance was extremely low for nurses. They suggested this was because PSWs see themselves as vulnerable, and student nurses do not: “when the Year 1 focus is on health promotion for individuals, students may not value this material”. In other words, the ideal of caring for others using a scientific knowledge base resonates, and personal OH&S does not factor into this ideal.

Nursing education is a collaborative effort between schools and health care centres. The most common comment about health care centres was that more OH&S training is needed to prepare students for their rotations. A number reported that, ideally, OH&S information would be reviewed “at least yearly in the context of the placement” (some programs have already adopted this best practice). Others would like to see more training in preparation for home visits. Quite a few schools mentioned that different policies in different centres made training more difficult; a few alluded to ‘role confusion’ regarding who was accountable and responsible for OH&S issues.

Opinions were mixed on whether current split of training is ideal. While some feel the current division works well, others would like to see hospitals more involved. For example, one BScN respondent indicated that safe lifting was “presently” their primary responsibility, but that it “should be” equal. They said questions about who was responsible for training were difficult to

answer because “some do more than others”. Other respondents were happy to report that “community partners are now assuming a more active role in this teaching”. These varied responses are the result of different policies in different hospitals. There were also a few comments about nurses in hospitals not always serving as good role models and faculty being disinterested in OH&S issues (OH&S issues were “most relevant at practice level – but most clinical teachers are part-time and somewhat removed from the content taught in theory”). One school suggested that training on personal alert devices and hospital emergency codes should be incorporated into ‘preparation for clinical’ classes. Some schools also allow nursing students to take Business or Law electives in OH&S (although nursing students do not receive many electives and often take courses that are of personal interest). A more collaborative approach here could include shared course materials, shared guest speakers and more mandatory training.

Findings and Recommendations

It seems that schools are doing a good job of communicating the ideal of ‘*caring with a scientific knowledge base*’. Much of the dissonance nurses experience as students and difficulty they experience as practitioners results from this ideal not being met:

in the multitude of reports about the state of nursing and nurses, the interwoven themes of overwork and the frustration of trying to get the job done the way it should be done occur again and again” (Advisory Committee on Health and Human Resources, 2002, 14).

Work needs to be done, often urgently, and so the temptation to take shortcuts can be overwhelming.

It can clearly be hard for students to challenge long-established practices (or long-serving nurses³) – but they will speak up when they feel their own ability to meet this standard is threatened. Not enough is being done to equip nurses with tools that would allow them to speak up in other situations. Part of the problem is the ease with which young blood falls into old, bad habits. If the importance of personal health and safety was clearly incorporated into the ideal learned in nursing school – as a *skill* they need to maintain in order to do their jobs correctly (as well as to protect themselves) – student nurses may find it easier to insist that safe protocols are followed and resist the various kinds of peer pressure they encounter first as students and then as nurses. This section outlines self-identified barriers to more extensive OH&S training, before the discussion turns to

³ One new UK nurse observed: “if you questioned them you'd be picked on for other things - trivial things, and it would be quite obvious it was because you'd questioned them (Philpin, 1999, 1329).

recommendations and suggestions for incorporating more content given the constraints.

Barriers to more extensive training

Although BScN programs are twice as long as PN programs, both identified 'lack of time' as the most common barrier (Figure 28 and 29). Other top issues related to faculty expertise ("some remain up-to-date with clinical teaching and practice, and others do not"), teaching material(or current material), poor role models, a variety of clinical policies, a perception that there *are* barriers,

Figure 28

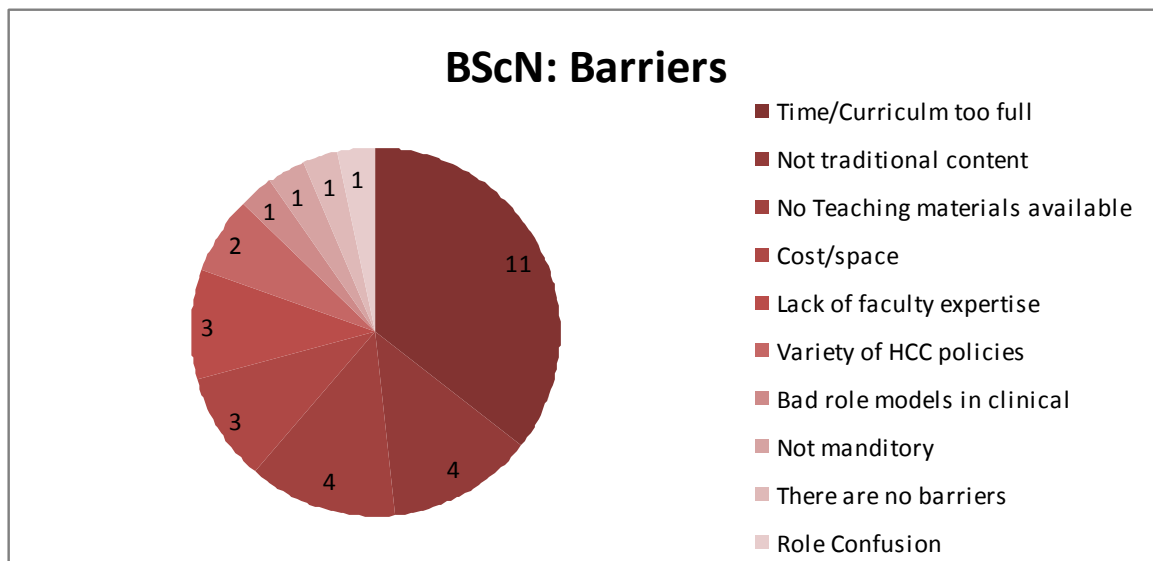
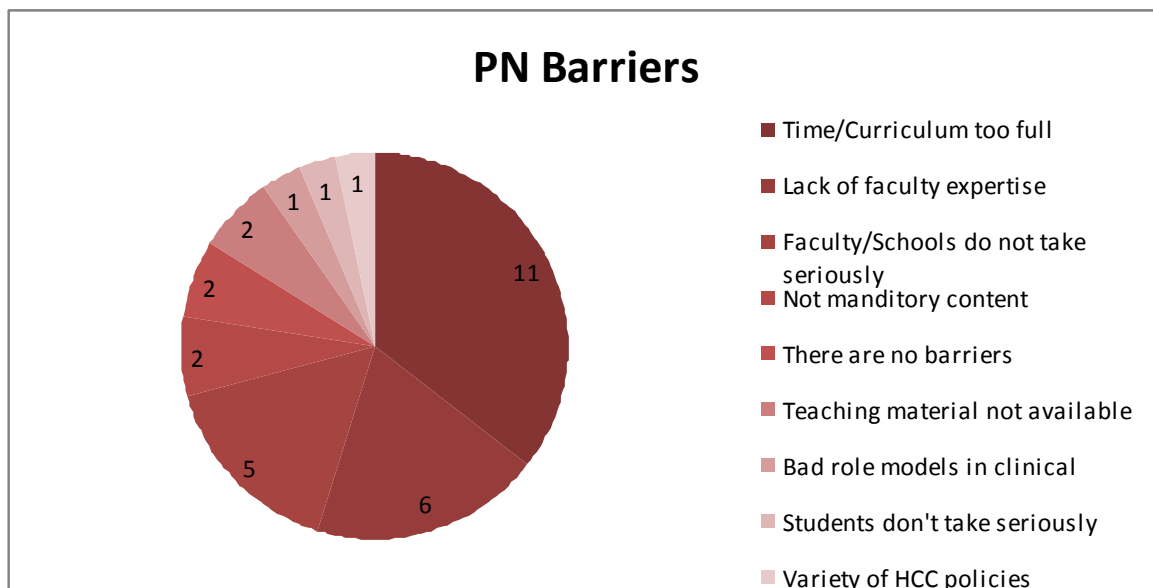


Figure 29



and the fact that OH&S isn't mandatory. OH&S is not 'traditional content' in nursing school, and BScN identified this issue as significant, along with issues relating to cost and finding space. Some PN programs reported that faculty or the school do not always see OH&S as a priority. For example, one school spoke to a "disconnect between the college's safety department and our department".

Opportunities for more extensive training

In a curriculum that is already very full, it can be difficult to incorporate content in a way that resonates strongly. OH&S is not traditional material, and although it can (and should) be incorporated into *any* class, including OH&S in marking schemes is a challenge: will students take a WHMIS test seriously if it's worth 2% of their final mark? Nevertheless, one does not need to spend unjustifiable amounts of time or money to get the message across. The WSIB's recent advertising campaign serves as a case-in-point. Immediately before or after a serious and graphic workplace injury, an actor rationally explains how both employer and employee actions contributed to what happened; commercials end with the tagline "there are no accidents". These ads are informative, but they're so successful because the people and situations are easy to relate to.

Training for instructors: Minerva, OSACH, CPI, and CCOHS

A number of respondents alluded to the lack of faculty expertise regarding OH&S. Ongoing training for nursing faculty keep would instructors up to date with best practices and current challenges. It often creates 'champions' of the subject.

Minerva Canada's Summer Training Institute provides an example. Minerva is a non-profit organization that encourages Management and Engineering programs to incorporate more OH&S training through advocacy, developing case studies, providing teaching materials, as well as a 3-day training session. Mining is an especially dangerous profession – workers are underground (among dust and dangerous gases and where it is hot and ventilation is poor), work with explosives and without much supervision. Indeed, when we think about poor labour conditions during the Industrial Revolution, we typically picture people working in mines. Nevertheless, mining has one of the lowest injury rates in Canada. This is the result of an increased focus on OH&S in education and a solid group effort from industry, government and non-profit agencies to create a systemic culture of safety in mining. In light of high occupational injury rates in nursing, it makes sense to expand Minerva's focus to health care, either by inviting nursing faculty to the Summer Training Institute or by creating a specific session just for healthcare. More Information about can be found

online at <http://www.safetymanagementeducation.com/>.

OSACH also offers workshops throughout the Province, in the form of half-day working sessions (offered in Barrie, Grimsby, Halton/Peel, Hamilton, Kingston, London, North Bay, Ottawa, Peterborough, Sault Ste. Marie, Sudbury, Thunder Bay and Toronto). Each session costs \$75-\$125. In spring of 2008, workshops were offered on violence prevention, client aggression, client handling, back injuries, slips and falls and infections. More information can be found at <http://www.osach.ca/train/OSACHRegionalWorkshops.pdf>.

A number of schools are already using information from the Crisis Prevention Institute, which provide instruction on assessing the potential for violence, de-escalation strategies, verbal intervention and personal safety techniques. Professors can become certified instructors by attending a training course for about \$1,300 Canadian. More information can be found at <http://www.crisisprevention.com/>.

CCOHS periodically offers online "Webinars" on a number of topics, including ergonomic interventions, mental health in the workplace, and pandemic planning. More information is available at <http://www.ccohs.ca/products/webinars/>.

Mandatory requirements

Every nursing student in Ontario should know what N95 respirators are and why they're important, undergo at least one mask-fit test, be vaccinated against Hepatitis B and receive WHMIS training (only the last item on this list takes up curriculum time, and WHMIS can be offered online). These are relatively easy ways to protect student safety, in both the short and long run. Students may refuse Hepatitis B vaccinations for personal or medical reasons, but it seems more logical to treat these situations as the exception rather than the rule.

One should not assume that students will know when and how to use masks once they know how they work. A doctor, reflecting on personal control measures during the SARS crisis stated

We realized how difficult it was to maintain those precautions, so once you came out of the room, and you disrobed, what happened then? Should you take your mask off? What happens with contact with your hands? I mean doorknobs, hand railings, how about charts, paper, pens, I mean everything and anything... eventually we simply donned another gown, started keeping the mask on, we didn't wear gloves ... but that was a huge question. We were more certain what to do at bedside ... But the big questions, even to this day continues to be is what should the team members do when they leave the room? (Campbell, 2006b, 908).

Some nurses reported being asked to reuse masks after coming in contact with a SARS patient: "that made me so angry. The first 2 days we were asked to put masks in [a] baggy and bring them in a bag next day. I did not do this – I didn't want to carry that thing home to my family".

Others were discouraged from taking reasonable protection control measures: “they complained about the cost of the masks... He told us to wear them till they were wet with perspiration”, “I was told by an infection control nurse that I was using too much hand gel and gloves and that I was costing them too much money” (Campbell, 2006c, 994). In other words, they were encouraged to adopt risky practices. These masks are uncomfortable and cumbersome; early in one’s career is therefore the ideal time to learn about them; if nurses are ever in a situation where both speculation and the genuine need for personal infection control are high, they will want to know what these devices are and what they do ahead of time.

OH&S Reviews

Workers in new jobs are at increased risk of occupational injury, and orientations to hospitals are not always thorough. OH&S information is usually included in a student’s first placement, receiving less attention in later years. In later rotations, students will have witnessed a number of unsafe practices; many will have been overtly or subtly encouraged to adopt them. They also perform tasks that are far more complex. Students that spend the summer in part-time jobs or traveling may also need a refresher. Schools and hospitals should work together to provide in-depth reviews before students begin *any* new placement and before any class with a lab component.

OH&S issues included on Nursing Care Plans

Typically, OH&S issues are only included on care plans if the patient has an extremely contagious disease. Textbooks rarely include a lot of specific OH&S information and student nurses are focused on performing tasks correctly, personal safety may not receive much attention. Including OH&S information on all nursing care plans is one way around this problem, as well as a step towards developing a ‘culture of safety’.

Changes to the Curriculum: a specific course or more substantive threads

The two obvious ways of incorporating more content into the curriculum are to keep threading it in *and* to create a specific course about OH&S, or to thread in more and more substantive information (for example, increasing the information that is offered *and* devoting one lecture per course to OH&S). A specific course would easily allow for more detailed information. Material is less likely to be jettisoned if things are behind schedule. On the other hand, nursing curriculums are full as it is, and even finding time for a 3 or 4 week seminar can be difficult. If faculty currently do not feel that they know enough about OH&S information to include more of it, will there be anyone qualified to teach a course? Finally, if an entire course is devoted to OH&S, other professors feel it’s less important to present the issues in their classes.

‘Threading more in’ may include devoting one class or half class per course to OH&S issues. This approach has a number of problems and benefits as well. Once again, time pressures remain, and professors might be inclined to include just slightly more than is offered now, and students may not learn OH&S from a ‘system’s perspective’. But this approach is less drastic than developing a new course: it builds on what is already there.

Either way, OH&S training should be mandatory and detailed whenever there is a safety aspect to a skill or lesson. Students are more likely to receive adequate OH&S training if time is specifically designated to the topic. The following suggestions are designed to include more OH&S training into the curriculum, regardless of the approach schools take.

A seminar on Non-violent Crisis Intervention

As training related to violence tends to be on the high or low end of the spectrum, it’s not surprising that violence was identified as an issue where more training is needed by a number of respondents. Quite a few also indicated that they would like to see more OH&S in school labs and nursing theory classes. In addition, it can be hard to communicate strategies for deescalating violent and aggressive situations in a lecture. Some schools already provide training to students, either by devoting an entire course or several classes to Non-Violent Crisis Intervention techniques. All schools should provide some training on how to handle violent and aggressive people; this particular program focuses on how to "take control of an out-of-control situation", keep calm and "promote safety and dignity" of everyone involved.

Injury statistics and injury prevention

Student nurses are typically young, healthy and physically fit. That nurses face a number of serious and preventable short-term and long-term hazards needs to be constantly and clearly communicated. Including statistics about injury rates for nurses can achieve this, provided that it is done in a way that is relevant. One school, which uses a lesson about ‘health across the lifespan’ thought that a variant lesson on ‘health across the *nurses’s* lifespan’ would be a good way to communicate the risk and ways to avoid it. For example, this lecture would include information about the specific hazards nurses face (such as MSI injuries and burnout) as well as ways of minimizing these issues.

OH&S observations in clinical: a policy/practice gap assignment

Day and Smith (2007) suggest an exercise where students examine the hospital or school’s *policy* surrounding a task (i.e. sharps disposal), and then observe how this task is practiced. Observations are then presented in class: where there is a conflict between policy and practice (i.e.

needles are manually recapped), students discuss whether the observed practice is safe or unsafe, any risks involved (short-term: the nurse gets stuck, wasting a single needle; long-term: the nurse always adopts a shortcut and places themselves at increased risk of sterile and non-sterile injury; the nurse models poor behavior), the reasons *why* the nurse acted as they did (saving time, multi-tasking; no sharps container nearby, the nurse was unaware of safer re-capping techniques) and what the nurse could have done instead (do not uncap needles until they are needed, recap using safer techniques; make sure a sharps container is near).

Sharing this information with teaching hospitals can improve the safety of the environment. Along with teaching students about OH&S, it makes them cognizant that hospital OH&S policies vary. Awareness is the best way to fight the good theory/bad practice gap. This project can be done individually (a short essay), or in groups (i.e. a small group of student nurses placed in different health care centres compare their policies and observations, then present these findings to the class).

Case Studies

A small number of programs use current, high-profile events related to OH&S (such as the SARS crisis) to put a human face on OH&S issues and consequences. When nurses themselves are used as the specific example, it drives the message home in a particularly relevant way. As an added benefit, instructors without specific expertise in OH&S can easily guide the discussion.

For example, SARS highlights the importance of personal infection control, mask-fit testing as well as N95 respirators, the real dangers health care workers face on the job and the fact that OH&S can be undermined by both structural and socialization pressures. The Campbell report's survey of SARS nurses would be especially useful for classroom discussion: it's comprised of both statistical data and quotes from nurses working in SARS hospitals. Asking students to identify some of the best and worst practices, grey areas, and surprises would certainly promote a lively discussion. Although the report is 51 pages, it is comprised mainly of qualitative statements and can be easily edited. It is available online at: <http://www.sarscommission.ca/report/v3-pdf/Vol3Chp6.pdf>.

Lori Dupont is another real-life story that can be used when discussing the prevalence of workplace violence, taking workplace harassment and mental health issue seriously why it is important to formally report both and, once again, that areas that might seem grey at the time are often quite black and white in retrospect. Seven short articles about Lori Dupont and Mark Daniel by the Windsor Star's Doug Schmidt are available on the newspaper's website, at <http://www.canada.com/windsorstar/features/dupont/index.html> and in Appendix G.

Worksmart Campus

The online *WorkSmart Campus* initiative was piloted by the Ministry of Labour, WSIB, Minerva Canada and the Ministry of Training, Colleges, and Universities in early 2007. Thirteen of the 14 test sites are in Ontario; 12 have nursing schools. Students receive information and then take quizzes on ergonomics, WHMIS, workplace hazards, managerial responsibilities, and health and safety laws; the importance and of OH&S and the preventability of most accidents are constantly reinforced. When all the modules are complete, students receive a certificate with their name and quiz grades saying they have completed the program. Those that are unhappy with their marks can sign up again with a slightly different name (i.e. with or without a middle initial), but they have to go through the entire module again. The plan is to make *Worksmart Campus* available to every school.

Worksmart Campus is one way to include more OH&S training into the curriculum without increasing the number of lecture hours. Students complete the test on their own time, on any computer that has access to the internet. Schools make a *Worksmart Campus Certificate* with a grade of 70% or above a mandatory requirement before students can begin their co-op placement.

Once *Worksmart Campus* is complete, the Ministry of Labour is exploring the possibility of creating similar programs with specific focuses, for example, a variant for student health care workers. Given that the legislative framework is different for workers in these essential services (i.e. while a banker could refuse to pick up a used needle on the floor, this is part of the job of a nurse's job), rates of injury are High, and the importance of OH&S is constantly undermined in health care centres, it makes sense to expand the focus to health care. A number of schools reported that different policies in different hospitals made it difficult to provide instruction on OH&S – a health care-centred *Worksmart Campus* would inform students of their basic legal rights and responsibilities, making different policies and collective agreements less of a problem. More information is available at <http://www.worksmartcampus.com/chaccess/worksmart/About.asp>.

OH&S information in textbooks

By far, the most commonly used nursing textbook is *Fundamentals of Canadian Nursing*. It's designed to be something that nurses would use throughout their entire career, not just their entire academic career. As such, it is very long – 1,649 pages of text, excluding appendixes. It is clearly written with the goal of being inclusive as possible: there is, for example, an entire section about dealing with people of different cultures and with different beliefs. There is also an entire chapter dedicated to *Client Safety*. WHMIS is covered in this chapter. A search for 'safety' in the index directs readers to the topic of client safety.

While the textbook contains ‘safety alerts’ that “indicate techniques you can use to ensure client and nurse safety”, the only time safety concerning the nurse seems to be addressed in any detail involves NSIs. A paragraph and diagram explain a ‘one-handed needle recapping technique’ (place the cap on a table, slide the needle into it, then fasten the cap in place by pressing its tip against the table), there are several recommendations for avoiding NSIs (including reporting all injuries), needleless devices, the rate and cause of injury, and the importance of sharps containers. Just as there is a need to include more OH&S information in the classroom, there is a clear need to include more OH&S information in textbooks. Once again, there are a number of relatively easy ways to do this: creating a chapter on “nurse safety”, incorporating more safety-related material into the text, and increasing the number of “Safety Alerts” ensuring that they focus on the nurse.

All universities and colleges are using more online content, as a way of covering more material “in shrinking hours”. A number of schools are already using online tests and modules to explain OH&S to students. Students can take quizzes and read presentations and reports online, on websites like WebCt and Blackbird. This provides a baseline of knowledge (and, where assessments are involved, some incentive to learn it thoroughly) even if the material is not covered in the classroom or textbook, or if the hospital orientation is brief. Some teaching hospitals have developed similar online training for their own staff, and make this available to students.

Standardized OH&S materials from the College of Nurses of Ontario

At present, lack of OH&S materials and lack of faculty expertise were identified as two of the most significant barriers to more extensive OH&S training. As mentioned above, the primary undergraduate textbook does not cover OH&S information in any detail and, of course, professors may not have the time or expertise to develop detailed materials on their own.

The Ontario College of Nurses is responsible for regulating BScN and PN programs in this Province. They are best equipped to provide standardized, *detailed* OH&S teaching material, in combination with OH&S associations such as OSACH and nursing unions. The easier it is to develop lesson plans and assignments, the more likely busy professors are to include OH&S.

Training for all Health Care Workers

Part of the reason OH&S is currently not given sufficient attention in the health care sector is that this material was not included in health care curriculums until quite recently. Most people who work in health care or teach in the health care-related fields did not receive OH&S training. The importance of this material is often undermined in practice.

OH&S training should be mandatory in all health care curriculums. In particular, it should receive much more focus in graduate nursing programs. Nursing faculty typically have a Master's degree or Doctorate, and it's more common for nursing management to have an advanced degree as well. Although they are experts in the subject of health care, nursing faculty often do not feel comfortable teaching OH&S, and nursing managers often work in environments where OH&S takes a back seat. It's therefore vital that those who work in management or teaching positions are given enough OH&S training that they both appreciate its importance and feel comfortable teaching it. This was one of the recommendations of the SARS report:

That the Ministry of Training, Colleges and Universities, in collaboration with the Ministry of Health, the Ministry of Labour and Ontario institutions that train health care professionals, establish baseline standards on occupational health and safety and infection prevention and control measures and procedures, to be incorporated into the curricula of medical and nursing schools and schools for the allied health professions in Ontario colleges and universities (Campbell, 2006a, 47).

More research

There are few published studies about the OH&S issues and training as it relates to student nurses, especially from North America. Much more research is needed in this area. In addition, more research is needed to determine the best way to provide OH&S material – do schools with specific OH&S have lower injury rates, for example? Or is threading it through the better approach, provided there are enough threads?

The lack of academic research likely reflects the fact that high injury rates in health care are quite often hidden from the general public. We may think of health care work as 'challenging', but we rarely think of it as 'unsafe'. Part of the reason is that most injuries occur under the radar and impact (many) individual nurses. One respondent provided a vivid example

If you work in the aviation sector and the plane is going down, then pilot is going down, the customer is going down, the staff is going down. It's immediate, it's catastrophic, and it's usually death. So everybody has great ownership in making sure that the system works... In health care, it's not always catastrophic, there's usually no loss of life and the events are usually subliminal and time-delayed. If you've got an issue with a worker, the health care focus is still on the patient... The same numbers are there, but because it's not immediate and it's not catastrophic, they don't get it.

Conclusion

"Never, ever, ever let anyone tell you it'll be easy... JUST worth it" is the title of the RNA's booklet about becoming a nurse in Canada (2003). Nurses serve as the lynchpin of the health care system, working on its front lines. Their job is to care for others using a scientific knowledge base – but their job also puts them at increased risk of occupational injury.

There is not a lot of research about OH&S and nursing students. What does exist comes in the form of smaller qualitative studies with very consistent results. Student nurses are at increased risk because of their youth and inexperience, and because they are entering a profession with a number of OH&S hazards. The socialization and structural issues that contribute to needlessly high injury rates are ubiquitous in nursing. These issues are especially amplified in school as students struggle to be perceived as competent and able ‘insiders’.

This report attempted to answer three main questions, the first being “what is the extent of OH&S training in the Ontario Nursing curriculum?”. Every nursing program provides some instruction and training on OH&S issues, but few spend as much time as students need to be adequately prepared. What is offered varies quite widely, even between programs at the same college and colleges and universities jointly administering a single program. In particular, schools need to provide more training on issues related to violence nurses may encounter. They are more likely to be assaulted at work than prison guards (Kingma, 2001), and the health and community care sector accounts of just over a third of the Ontario’s total injuries due to violence – with more lost-time claim injuries related to violence than any other sector (OSACH, 2007).

Until the ideal learned in nursing school becomes *safely* caring for others and safety aspects are clearly incorporated into the scientific knowledge base, injury rates will continue to be higher than they should be. As one respondent said, in many health care centres OH&S issues are

seen as separate concepts, they’re not seen as fluid, all parts of a major program coming together. It’s still envisioned as separate incidents, separate topics, it’s not coming together as one major overarching architecture... you can go into most health care organizations, and you could challenge them by saying “have you got a policy in place?”

The next question is ‘What are some barriers that prevent more extensive OH&S training?’. Time and an already full curriculum serve as the most significant barriers for both programs, followed by lack of faculty expertise. It seems that part of the reason students receive only introductory OH&S training may simply be that that faculty are unable to provide more in-depth training. Lack of teaching materials, a variety of health care centre policies, attitudes of both students and faculty, poor role models, the cost of training and the fact that OH&S training is not traditional content were all identified as barriers.

The third question is “What are some opportunities for more extensive training?”. Although the barriers are significant, there are ways around them. The fact that PN programs deliver more content in much shorter time serves as evidence for this. Mask-fit testing, Hepatitis B vaccinations, instruction on N95 respirators and WHMIS training should be mandatory. OH&S information

should be reviewed in detail at the start of every clinical rotation or class with a lab component, as students often practice tasks they will do in clinical in the labs. OH&S issues should be included on all nursing care plans to remind and reinforce their importance.

Training can be provided through a specific course devoted to OH&S, or more (or more substantive) threads throughout the program. More training related to violence needs to be a priority. Schools do not need to spend substantial and unjustifiable amounts of time or money to do this. Including injury statistics and injury prevention measures in lectures and using case studies emphasize OH&S. Students be asked to observe, analyze and discuss the good and bad OH&S practices they witness in clinical.

In addition, textbooks need more detailed information about OH&S issues, and this information needs to be focused on the nurse as well as the patient. Schools need to be provided standardized OH&S materials. All students in the health care field should receive OH&S. In particular, nurses in graduate and doctorate programs – many of whom become professors or managers – need much more extensive training, so they feel comfortable teaching this material.

Because of staff-shortages and the often urgent nature of their jobs, nurses frequently adopt unsafe practices to save time and not hold others up. Nursing school has its own challenges, as students struggle to be perceived as competent team players rather than demanding and difficult outsiders. The result is that both nurses and student nurses adopt unsafe but time-saving routines and fail to report injuries when they do occur. Nurses work to promote health and prevent disease among Ontarians; they need to be better equipped to promote health and prevent illnesses among themselves.

Works Cited

- Advisory Committee on Health and Human Resources. (2002). Our health, our future: Creating quality workplaces of Canadian nurses. Retrieved from http://www.hc-sc.gc.ca/hcs-sss/alt_formats/hpb-dgps/pdf/pubs/2002-cnac-cccsi-final/2002-cnac-cccsi-final-eng.pdf
- Baumann, A., Blythe, J., Underwood, J., & Dzuiba, J. (2004). *Capacity, Casualization, & Continuity: The Impact of SARS. Report to the Walker Expert Panel, Possible Impact of Nurse Staffing Policy on Disease Transmission*. Nursing Effectiveness Utilization and Outcomes Research Unit, McMaster University. Retrieved from <http://mattelrod.org.proxy.queensu.ca/celarc/cppdoc1-12/201863.pdf>
- Baumann, A., & Blythe, J. (2003). Restructuring, reconsidering, reconstructing: Implications for health human resources. *International Journal of Public Administration*, 26 (14), 1561-1579.
- Beech, B. (2001). Sign of the times or the shape of things to come? A 3-day unit of instruction on aggression and violence in health settings for all students during pre-registration nurse training. *Accident and Emergency Nursing* 9(3), 204-211.
- Breslin, F.C., Smith, P., Mustard, C., & Zhao, R. (2006). Young people and work injuries: an examination of jurisdictional variation within Canada. *Injury Prevention*, 12, 105-10.
- Brodie, D., Andrews, G., Andrews, J., Thomas, G., Wong, J., & Rixon, L. (2004). Perceptions of nursing: confirmation, change and the student experience. *International Journal of Nursing Studies*, 41 (7), 721-733.
- Campbell, A. (2006a). *The SARS Commission: Spring of Fear: Final Report, Volume one: Recommendations*. Retrieved from the Ontario Ministry of Health and Long Term Care, www.sarscommission.ca/report/v1-pdf/Vol1Chp3.pdf.
- Campbell, A. (2006b). *The SARS Commission: Spring of Fear: Final Report, Volume three: Chapter Five: The Victims of SARS*. Retrieved from the Ontario Ministry of Health and Long Term Care, <http://www.sarscommission.ca/report/v3-pdf/Vol3Chp5.pdf>
- Campbell, A. (2006c). *The SARS Commission: Spring of Fear: Final Report, Volume three: Chapter Six: The Nurses' Survey*. Retrieved from the Ontario Ministry of Health and Long Term Care, <http://www.sarscommission.ca/report/v3-pdf/Vol3Chp6.pdf>
- Canadian Centre for Occupational Health and Safety. (2005). *OHS Answers: Needlestick Injuries*. Retrieved from http://www.ccohs.ca/oshanswers/diseases/needlestick_injuries.html
- Canadian Labour and Business Centre. (2002). *Full-time equivalents and financial costs associated with absenteeism, overtime and involuntary part-time employment in the nursing profession*. Retrieved from http://www.cspc.ca/files/Reports/CNAC2002_e.pdf
- Canadian Institute for Health Information. (2007). *Highlights from the regulated nursing workforce in Canada, 2006*. Retrieved from http://secure.cih.ca/cihiweb/disPage.jsp?cw_page=download_form_e&cw_sku=WTRNCAN2006PSF&cw_ctt=1&cw_dform=N
- College of Nurses of Ontario. (2006). *Fact sheet: How do I become a nurse in Ontario?*. Retrieved from <http://www.cno.org/docs/reg/45307.pdf>
- Cornish, J. & Jones, A. (2007). Evaluation of moving and handling training for pre-registration nurses and its application to practice. *Nurse Education in Practice*, 7 (3), 128-134.
- Day, L., & Smith, E. (2007). Integrating quality and safety content into clinical teaching in the acute care setting. *Nursing Outlook*, 55(3), 138-143.
- Dingwall, C., & Allen, D. (2001). The implications of healthcare reforms for the profession of nursing. *Nursing Inquiry*, 8 (2), 64-74.
- Duchscher, J.E.B., & Cowin, L.S. (2006). The new graduates' professional inheritance. *Nursing Outlook*, 54(3), 152-158.
- Farrell, G.A. (2001). From tall poppies to squashed weeds: Why don't nurses pull together more? *Journal of Advanced Nursing* 35 (1), 26-33.
- Ferns, T., & Meerabeau, L. (2008). Verbal abuse experienced by nursing students. *Journal of Advanced Nursing* 61(4), 436-444.
- Funston, M. (2008, May 10). The 'dark age' of nursing is over. *Toronto Star*, p. M2.
- Gray M. (1999) The professional socialization of diploma students of higher education in nursing: A longitudinal qualitative study. *Journal of Advanced Nursing*, 29, 639- 647.

- Grinspun, D. (2003). Part-time and casual nursing work: the perils of healthcare restructuring. *International Journal of Sociology and Social Policy*, 23 (8/9), 54-80.
- Hesketh, K., Duncan, S.M., Estabrooks, C.A., Reimer, M.A., Giovannetti, P., Hyndman, K. & Acorn, S. (2003). Workplace violence in Alberta and British Columbia hospitals. *Canadian Journal of Nursing Research* 63(3), 311-321.
- Industrial Accident Prevention Association. (2008). *Accident Prevention e-news: May 2008*. Retrieved from http://www.iapa.ca/apmag/2008_eneews_may.asp
- Kneafsey, R. (2007). Developing skills in safe patient handling: Mentors' views about their role in supporting student nurses. *Nurse Education in Practice*, 7 (6), 365-372.
- Kneafsey, R. (2000). 'The effect of occupational socialization on nurses' patient handling practices. *Journal of clinical nursing*, 9 (4), 585-593.
- Kingma, M. (2001). Workplace violence in the health sector: A problem of epidemic proportion. *International Nursing Review*. 48, 129-130.
- Leger Marketing. (2007). *Professional Barometer*. Retrieved from <http://www.legermarketing.com/documents/SPCLM/070522ENG.pdf>
- Loeb, M., McGeer, A., Henry, B., Ofner, M., Rose, D., Hlywka, T., Levic, J., McQueen, J., Smith, S., Moss, L., Smith, A., Green, K., & Walter, S.D. (2004). SARS among critical care nurses, Toronto. *Emerging Infectious Diseases*, 10(5), 251-256.
- McGillis Hall, L. & Kiesners, D. (2005). A narrative approach to understanding the nursing work environment in Canada. *Social Science & Medicine*, 61(12), 2482-2491.
- McGuire T., & Dewar, B.J. (1995) An assessment of moving and handling practices among Scottish nurses. *Nursing Standard*, 9(40), 35-39.
- McCarthy, G.M., & Britton, J.E. (2000) A survey of final-year dental, medical and nursing studies: Occupational injuries and infection control. *Journal of the Canadian Dental Association*, 66(10), 561.
- McKenna, B.G., Smith, N.A., Poole, S.J., Coverdale, J.H. (2003). Horizontal violence: experiences of Registered Nurses in their first year of practice. *Journal of Advanced Nursing*, 42 (1) , 90-96.
- Melia, K.M. (1984). Student nurses' construction of occupational socialization. *Sociology of Health & Illness*, 6 (2) , 132-151.
- Nau, J., Dassen, T., Halfens, R., and Needham, I. (2007). Nursing students' experiences in managing patient aggression. *Nurse Education Today* 27(8), 933-946.
- Nelson, A., Fragala, G., & Menzel, N. (2003). Myths and facts about back injuries in nursing. *American Journal of Nursing* 103(2), 32-40.
- O'Brien-Pallas, L., Shamian, J., Thompson, D., Alksnis, C., Koehoorn, M., Kerr, M., & Bruce, S. (2004). Work-Related Disability in Canadian Nurses. *Journal of Nursing Scholarship*, 36 (4), 352-357.
- O'Brien-Pallas, L., Thompson, D., Alksnis, C., Luba, M., Pagniello, A., Ray, K.L., & Meyer, R. (2003). *Stepping to success and sustainability: An analysis of Ontario's nursing workforce*. University of Toronto nursing effectiveness, utilization, and outcomes research unit. Retrieved from [http://www.nhsru.com/documents/Stepping %20to%20Success%20and%20Sustainability%202003.pdf](http://www.nhsru.com/documents/Stepping%20to%20Success%20and%20Sustainability%202003.pdf)
- Occupational health and safety agency for healthcare in BC, Nova Scotia Association of Health Organizations, Association paritaire pour la sante et la securite du secteur affaires sociales, Health Care Health and Safety Association of Ontario. (2004). *Trends in workplace injuries, illnesses, and policies in healthcare across Canada*. Retrieved from http://www.hc-sc.gc.ca/hcs-sss/alt_formats/hpb-dgps/pdf/pubs/2004-hwi-ipsmt/2004-hwi-ipsmt-eng.pdf
- Ontario Ministry of Labour: Occupational Health and Safety Branch, Young Worker Health and Safety Initiative. (2007). *Ontario Ministry of Labour's Young Worker Health and Safety Initiative: Results through partnerships, engagement, enforcement, and integrated safety education*. Toronto Ontario.
- Ontario Nurses' Association. 2008. *Frequently Asked Questions*. Retrieved from <http://www.ona.org/faq>
- Ontario Safety Association for Community in Healthcare. (2007). *Injury Demographics for 2006*. Retrieved from www.hchsa.on.ca/.

- Osborn, E.H.S., Papadakis, M.A., & Gerberding, J.L.G. (1999). Occupational exposures to body fluids among medical students: A seven-year longitudinal study. *Annals of Internal Medicine*, 130(1), 45-51.
- Pedler, S. (2006). "The murder of Lori Dupont". Online video clip. *CBC's The National Online Achieve*. Retrieved from http://www.cbc.ca/mrl3/23745/thenational/archive/loridupont_part1-111406.wmv & <http://www.cbc.ca/mrl3/23745/thenational/archive/loridupontpart2-111406.wmv>
- Philpin, S.M. (1999). The impact of 'Project 2000' educational reforms on the occupational socialization of nurses: an exploratory study. *Journal of Advanced Nursing*, 29 (6) , 1326–1331
- Purpora, C. (2005). Nurse vs. nurse: Understanding horizontal violence. *LPN*, 1(6), 32-36.
- Randle, J. (2003). Bullying in the nursing profession. *Journal of Advanced Nursing*, 43(4), 395-401.
- Registered Nurses' Association of Canada. (2003). "Never, ever, ever let anyone tell you it'll be easy... JUST worth it". Retrieved from http://www.cna-aiic.ca/CNA/documents/pdf/publications/Never_Ever_Broch_2003_b_e_only.pdf
- Registered Nurses' Association of Ontario. (2004). RNAO practice page: Nursing practice through the eyes of a student. Retrieved from http://www.rnao.org/Storage/15/978_Practice_Page_Student.pdf
- Reutter L., Field, P.A., Campbell, I.E., & Day, R. (1997). Socialization into nursing: Nursing students as learners. *Journal of Nursing Education*, 36 (4), 149-155.
- Rowe, M., & Sherlock, H. (2005). Stress and verbal abuse in nursing: do burned out nurses eat their young? *Journal of Nursing Management*, 13 (3) , 242–248.
- Schmidt, D. (2006a). A killing at Hotel-Dieu: Murder suicide shocked the community. *The Windsor Star Online*. Retrieved from <http://www.canada.com/windsorstar/features/dupont/index.html>
- Schmidt, D. (2006b). Daniel turns to blackmail. *The Windsor Star Online*. Retrieved from <http://www.canada.com/windsorstar/features/dupont/news/story.html?id=f759b50e-3767-4826-9ebc-2fd581c04181&p=2>
- Shamian, J., Kerr, M.S., Lasschinger, H.K., & Thomson, D. (2002). A hospital-level analysis of the work environment and workforce health indicators for registered nurses. *Canadian Journal of Nursing Research*, 33(4), 35-50
- Shields, M., & Wilkins, K. (2006). *Findings from the 2005 National Survey of the Work and Health of Nurses* (Report No. 83-003-XPE). Retrieved from the Canadian Institute for Health Information, http://secure.cihi.ca/cihiweb/products/NHSRep06_ENG.pdf
- Singer, P.A., Benatar, S.R., Bernstein, M., Darr, A. S., Dickens, B.M., MacRae, S.K., Upshur, R.E.G.U., Wright, L. and Zlotnik Shaul. *Ethics and SARS: lessons from Toronto*. *British Medical Journal*, 327(7427), 1342-1344.
- Smith, D.R., & Leggat, P.A. (2005). Needlestick and sharps injuries among nursing students. *Journal of Advanced Nursing*, 51(5). 449-455.
- Swain, J., Pufahl, E., Williamson, G. (2003). Do they practice what we teach? A survey of manual handling practice amongst student nurses. *Journal of Clinical Nursing*, 12(2), 297-306.
- Timmins, F. & McCabe, C. (2005). Nurses' and midwives' assertive behaviour in the workplace. *Journal of Advanced Nursing*, 51(1), 38-48.
- Videman, T., Ojarvi, A., Riihimäki H., & Troupe, J.D.G. (2005). Low back pain among nurses: A follow-up beginning at entry to the nursing school. *Journal of Occupational Health and Ergonomics*, 30(20), 2334-2341.