Current and Emerging Trends:

Occupational Health and Safety in the BC Healthcare Sector

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Executive Summary

The Occupational Health and Safety Agency for Healthcare (OHSAH) in British Columbia is a provincial occupational health and safety (OHS) agency for the healthcare sector. As part of our collaborative efforts, in the fall of 2008 OHSAH sought input from key stakeholders into its strategic planning process for the next three years. Prior to this process, OHSAH completed a literature review and environmental scan on current and emerging OHS issues in healthcare. The literature review involved a comprehensive online internet website search to enable coverage of a wide range of publications, reports, research data, vision articles, and expert opinions[*]. The environmental scan involved telephone and face-to-face interviews with several of OHSAH's external stakeholders and staff. The following report summarizes this work, which occurred in August and September, 2008.

Literature review

The population in BC and Canada is aging. Canada is also the first country in the world to officially implement multiculturalism as a national policy. These factors result in an increased demand placed on healthcare workers when providing care.

There is also a significant shortage of key healthcare professionals in Canada. As an example, Canada is currently experiencing a significant shortage of registered nurses (RNs), expected to reach 113,000 by 2016, which is having a negative impact on the provision of healthcare services and will likely shift nursing care loads to LPNs and Care Aides, placing them at higher risk of OHS issues.

The population of healthcare workers is also aging with consequent decrease in physical capabilities and increase on age-related illnesses. It is expected that over 50% of the RNs in Canada will be retiring within the next 15 years with further worsening in the current shortage.

The increased demand for healthcare and the shortage of healthcare workers result in a short-staffed and stressful work environment. This will have an impact on workplace health and safety, with an increasing risk of injury and illness. Prolonged stress results in burnout followed by increased absenteeism, lower commitment to the workplace and intent to leave, and ultimately increased turnover and reduction in patient quality of care. A short-staffed and stressful work environment leads to shortcuts and less attention given to health and safety procedures.

Healthcare professionals give the lowest rating on questions related to a healthy and supportive work environment. Based on a general review of OHS literature, it appears that developing a more human resource-based working environment, or "people-oriented culture," may be one of the most important elements for ensuring safety success.

Several common themes about the future related to OHS in healthcare emerged during the review of the literature. This includes a reduction in OHS silos with networks and collaborations developed to address OHS issues in healthcare as well increased cooperation among disciplines and between researchers and those who deliver frontline OHS services and programs. Much like all emergency responders, healthcare workers face risk of exposures to unknown hazardous agents, such as emerging infectious diseases similar to SARS and avian influenza. Healthcare workers are also at risk

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[*] Please note that this is not an exhaustive review of the OHS literature.

of increased workplace violence, high hazard chemical use and use of other potentially hazardous new technologies, of which awareness and appropriate workplace protections will be required.

Environmental Scan

The interviews explored perceptions about current and emerging trends in occupational health and safety in BC healthcare.

The first question addressed stakeholder perceptions of the current health and safety issues facing the healthcare industry. The major themes drawn from this question (ranked highest to lowest in response) include workload, violence, working alone, musculoskeletal injuries, infection control and biological diseases, lack of adequate OHS education and training, accountability for OHS, increasing sick time and long term disability, increasing presenteeism, and slips, trips, and falls.

As with the literature review, workload was by far the most significant issue identified by respondents. High workload has a direct impact on the physical and psychological demand placed on workers and is the result of multiple factors as indicated by respondents, such as shortage of healthcare workers and an aging workforce, aging patients, heavier patients, an increase in mental health issues, span of control, and an increase in the number of patients being cared for in the home.

The second question addressed perceptions of emerging health and safety issues within the healthcare industry over the next three years. Again, the issue of workload and how this affects the health and safety of healthcare workers had the highest response. Some of the other emerging health and safety issues mentioned include an infectious disease pandemic, increased cancer rates and other chronic illnesses, an increase in facilities requiring renovation or rebuild, which may also cause an increase in asbestos concern, and an increase in bariatric patients.

There were also a number of issues mentioned by respondents where their effects on OHS were unknown. This includes rising costs of healthcare that may lead to restructuring in the industry, the effects of new technologies, the current focus on a green environment and green workplaces, lack of coordinated data records, a possible change in government and the impact this may have on funding and structure, generational differences of workers, continued lack of funding for OHS, and new product purchases.

Stakeholders were asked for their perceptions of whether healthcare in BC is prepared to deal with OHS issues over the next three years. Few respondents felt that this was the case. Some of their reasons include, a poor infrastructure, lack of long-term planning, lack of integration and communication between stakeholders, lack of leadership and commitment, lack of funding, lack of human resources, lack of education and training, the current political atmosphere, lack of accountability and enforcement, and a poor organizational culture towards OHS.

When asked what the healthcare industry needs to address in OHS over the next three years, the responses were essentially the inverse of the above list. An overarching theme of 'strategy and leadership' was by far the most common response.

The interviews conducted as part of the environmental scan confirmed workload as a major trend of concern and identified several specific types of injury and illness that will require attention. The interviews also highlighted that the system as a whole is poorly prepared to face the foreseen increase in injury and illness among healthcare workers and that strategy and leadership, as well as knowledge transfer and capacity building through education and training are critical issues that need to be addressed.

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Introduction

The Occupational Health and Safety Agency for Healthcare (OHSAH) in British Columbia is a provincial occupational health and safety (OHS) agency for the healthcare sector. Our goal is to make healthcare a healthier place to work. OHSAH is jointly governed by employers and unions (bipartite), providing an innovative approach to improving workplace health and safety in the healthcare sector. A true strength of OHSAH is the collaboration that occurs among these key stakeholders.

As part of our collaborative efforts, in the fall of 2008 OHSAH sought input from key stakeholders into its strategic planning process for the next three years. Prior to this process, OHSAH completed a literature review and environmental scan on current and emerging OHS issues in healthcare. The literature review involved a comprehensive online internet website search to enable coverage of a wide range of publications, reports, research data, vision articles, and expert opinions[†]. The environmental scan involved telephone and face-to-face interviews with several of OHSAH's external stakeholders and staff. The following report summarizes this work, which occurred in August and September, 2008.

Literature Review

Population and health trends

By 2020 there will be more than one billion people aged 60 years and older in the world.[1] This demographic trend has many implications both in the demand for care and the availability of careers. It will affect all segments of society.

Canada, the first country in the world to officially implement multiculturalism as a national policy, encourages citizens to maintain their cultural, religious and racial heritage, while at the same time be Canadian. More than 200 ethnic origins are represented in Canada, and immigration now accounts for more than 50 percent of Canada's population growth. The impact of this on healthcare is an increase in the language barrier and cultural differences in healthcare provision, which increase the demand placed on healthcare workers when providing care.

Although mandatory retirement in BC has been abolished, both the share and overall population of retirement age (65+) will continue to increase significantly from 12.8 per cent in 1997 to 17.3 per cent by 2021. The same will be true for the very senior population (80+), which will grow from 3.0 per cent of the population to 3.9 per cent by 2021. This increase will have a significant effect on healthcare expenditures and demand on the healthcare system given the high per capita healthcare costs as a consequence of the increased healthcare needs associated with seniors.

The workplace is a microcosm of the larger society. Therefore, trends such as socio-cultural diversity, and an aging society with longer life expectancy and chronic diseases will be reflected in the workplace.

[†] Please note that this is not an exhaustive review of the OHS literature.

Shortage of healthcare workers

There is a shortage of key healthcare professionals in Canada. While there is plenty of research that explores this shortage in many healthcare occupations, that which follows will outline the shortage of registered nurses and an example of the impact this will have on healthcare in BC.

Canada is currently experiencing a significant shortage of registered nurses (RNs), which is having a negative impact on the provision of healthcare services.[2,3] In 2006 there were approximately 252,000 RNs working in Canada, which is estimated to increase to 253,000 by 2011, thereafter decreasing to approximately 248,000 by 2016.[4] Healthcare needs of the aging Canadian population are expected to require approximately 361,000 RNs by 2016, which amounts to a shortage of 113,000 RNs in Canada by this time.[5] A shortage of RNs will shift nursing care loads to Licensed Practical Nurses and Care Aides, placing them at risk of different OHS issues.

The population of healthcare workers is also aging. In 2001, the average age of RNs in Canada was 43.7 years, which increased to 45.0 years in 2006. More than 20% of the RNs working in Canada in 2006 were aged 55 years or older.[6,7] British Columbia (BC) has the oldest RNs in Canada with 34% aged 50 years or older.[8] It is expected that over 50% of the RNs in Canada will be retiring within the next 15 years and without the same number entering the system or enrolling in nursing education programs, the current shortage of nurses will continue to increase.[9]

The expected high rate of retirement is partly due to many nurses retiring before they reach age 65; this is because of reduced job satisfaction, long working hours, difficult working environment, and burnout.[10,11] The general shortage of RNs results in a short-staffed and consequently stressful work environment associated with high workplace demand and discourages younger people from entering the profession.[12] Nurses have a very difficult job and perceptions of this occupation are deteriorating, with approximately 45% reporting being dissatisfied.[13] They perceive workplace health and safety to be a big factor, with increasing episodes of violence, discrimination, sexual harassment, stress, and a low influence on workplace decisions. Prolonged stress results in burnout followed by increased absenteeism, lower commitment to the workplace and intent to leave, and ultimately increased turnover and reduction in patient quality of care.[14] One study in the United States reports that as many as 64% of the nurses they surveyed are planning to leave their current position within the next three years.[15]

This high rate of turnover has significant costs to the healthcare system in Canada. It is estimated that the direct turnover costs per RN are between $62,000 and $67,000.[16] High turnover also leads to substantial indirect costs associated with replacement costs, higher overtime costs, and higher absenteeism rates due to overworked employees. Wage costs for overtime alone were $430 million across Canada in 2001, accounting for almost 13 million overtime hours, or the equivalent of 7,000 full time jobs.[17] With the immense costs associated with turnover, it is not surprising that employers have an interest in successful recruitment and retention strategies.

There are many recruitment strategies used in the healthcare industry;[18] some of which also include strategies to increase the retention of RNs. For example, developing a positive and challenging work environment, increasing roles and responsibilities, ensuring respect and recognition, and allowing for flexible scheduling, all serve to improve the reputation of an organization as a good place to work and are shown to be successful strategies for retaining nurses.[19,20,21] Attracting and retaining RNs to rural and remote locations in BC presents additional challenges for employers, such as geographic

location, isolation, and lower economic stability.[22,23] In addition, one report indicated that 77% of RNs in rural and remote locations in Canada did not receive a benefit of isolation pay.[24]

Occupational health and safety culture

A recent national study of work environments surveyed a variety of workers including healthcare professionals, teachers, unskilled manual labour, and service workers.[25] Healthcare professionals gave the lowest rating on questions related to a healthy and supportive work environment. This survey also showed that healthcare professionals ranked the lowest of all on trust in their employer, commitment to their employer, workplace communication, and decision-making influence. Healthcare workers have also had to deal with increasing vacancy rates and stress relating to increased overtime.

Based on a general review of OHS literature, it appears that developing a more human resource-based working environment, or "people-oriented culture," may be one of the most important elements for ensuring safety success. As Ruth Gastel, the director of Insurance Information Institute stated: "Accident rates tend to be lower in firms where the management 'culture' fosters a high level of satisfaction among workers and where improving safety is part of the goal of building a quality product."[26]

Other trends

Aside from the population health trends and shortage of healthcare workers in Canada and the impact these issues have on the healthcare workforce, several common themes about the future related to OHS in healthcare emerged during the review of the literature. For example, out of necessity due to lack of funding and lack of resources, local, provincial, and national silos will likely be broken with networks and collaborations developed to address OHS issues in healthcare.[27,28] For similar reasons there will also be increased cooperation among disciplines and between researchers and those who deliver frontline OHS services and programs. The method by which research is undertaken will become more inclusive of other disciplines.[29,30]

Much like all emergency responders, healthcare workers face risk of exposures to unknown hazardous agents, such as emerging infectious diseases similar to SARS and avian influenza. Healthcare workers are also likely to face increased exposure to a variety of antibiotic-resistant pathogens.[31,32,33] The ability of healthcare professionals to deal with community emergencies such as natural disasters, pandemic influenza or other contagious diseases, and terrorist attacks, has important implications both for healthcare workers and the community at large.[34]

Last but not least, healthcare workers are at risk from a dramatic increase in workplace violence perpetrated by clients, their families and even co-workers.[35,36,37] High hazard chemical use and use of other potentially hazardous new technologies continues to grow in healthcare settings. Awareness of these hazards and appropriate workplace protections will be required.[38]

Environmental Scan

The environmental scan involved 31 telephone and face-to-face interviews with OHSAH staff and external stakeholders who volunteered during the late summer of 2008. Interviews were conducted with OHS Department directors and team members from five of the six Health Authorities (Fraser Health, Northern Health, Interior Health, Provincial Health Services Authority, and Vancouver Coastal Health), OHS professionals from three major healthcare unions (British Columbia Nurses' Union, Hospital Employees' Union, and the United Food and Commercial Workers), WorkSafeBC, Healthcare Benefit Trust, the Health Employers Association of BC, and three affiliate employers (South Fraser Home Support, Northcrest Care Centre, and Louis Brier). Interviews were also conducted with OHSAH directors and staff.

The questions asked during the interview explored perceptions about current and emerging trends in occupational health and safety in BC healthcare. Themes were drawn from the responses and ranked from highest to lowest based on the number of responses associated with each theme. In some cases, the responses were appropriate for more than one theme and were therefore counted in each theme. The following outlines the major themes drawn from the interviews.

Current health and safety issues

The first question addressed stakeholder perceptions of the current health and safety issues facing the healthcare industry as well as which of those issues will likely escalate and which of those issues will likely diminish. The themes drawn from this question include, ranked from highest to lowest:

- Workload (e.g., shortage of healthcare workers, aging workforce, span of control)
- Violence (e.g., patient to worker, worker to worker)
- Working alone
- Musculoskeletal injuries (primarily patient handling related; some emphasis on acute care)
- Infection control and biological diseases (e.g., increase in superbugs, unable to keep up with worker immunizations)
- Lack of OHS education and training for workers, managers, supervisors, and joint occupational health and safety committees (JOHSC) (e.g., lack of resources, weak infrastructure, disparity in educational programs from colleges)
- Mental health
- Accountability for OHS (e.g., lack of internal responsibility system, decline in OHS standards for privatized support service workers, lack of enforcement of OHS regulations)
- Increasing sick time and long-term disability
- Increasing presenteeism
- Slips, trips, and falls

Workload was by far the most significant issue identified by respondents. High workload has a direct impact on the physical and psychological demands placed on workers, both of which impact the wellbeing of the worker, thus increasing the risk of exposures to hazards and decreasing the ability of the worker to respond in a timely and appropriate way to hazards. High workload is the result of multiple factors. Examples of factors leading to high workload, as drawn from the interview responses, include:

- Shortage of healthcare workers and an aging workforce (decreases number of HCWs available)
- Aging patients (increases amount of work needed)
- Heavier patients/residents/clients (increase physical demand required during care)
- Increase in mental health issues associated with stress, anxiety, depression, and an unhappy and unhealthy workforce (decreases number of available workers through early retirement and difficulty in recruitment)
- Span of control (high number of direct reports to managers and supervisors)
- Increase in the number of patients being cared for in the home, increasing the demand placed on community health workers

Respondents perceived all of the current issues listed above as escalating concerns. The most common responses were associated with workload, violence, working alone, mental health issues, and lack of education and training.

When asked if any of the issues will likely diminish over the next three years, the most common response was that none of the above issues will diminish over the next three years. However, respondents suggested that exposure to blood and body fluids may decrease due to improvements in technology (i.e., safety engineered needles and sharps). There was also some suggestion that the stigma associated with mental health issues will diminish as will occupational hygiene issues related to the physical environment with an increase in LEAD building standards (for example, a reduction in indoor air quality issues). Interestingly, it was felt that healthcare workers' response to and reporting of musculoskeletal injuries will diminish unless more can be done to improve the risks associated with MSI.

Emerging health and safety issues

The second question addressed perceptions of emerging health and safety issues within the healthcare industry over the next three years. Again, the issue of workload and how this affects the health and safety of healthcare workers had the highest response. This was followed closely by issues associated with an infectious disease pandemic. Other emerging health and safety issues mentioned include:

- Increased cancer rates and other chronic illnesses
- An increase in facilities requiring renovation or rebuild; this may also cause an increase in asbestos concern
- An increase in bariatric patients
- OHS issues that have not been properly evaluated in the past
- An increase in surgical procedures that will increase potential for exposure to biological hazards, infectious diseases, and higher physical demands placed on workers
- An increase in the sensitization and sensitivities of workers to various occupational hazards, such as enzymatics

There were also a number of issues mentioned by respondents where their effects on OHS were unknown. This includes:

- Rising costs of healthcare that may lead to restructuring in the industry
- The effects of new technologies, such as nanotechnologies and biologics

- The current focus on a green environment and green workplaces
- Lack of coordinated data records and data integration
- A possible change in government and the impact this may have on funding and structure
- Generational differences of healthcare workers
- Continued lack of funding for OHS
- New product purchases

Is the BC healthcare industry prepared?

Stakeholders were asked for their perceptions of whether healthcare in BC is prepared to deal with OHS issues over the next three years and, if not, what they felt the healthcare industry needs in order to deal with OHS during this period. Few respondents felt that the healthcare industry was well prepared. Those who answered "yes" felt that the human resources and support mechanisms are in place, collaborative relationships have been established, and the OHS issues have been recognized and are considered a priority by senior management. However, all respondents, including those who answered "yes", provided reasons why the healthcare industry is not optimally prepared to deal with OHS issues over the next three years. Their reasons include, in rank order of the number of responses received:

- A poor infrastructure for OHS
- Lack of long-term planning to deal with OHS
- Lack of integration and communication between stakeholders to share the efforts in OHS
- Lack of leadership (institutional and provincial) and commitment to OHS
- Lack of funding dedicated to OHS at the department, institutional, and provincial level
- Lack of human resources dedicated to OHS at the department, institutional, and provincial level
- Lack of education and training for workers, supervisors, managers, and JOHSC and lack of positive reinforcement for OHS
- Inadequate resources to deal with OHS, including OHS professionals in BC as well as frontline resources; high workload of those currently addressing OHS in healthcare
- Healthcare is too political to allow OHS to be dealt with effectively and efficiently
- Lack of accountability at the departmental, institutional and provincial level
- Lack of enforcement of OHS regulations
- The organizational culture in healthcare is not ready for OHS (which may be associated with a lack of education and training)
- The OHS system in healthcare is too reactive

What the healthcare industry needs

When asked what the healthcare industry needs to address in OHS over the next three years, the responses were essentially the inverse of the above list. An overarching theme of 'strategy and leadership' was by far the most common. The following is a list of responses associated with this theme. Respondents noted that the healthcare industry needs:

- More provincial leadership for OHS in healthcare
- A commitment from management towards OHS
- Better planning for a long term strategy in OHS

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- A centralized resource or governing body to coordinate all OHS activities in BC
- Better strategic collaboration between stakeholders
- Clearer roles and responsibilities in the industry
- Effort put towards standardized and province-wide OHS management systems
- More effective communication of OHS to the frontline
- OHS to be seen as a priority by everyone
- The industry to become less politicized
- To consider the realistic drivers to change and develop strategies to enact them
- To combine worker and patient safety more effectively
- Increased efficiencies for frontline workers to reduce workload (e.g., single incident reporting system)
- Better quality of data for more effective decision making

Aside from a more effective strategy and better leadership in OHS, respondents noted the following needs in the healthcare industry:

- OHS education and training at all levels
- More funding dedicated to OHS
- More accountability for OHS
- Additional human resources dedicated to OHS
- Effort placed on changing the culture towards the importance and recognition of a safe and healthy workplace, and the necessary involvement of everyone in healthcare

Implications and Next Steps

OHSAH undertook this present literature/website review and environmental scan as a starting point to discussions on OHSAH strategy for the next three years. The literature/website review revealed that the largest trend affecting OHS over the next three years is increasing workload as a result of an increasing shortage of healthcare workers, provincially, nationally, and globally, as well as increasing demand for healthcare services due to an aging population. The foreseen increase in workload increases the physical and psychological demand on healthcare workers and will likely result in an upward trend of occupational injuries and illnesses among healthcare workers over the next three years unless decisive action is undertaken.

The interviews conducted as part of the environmental scan confirmed workload as a major trend of concern and identified several specific types of injury and illness that will require attention. The interviews also highlighted that the system as a whole is poorly prepared to face the foreseen increase in injury and illness among healthcare workers and that strategy and leadership, as well as knowledge transfer and capacity building through education and training are critical issues that need to be addressed.

Reference

[1] International Council of Nurses (1999). *ICN on healthy ageing: a public health and nursing challenge.* ICN. Available: http://www.icn.ch/matters_aging.htm

[2] Tomblin Murphy, "Health Human Resource Planning/Modeling Activities for Primary Health Care Nurse Practitioners", Canadian Nurses Association, http://www.cnpi.ca/documents/pdf/HHR_Planning_Literature_Review_e.pdf, accessed January 2008.

[3] Canadian Nurses Association, *Planning for the Future: Nursing Human Resource Projections*, June 2002.

[4] Canadian Institute for Health Information, *Workforce Trends of Registered Nurses in Canada,* 2006 (Ottawa: CIHI, 2007).

[5] Canadian Nurses Association, *Planning for the Future: Nursing Human Resource Projections*, June 2002.

[6] Ibid.

[7] Canadian Institute for Health Information, *Workforce Trends of Registered Nurses in Canada,* 2006 (Ottawa: CIHI, 2007).

[8] Canadian Nursing Advisory Committee, *Full-time Equivalents and Financial Costs Associated with Absenteeism, Overtime, and Involuntary Part-time Employment in the Nursing Profession,* February 15, 2002.

[9] Canadian Nurses Association, *Planning for the Future: Nursing Human Resource Projections*, June 2002.

[10] Julie Anne McMullin, Martin Cooke, and Rob Downie, "Labour Force Ageing and Skill Shortages in Canada and Ontario", Canadian Policy Research Networks, August 2004.

[11] Linda H. Aiken, Sean P. Clarke, Douglas M. Sloane, Julie A. Sochalski, Reinhard Busse, Heather Clarke, Phyllis Giovannetti, Jennifer Hunt, Anne Marie Rafferty, and Judith Shamian, "Nurses' Reports on Hospital Care in Five Countries", *Health Affairs,* 20, 3 (May/June 2001): 45.

[12] Canadian Health Services Research Foundation, *What's Ailing our Nurses? A Discussion of the Major Issues Affecting Nursing Human Resources in Canada,* March 2006.

[13] Canadian Health Services Research Foundation, *What's Ailing our Nurses? A Discussion of the Major Issues Affecting Nursing Human Resources in Canada,* March 2006.

[14] Beth T. Ulrich, Peter I. Buerhaus, and Karen Donelan, "How RNs View the Work Environment: Results of a National Survey of Registered Nurses", *Journal of Nursing Administration,* 35, 9 (2005): 394.

[15] Ibid. p.392.

[16] Cheryl Bland Jones, "The Costs of Nurse Turnover, Part 2: Application of the Nursing Turnover Cost Calculation Methodology", *Journal of Nursing Administration,* 35, 1 (2005): 42.

[17] Canadian Nursing Advisory Committee, *Full-time Equivalents and Financial Costs Associated with Absenteeism, Overtime, and Involuntary Part-time Employment in the Nursing Profession,* February 15, 2002.

[18] Jessica H. May, Gloria J. Bazzoli, and Anneliese M. Gerland, "Hospital Response to Nurse Staffing Shortages", *Health Affairs,* 25 (2006): 316.

[19] Ibid. p.319.

[20] Tomblin Murphy, "Recruitment and Retention of Primary Health Care Nurse Practitioners in Canada", Canadian Nurses Association, http://www.cnpi.ca/documents/pdf/HHR_Recruitment_Retention_Literature_Review_e.pdf, accessed January 2008.

[21] Maureen McGuire, Janet Houser, Thafer Jarrar, Wendy Moy, and Michelle Wall, "Retention: It's All About Respect", *Health Care Manager,* 22, 1 (2003): 38-44.

[22] Terry D. Stratton, Jeri W. Dunkin, Nyla Juhl, and Jack M. Geller, "Recruiting Registered Nurses to Rural Practice Settings: An Assessment of Strategies and Barriers", *Applied Nursing Research,* 6, 2 (May 1993): 64-70.

[23] Norma Stewart, Carl D'Arcy, Roger Pitblado, Dorothy Forbes, Debra Morgan, Gail Remus, Barbara Smith, and Julie Kosteniuk, "Report of the National Survey of Nursing Practice in Rural and Remote Canada", *Nursing Practice in Rural and Remote Canada,* 2005.

[24] Ibid.

[25] Statistics Canada (2005) National Survey of the Work and Health of Nurses (CIHI share file); and Canadian Community Health Survey Cycle 3.1, 2005, Statistics Canada

[26] Gastel, R. (1994) Success with Safety Depends on Management. Safety Workplace, 2 (1).

[27] Canadian Center for Occupational Health and Safety (2006) Performance Report for the period ending March 31, 2006. Available on-line and retrieved on September 2nd, 2008 at http://www.tbs-sct.gc.ca/dpr-rmr/0506/CCOHS-CCHST/ccohs-cchst-eng.pdf

[28] Occupational Safety and Health Administration (2008) OSHA Challenge Pilot Program Challenge Stages at a Glance. Available online at:
http://www.osha.gov/dcsp/vpp/challenge/stages_at_a_glance_gi.html

[29] Canadian Center for Occupational Health and Safety (2006) Performance Report for the period ending March 31, 2006. Available on-line and retrieved on September 2nd, 2008 at http://www.tbs-sct.gc.ca/dpr-rmr/0506/CCOHS-CCHST/ccohs-cchst-eng.pdf

[30] Health and Safety Executive (2008) Healthcare Sector Information Minutes. Available online and retrieved on September 3rd, 2008:
http://www.hse.gov.uk/foi/internalops/sectors/public/index.htm

[31] Ibid.

[32] WorkSafeBC (2007) WorkSafeBC Annual Report and Key Statistics. Available online and retrieved at:
http://www.worksafebc.com/publications/reports/annual_reports/2007/key_statistics.asp

[33] National Institute for Occupational Health and Safety (2008) NIOSH Health and Safety Topic for Healthcare Workers. Available online and retrieved at:
http://www.cdc.gov/niosh/topics/healthcare/

[34] Ibid.

[35] Canadian Center for Occupational Health and Safety (2006) Performance Report for the period ending March 31, 2006. Available on-line and retrieved on September 2nd, 2008 at http://www.tbs-sct.gc.ca/dpr-rmr/0506/CCOHS-CCHST/ccohs-cchst-eng.pdf

[36] Health and Safety Executive (2008) Healthcare Sector Information Minutes. Available online and retrieved on September 3rd, 2008:
http://www.hse.gov.uk/foi/internalops/sectors/public/index.htm

[37] National Institute for Occupational Health and Safety (2008) NIOSH Health and Safety Topic for Healthcare Workers. Available online and retrieved at:
http://www.cdc.gov/niosh/topics/healthcare/

[38] Ibid.

ABOUT THIS DOCUMENT

The Occupational Health and Safety Agency for Healthcare (OHSAH), which operated from 1998-2010, was a precursor to SWITCH BC. Conceived through the Public Sector Accord on Occupational Health and Safety as a response to high rates of workplace injury, illness, and time loss in the health sector, OHSAH was built on the values of bipartite collaboration, evidence-based decision making, and integrated approaches.

This archival research material was created by OHSAH, shared here as archival reference materials, to support ongoing research and development of best practices, and as a thanks to the organization's members who completed the work.

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