Trends in Workplace Injuries, Illnesses, and Policies in Healthcare across Canada

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OHSAN Occupational Health and Safety Agency for Healthcare in BC

in collaboration with:

NSAHO Nova Scotia Association of Health Organizations

ASSTSAS Association paritaire pour la santé et la sécurité du secteur affaires sociales (Québec)

HCHSA Health Care Health and Safety Association of Ontario
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EXECUTIVE SUMMARY

Background

Research on the Canadian workforce consistently indicates that healthcare 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.

There is a growing body of evidence that recommends the creation of “healthy workplaces” to support worker well-being and improved organizational performance to assist in the retention of qualified personnel, and to ultimately ensure the provision of high quality care. Various reviews and reports note that healthcare workers face substantial occupational risks and health impacts related to: infectious diseases; patient violence; allergic reactions; and ergonomic issues, particularly those associated with patient handling. Musculoskeletal injuries (MSI), which account for the greatest number of time-loss injuries among healthcare workers, occur due to such factors as equipment inadequacies and poorly configured patient rooms, as well as work organizational factors such as high work demands, inadequate staffing, poor work morale and low social support. The reported prevalence of musculoskeletal symptoms in nursing personnel has been as high as 60% and 72% for upper-body and lower-body symptoms respectively. Psychological distress is common in healthcare workers as a result of patient violence, aggression, high workload and other factors. Infectious diseases are also a serious concern, as highlighted by the recent emergence of Severe Acute Respiratory Syndrome (SARS) and blood and body fluid exposure, which carries the risk of HIV and Hepatitis transmission.

The Health Accord of 2003 identified strategies to strengthen the evidence-base for national planning, promote interdisciplinary provider education, and improve recruitment and retention of healthcare workers. One particular retention strategy was aimed at improving working conditions in the healthcare sector, and to this end Health Canada determined that a better understanding of the workers’ compensation injury data and policy trends in healthcare across Canada was needed.
Objectives

The purpose of this initiative is to identify, synthesize, and discuss workers' compensation injury and illness data as well as policy and practice interventions within Canada that have impacted on the health of healthcare workers.

Methods

Time-loss injury and occupational disease data were collected from the National Work Injuries Statistics Program (NWISP) compiled by the Association of Workers’ Compensation Boards of Canada (AWCBC) for the period 1992 to 2002. These data represent all work-related time-loss injuries and diseases accepted by the Workers’ Compensation Board (WCB) in each province. Labour Force data from Statistics Canada were used to determine workforce size for each province and to calculate provincial injury rates expressed per 100 person-years.

Raw NWISP data were available by three occupational groups, but raw labour force data from Statistics Canada’s socio-economic database (CANSIM) were only available by two occupational groups. Therefore, the injury ‘rate’ analyses performed for this report were limited to: “healthcare professionals” and “technical, assisting and other related occupations”. It was later determined that labour force data could be obtained on a more detailed occupational basis through the use of the census data and micro data files from the Labour Force Survey. Time did not permit the extraction of these additional occupational data. Where applicable, injury ‘frequency’ analyses were performed for the three occupational groups defined by the Standard Occupation Code (SOC 2001), “Nurse Supervisors and Registered Nurses”, “Other Technical Occupations in Healthcare”, and “Assisting Occupations in Support of Healthcare”.

The data collection process was coordinated by the Occupational Health and Safety Agency for Healthcare (OHSAH) in British Columbia, with partner provincial associations from other regions of the country collecting and analyzing data for provinces in their respective regions. In the West, policy information for British Columbia (BC) and Alberta was collected through extensive key informant interviews conducted by OHSAH. Policy information was not collected for Saskatchewan and Manitoba due to resource limitations. In Ontario and Québec, information was collected by the Healthcare Health and Safety Association (HCHSA) and the Association paritaire pour la santé et la sécurité du secteur affaires sociales (ASSTSAS), respectively. Finally, the Nova Scotia Association of Health Organizations (NSAHO) collected policy information for Newfoundland & Labrador (NL), Prince Edward Island (PEI), Nova Scotia, and New Brunswick (Atlantic Provinces).
Results

Injury and illness data

Between 1996 and 2002, the average number of injuries per year to healthcare workers increased by 7.8%, while during this period the labour force increased by 18.5%. As illustrated in Figure 1, the national time-loss injury rate (all provinces combined) thus actually decreased from approximately 4.1 injuries per 100 FTE in 1996 to 3.7 injuries per 100 FTE in 2002. This is positive news and suggests that the many interventions and policy changes implemented throughout Canada have been at least partially effective in reducing the national injury rate in healthcare.

Examining injury rates by province (Figure 2) revealed wide variability, with injury rates ranging from 1.6 in New Brunswick in 1996, to 8.2 in PEI in 1999. Given that the nature of healthcare work across the provinces is somewhat consistent, this raises the question of what accounts for this large spread in injury rates. While it is tempting to suggest that the rates are indicative solely of prevention initiatives (as mentioned earlier), consideration must also be given to the provincial differences in tracking, reporting, claim adjudication criteria, as well as differences in policy.

When comparing individual provinces to the 6-year national average (Figure 1) injury rate of 4.1, only Ontario, New Brunswick, and Alberta were below the national average. The injury rate for BC, Manitoba, and New Brunswick appeared to have increased markedly from 1996 to 1998, while all other provinces remained approximately the same or had considerably less variation. However, BC experienced a considerable decrease in injury rate from 1999 onwards.

It is no surprise that the trend in Ontario’s annual injury rate closely reflects the trend in the national injury rate since Ontario’s labour force makes up approximately one-third of the national labour force. Ontario’s low frequency of time-loss injury claims in comparison to its large workforce is positive, and may indicate health related policies and programs implemented in this province have been successful. It appears that BC’s injury rate has had an important effect on the national rate too, given that the dramatic decrease in BC’s injury rate from 1999 to 2002 was also reflected in the decrease in the national injury rate. Several reasons may explain the positive results in BC, from the introduction of MSI regulations in 1997, to the formation of OHSAN, a provincial health and safety agency, in 1998 to the amalgamations of the Health Authorities in 2001. Further possible explanations for BC’s dramatic reduction in injury rate are discussed in Section 3.5.
Injury ‘rate’ patterns for “Healthcare Professionals” and “Technical, Assisting and Other Related Occupations” follow a similar trend to the provincial average. However, one noticeable difference is that the “Healthcare Professionals” injury rate is almost half that of the “Technical, Assisting and Other Related Occupations”. At a closer glance, the injury rate for “Healthcare Professionals” was fairly steady from 1997 until 2000, and then declined by 9% and a further 10% in 2001 and 2002, respectively. The “Technical, Assisting and Other Related Occupations” experienced an increase in injury rate from 1996 to 1999 and subsequently a marginal reduction in injury rate by 2002.

Injury ‘frequency’ patterns for “Assisting Occupations in Support of Healthcare” show that Ontario, Québec, and BC had substantially higher numbers of injuries when compared to all other provinces (as expected given the size of their workforces) from 1994 to 2002. Ontario, BC and Québec all saw steady declines in injuries for this occupational group from 1994 to 1999, with injuries for Ontario and BC levelling off, but injuries for Québec beginning to rise again each year up to 2002. All other provinces recorded relatively stable injuries per year from 1994 to 2002. Each province experienced modest yearly fluctuations in rates, but Alberta saw a dramatic increase from almost no injuries in 1994 and 1995, to more than 500 injuries per year thereafter. Reasons for this increase are unknown, but may be related more to tracking of data than to the actual number of injuries that occurred. Data for “Other Technical Occupations in Healthcare” revealed greater variability in year-to-year fluctuations for each province. Québec and Ontario saw steady declines in frequency of injuries each year from 1994 to 2002. BC experienced a dramatic increase in injuries from 1996 to 1997 and then levelled off.

Analysis of time-loss claims by injury source revealed that MSIs consistently comprised the majority of claims when compared to other injury types for all provinces. From 1997 to 2002, Saskatchewan, PEI and BC had average MSI rates above 5; Manitoba, NL, Québec and Nova Scotia had MSI rates from 3 to just above 4; and Alberta, Ontario and New Brunswick had MSI rates at 2.3 or below. It should be noted that the multiplicity of different codes within each province confounds the comparison of MSI rates across provinces, making more detailed comparisons very difficult. For example, BC and Alberta disaggregate MSIs according to connective tissue diseases (NOI code 17) and traumatic injuries to muscles, tendons, ligaments and joints (NOI code 02), carpal tunnel syndrome (code 12410) and back pain (code 09720). In Québec, back pain is underestimated with AWCBC data because most of the cases are coded under ‘sprain’ instead of one of the dorsopathies.
Analysis of “puncture wounds” as a proxy for needle-stick injuries produced a large variation in provincial rates for the time period 1996-2002, in the range of 0-0.05 claims per 100 person-years. This low rate reflects the fact that needle-stick injuries do not generally result in accepted time-loss claims. BC experienced a large reduction in needle and syringe injury rates from 1996 to 2002, whereas Saskatchewan experienced a large increase in injury rates during the same time period. The majority of provinces saw little or no change in injury rate when comparing 1996 data to 2002 data. The research on this subject indicates that these types of incidents are largely under-reported, yet are an ongoing concern for healthcare workers.

Stress, anxiety, and mental disorder claims were analysed; however, due to the low number of claims, only BC, Ontario, Québec, and Alberta had sufficient data to comment on trends. Most WCBs only recognize these types of claims as a result of a traumatic event (e.g. post-traumatic stress). Québec and BC experienced fluctuations and had a substantially higher claim rate than the other two provinces, whereas the rate for Ontario remained fairly constant.

In Ontario, 58% of all stress-related claims were directly related to violence, with a steady increase in post-traumatic stress from 1996 to 2002. Québec saw a steady reduction in stress, anxiety and mental disorder claims from 4 to 2.5 claims per 10,000 FTE during the same time period. Alberta experienced large fluctuations during this time period.

There is wide inconsistency in policy among provincial WCBs in categorizing infectious disease claims, and this category comprises only a very small proportion of all time-loss claims. Infectious diseases were thought to be associated with stress, especially within the context of SARS and HIV, but the number of claims was very small. The SARS outbreak of 2003, however, may give rise to a considerable increase in reporting and claims for Ontario and BC in 2003 and 2004.

Violence is also an emerging concern for healthcare workers. The most prevalent injury in this category consists of ‘surface wounds’ such as abrasions and bruises. The majority of provinces experienced either no change or a slight reduction in the injury rate from 1996 to 2001, with the exception of PEI, BC, and Manitoba. PEI went from the lowest injury rate in 1996 and 1997 (possibility indicating flaws in the recording of data) to the highest injury rate from 1998 through to 2000. BC had 3.25 claims per 100 workers in 1996, peaked at 4.0 in 1998 and gradually decreased to 2.5 in 2001. Access to “no time-loss” claims data would give a better indication of the overall severity of this issue.
Policies and Regulation Changes

The most common policy and regulation changes across provinces were related to the need for safer equipment (such as lifts and electric beds), MSI prevention programs, return-to-work programs, and violence prevention programs. With the implementation of these programs, many provinces reported an initial drop in injury rates; this occurred, for example in Québec and Ontario around 1996. However, these drops were generally followed by a gradual rise in injury rates, in the case of Québec and Ontario, after 2000.

All provinces report that since 2000 they have experienced an increased prevalence of the following factors that contribute to increased risk of injury: complexity of care, major healthcare restructuring and amalgamations, reduction in the number of patients/resident care beds, and increased workload in an aging workforce. This suggests that while there has been an increased focus on prevention and safety programs, their impact has been undermined by general changes within the healthcare sector. It is very likely that injury rates would have increased substantially had it not been for this growing attention to prevention, rather than decreasing marginally as was the case from 1998 to 2002. However, we do not have data to substantiate this hypothesis.

There are different eligibility criteria as well as adjudication policies and apparent practices across the country that affect the likelihood of a claim being accepted or even being reported. For example, acceptance of repetitive strain injuries is often debated due to the difficulty of “pinpointing” how the injury occurred; there are different rules on when an injury “counts” as a time-loss injury (e.g. first day missed from work versus only after a waiting period of a few days); and even who is considered a “healthcare worker” differs across the country and over time. It should be recognized that the data available for this project were not disaggregated to the specific occupational level, and because the occupational mix within the broad categories varies amongst the provinces, comparison of the rates of injuries for these occupations should be undertaken only with great caution.

It is important to note that regulations affecting time-loss claims are applied differently across Canada. For example, the waiting period before compensation may vary from 3 days in New Brunswick, to an average of 2 days in Nova Scotia, to the following day in NL, Quebec, and Ontario. Other provinces provide 90-100% of average weekly wages as compensation as of the day following the time-loss injury. These variations in compensation and waiting period are possible factors influencing the incentive to submit claims. It must be stressed that these
differences preclude the reliability of any conclusions comparing rates in one province to another.

**Conclusion**

As described in this report, injury and illness rates vary considerably within the healthcare sector by province, occupational group, and injury/illness type. Data aggregated at the provincial level can only provide averages and therefore much information is lost in the ability to compare across provinces, moreover, differences in provincial coding and adjudication policies presents complications.

MSI comprise the majority of time-loss claims in every province, of which patient handling injuries are a primary concern. While many strategies have been implemented to specifically target patient handling issues, MSI risks are still very apparent. Needle-stick injuries and infectious diseases make up only a small proportion of time-loss claims. However, studies have shown that even before the SARS outbreak, exposure to infectious agents, including blood borne pathogens, was often associated with considerable anxiety from fear of contracting a fatal disease. Thus, despite the scarcity of time-loss claims, these risks must be taken very seriously. Mental stress also accounts for very few time-loss claims, even though numerous national surveys and studies suggest burnout and mental stress are a growing problem in healthcare. The paucity of time-loss claims due to cumulative stress appears to be related more to acceptance criteria than actual incidence of time loss due to workplace stress. Unfortunately, discussion of adjudication criteria is beyond the scope of this report. It is clear though that the only regularly accepted types of mental stress claims are those due to post-traumatic stress. The focus on post-traumatic stress disorder, but not on all mental stress claims, is reminiscent of the WCB’s focus on traumatic incidents while rejecting claims due to cumulative trauma. Anecdotal knowledge of long-term disability (LTD) trends suggests that LTD data are a better source of information on trends in this regard than WCB data.

While WCB data are the most complete and readily available source of information for tracking occupational injuries and disease, these data by no means provide a good indicator of overall work-related injuries and disease in the healthcare workforce.
Recommendations

Limitations in the collection, analysis, and interpretation of data are explained and recommendations are listed to address these issues. Specific occupational health and safety recommendations have also been made to address workplace injury and illness in the healthcare sector.

Data Recommendations

As noted above, there are many factors that limited tracking and comparison of trends across Canada, and indeed the data in this report should be regarded with considerable attention to these limitations. To remedy these limitations, we offer several recommendations:

1. Undertake a standardization of the coding of illness and injury data by all provincial WCBs to improve the consistency of AWCBC data.
2. While it is recognized that claims adjudication policies and practices are provincial prerogatives, and will always be influenced by political differences across the provinces and over time, more explicit clarification of adjudication policies and practices would allow for adjusting for these differences – which influence not only the allowance of claims, but also the reporting of claims. Clarification of financial incentives/disincentives to reporting; waiting periods; and acceptance criteria (particularly for mental stress and cumulative trauma claims) would be most desirable.
3. Currently the data at the AWCBC are accessible by occupational groupings and by sector. However, labour force data are not readily available at the same discrete level, thereby limiting the analysis by AWCBC’s occupational groups. The fact that risks differ in different occupational groups within the large groupings (e.g. RNs, LPNs, and physicians are all in the same group – yet their risks differ widely) precludes meaningful conclusions. As we did not have quick access to rates for “RNs only” across the country, our analyses are considerably limited. Accessing data by occupation disaggregated to this level would help considerably.
4. Additional data that are not routinely collected and/or coded that would be useful include: time of incident, so that injuries may be analyzed by shifts; type of healthcare workplace, i.e., acute care, long term care, community and home care, so that claims from large facilities within sub-sectors can be compared to like facilities in other jurisdictions and
tracked over time; and demographic information, to help determine, for example, the impact of an aging healthcare workforce.

5. While the above measures would help in the monitoring of the work-related injuries of the healthcare workforce, it has to be recognized that each WCB will always be limited in its ability to provide the data needed in this regard. Cross-sectional surveys (such as the one proposed for nursing personnel, being developed as a partnership between Health Canada, the Canadian Institute for Health Information (CIHI) and Statistics Canada) would be useful adjuncts, especially in areas such as mental health. Even better would be longitudinal studies of healthcare workers, using secondary data sources (such as healthcare utilization data and other linked data) such as one currently being developed in British Columbia. Ideally, longitudinal studies linking survey data (that combines health data with workplace exposure and risk information) with comprehensive secondary data, would provide the best monitoring tool for the analyses of trends and the effectiveness of interventions.

Recommendations to decrease work-related injuries and illnesses

Considerable efforts have been made across the country to address workplace injuries and illnesses. Sharing across provinces of data on the effectiveness of programs, policies and interventions that impact positively on reducing injury, illness and disability should be encouraged. Specifically, successful tools, strategies and interventions that should be shared include:

- Programs to track injuries (including data collection tools for needle-stick, MSI and other types of injuries). OHSAA's Workplace Health Indicator Tracking and Evaluation (WHITE) system is one such example;
- Infection control guidelines and training of workers;
- Return-to-work programs including interventions for rehabilitation of injured workers;
- Ergonomic programs to reduce MSI and improve workplace productivity and efficiency;
- Provincial funding programs to support important health and safety initiatives, such as electric beds, safe patient handling equipment, etc.;
- Examination of staffing levels, workload and other factors related to workplace organization, including the effectiveness of flexible scheduling of direct care activities, health and safety training, and other efforts to establish a healthier work climate;
- Violence prevention training to enable workers to defuse violent situations including training on how to interact with residents/patients with cognitive problems;
- Support programs to reduce psychological stress in the workplace.

There is growing recognition that the health of the healthcare workforce needs attention. Occupational health and safety must be better integrated into the orientation and job description of workers, and be better aligned with the delivery of quality patient care. Any efforts that can promote further research in this area, including the sharing of effective strategies to improve workplace health, and a means to promote knowledge translation of these best practices, should be encouraged.

Hopefully the evaluation begun in this report will serve as a catalyst to more cross-provincial collaboration.
1. INTRODUCTION

1.1. Background

Research on the Canadian workforce has consistently indicated that healthcare workers have a greater risk of workplace injuries and more mental health problems than any other occupational group. In British Columbia (BC), the 2000 Workers’ Compensation Board (WCB) Focus Report on Occupational Injury and Disease\(^1\), and the Occupational Health and Safety Agency for Healthcare in BC (OHSAH) studies on Alternative Level Care\(^2\) and Intermediate Care facilities\(^3,4\) revealed that time-loss injury rates vary considerably by healthcare work setting (Acute, Long Term Care and Community Care), and by occupation (Registered Nurse (RN), Licensed Practical Nurse (LPN), and Care Aide). Indeed nurses incur the highest use of sick hours compared to any other workforce in Canada\(^5,6\). However, the use of sick hours by nurses should be interpreted with the consideration that there is an ethical imperative for nurses to stay at home when sick in cases where they might infect patients/residents. According to Statistics Canada, in 1999 nursing personnel had longer duration of time-loss and were more likely to miss work each week due to an illness or injury than employees in any other sector or other types of shift-working occupations.\(^7,8\)

In Canada, nearly one-third of registered nurses (RNs) in the workforce are aged 50 years or older, and will soon reach the retirement age of 65 years; and an increasing proportion of RNs are retiring early\(^9\). Canada is expected to lose a total of 28,242 nurses by 2006 due to retirement. There are a growing number of studies on healthcare workers (e.g., Aiken et al., 1994\(^10\); Koehoorn and Sullivan, 2001\(^11\); Yassi et al., 2002\(^12\); Koehoorn et al., 2002\(^13\); Lowe 2002\(^14\); Shannon et al., 2001\(^15\)) that recommend the creation of healthy workplaces that support worker well-being, organizational performance, retention of qualified personnel, and ultimately ensure the provision of high quality care.

The Health Accord of 2003, which increased federal support for healthcare through to 2006, focused on fiscal support for a wide variety of needs within the healthcare sector, such as cash transfers to the provinces, specialized equipment and training, building a national system of health records, and promoting health programs to meet specific community needs. The Accord also identified strategies that need to be undertaken to strengthen the evidence-base for national planning, promote interdisciplinary provider education, improve recruitment and retention, and ensure an adequate supply of needed healthcare workers. One retention strategy focuses on improving working conditions. To this end, Health Canada determined that a better
understanding of the workers' compensation injury data and policy trends in healthcare across Canada was needed.

1.2. Objectives
The objectives of this report are to:
- Identify patterns of occupational injury and disease in healthcare across Canada
- Identify and discuss policy changes and practices across Canada that may have impacted and/or otherwise explain occupational injury and disease rates
- Discuss limitations in the data analysis and what can be done to address these limitations
- Provide recommendations to decrease workplace injuries and illnesses

1.3. What we know about the health of the healthcare workforce
Excellent reviews conducted by Koehoorn and Sullivan (2001) \(^\text{11}\), among others, provide very useful background information to this project. As noted in this and many other reports \(^\text{12}\), healthcare workers face substantial occupational risks and health impacts related to: infectious diseases, violence from patients/residents with dementia, allergic reactions from chemical agents, and ergonomic issues associated with patient handling. As noted by Koehoorn and Sullivan \(^\text{11}\), important developments are changing the working environment for healthcare workers, including increased job complexity and increases in the number and acuity of chronic patients, in a time of cost containment and downsizing that alter the nature of work and the resources available to workers to do their work.

These developments have resulted in fewer jobs, increased job insecurity, increased workload, longer working hours, higher patient-staff ratios, and changes in workplace structures (e.g. loss of head nurses and chief nursing offices). To set the context for this report, a brief summary follows of current knowledge about the health of healthcare workers.

Musculoskeletal injuries (MSIs)
Musculoskeletal disorders are the major source of work-related disability among healthcare workers.\(^\text{1 16 17 18 19 20 21 22 23 24}\). In recent years, researchers have directed more attention to the fact that healthcare workers, especially those working in long-term care settings, are at a high
risk of MSI\textsuperscript{25, 26}. Although definitions of MSI outcomes vary, the reported prevalence of upper-body musculoskeletal symptoms among nursing personnel during the past 12 months, as reviewed by Koehoorn and Sullivan\textsuperscript{11}, ranged from 24\% to 60\% in published studies\textsuperscript{27, 28} and for lower-body symptoms from 33\% to 72\%\textsuperscript{29, 30}. French et al.\textsuperscript{20} found the lifetime prevalence rate of back pain in healthcare workers to be greater than 70\%. Higher incidence rates of musculoskeletal disorders have been observed in healthcare workers compared to the general population\textsuperscript{31, 32} and to other occupational groups\textsuperscript{33}.

Musculoskeletal back injuries have been a significant problem in healthcare, especially for nurses providing direct patient care\textsuperscript{34}. Nurses with frequent and direct physical contact with patients have been shown to have a higher incidence of musculoskeletal back injuries than those who work with patients infrequently\textsuperscript{35}. Many nurses who have been injured commonly report patient handling as a major cause of their injury\textsuperscript{36, 37, 38}. Biomechanical analyses of spinal compressive and shear forces\textsuperscript{39, 40, 41} and worker perceptions\textsuperscript{42, 43} suggest that manual lifting and transferring tasks are particularly high-risk activities.

The incidence of low back pain is equivalent for both male and female healthcare workers. Maximum allowable limits of 3400 Newtons for compressive forces on the L5/S1 disc have been recommended for occupational manual handling tasks\textsuperscript{44}. However, estimates of the compressive forces associated with manually handling patients usually exceed this safety guidance and physical limits, especially for females\textsuperscript{39, 40}. The risk on the musculoskeletal system when manually patient handling is due to: the weight or required force to lift/transfer or reposition a patient/resident, the horizontal and vertical location of the patient/resident relative to the healthcare worker, the frequency, duration and orientation of lifting, stability of the patient, workplace geometry, and the physical environment\textsuperscript{40, 44}.

The potential for MSI when patient handling is further compounded by the patient’s size, shape, deformities, level of fatigue, cognitive functioning, and cooperation, as well as the worker’s physical impairments or lower limb function, balance, and coordination\textsuperscript{22, 45}. Cognitively impaired patients/residents can be unpredictable and may suddenly become combative, resist efforts, or go limp during a transfer, causing a healthcare worker to lose balance and/or make sudden unexpected movements\textsuperscript{45}. These sudden unexpected movements and muscular contractions can cause high muscular forces within the back leading to fatigue and possible failure of the muscles surrounding the lumbar spine\textsuperscript{41, 46}.
The combination of a high injury prevalence associated with patient handling, and the characteristically large estimates of biomechanical stress associated with manual techniques for patient handling, have spurred considerable efforts by researchers and health and safety practitioners to study interventions that replace manual patient handling techniques with mechanical options such as floor and ceiling lifts, and which also show the effectiveness of these approaches and their favourable cost benefit \(^{47,48,49,50,51}\).

Return-to-work (RTW) programs also appear to be successful in facilitating and supporting injured employee’s return to work\(^{52,53,54}\), especially where they integrate primary and secondary prevention practices\(^{55}\).

**Healthcare Staffing Levels**

Since the mid-1990s Canada and other countries have been engaged in healthcare restructuring, each with different foci, time frames, and stakeholder involvement\(^{56}\). Within residential care in BC, the traditional model of care has changed from institutional care that emphasizes sickness, incapacity, and hierarchical roles to a social model that creates a home-like environment\(^{3,4}\). Across countries, although geographical and social environments differ, the results of healthcare restructuring are similar: reduced bed capacity, reduced nurse staffing levels, increased workload, nurse role changes, and a flattening out of organizational structures, which results in a loss of nurse leadership and management, reduction in clinical support, and decreased satisfaction with career future, hospital identification, and co-worker support\(^{3,57}\).

In Ontario, minimum staffing levels were eliminated in long term care in 1997. Managed competition in sectors has also led to compressed time available for patient care. Employment statuses indicate high levels of reliance on casual or part time nurses. The lack of full time employment opportunities often results in new graduates having as many as three part time jobs. With the absence of regulations limiting the number of hours worked within specified time periods, there is the possibility of injuries and burn out due to fatigue.

In intermediate care facilities in BC, staffing levels were examined in relationship to job satisfaction\(^{3}\). There was a strong negative correlation between resident-to-worker ratio and job satisfaction. The implication is that a low worker-to-resident ratio would result in higher workload and low job satisfaction. The *Report to Congress: Appropriateness of minimum nurse staffing ratios in nursing homes*\(^{58}\) stated that there was a strong relationship between low nursing staff levels and workload, decreased resident outcomes, low job satisfaction, and high turnover in resident care staff.
Psychological distress

Violence against healthcare workers is a major problem. In one recent survey, 38% of RNs reported emotional abuse during their last five shifts, and more than 20% in some jurisdictions reported physical assault. While the majority of abusive events do not result in serious physical injury, the psychological effect on workers can be considerable. A study by Poster (1996) found that 45% of Canadian and 61% of UK psychiatric nurses had been assaulted at work. A 2002 Canadian survey by Henderson (2003) found that over 50% of front-line nurses had been verbally abused and 22% reported physical abuse within the previous 12-month period. Results from this qualitative study conducted in Canada and the UK, across four clinical settings (maternity, community, emergency, and mental health) found that nurses:

- Frequently experience threats at the hands of patients and their relatives.
- Routinely encounter violence and threats in the context of their work. Verbal abuse is an almost daily occurrence.
- Receive inadequate support from other healthcare professionals or from administration in addressing the issue of violence in the workplace.
- The level of threat is best documented in emergency and psychiatric settings although nurses clearly feel at risk no matter where they work.
- The level of violence in the workplace has implications not only for nurses' health and safety, but also for the profession's ability to attract and retain nurses within the healthcare system.

According to the National Population Health Survey (NPHS), RNs, LPNs, and Care Aides reported a significantly higher depression score than women in teaching occupations and women in childcare occupations. Approximately 11% of nursing assistants sought healthcare attention for mental health reasons compared to 7% of other Canadians. A significantly higher percentage of home care workers reported mental health symptoms on a regular basis when compared with all working women. Myette found that in the healthcare industry in BC, mental disorders, of which 73% are depression, represent the fastest growing segment of long-term disability claims. A survey of Ontario nurses and nursing supervisors demonstrated that increased workload due to restructuring contributed to emotional exhaustion and poor psychological health. A longitudinal study on the impact of cost reduction strategies reported significant increases in staff depression, anxiety, emotional exhaustion, and job
insecurity among employees. In 2003, claims for depression in BC healthcare workers accounted for 13.8% of all active long term disability claims, exceeded only by claims for back disorders. In BC, a freeze in access to the number of extended care beds, as well as increases in the numbers of elderly needing care, resulted in a growing population of alternate level care (ALC) patients in many hospitals, and research suggested that some ALC models (those dedicated to ALC patients rather than mixing with the general populations of patients) were associated with better health outcomes from staff than other models.

As summarized by Koehoorn and Sullivan, workload is the most consistent stressor occurring in nursing occupations, including acute care nurses, surgical nurses and general hospital nurses. The key job stress factors associated with ill health among healthcare workers in published studies have been work overload, pressure at work, a lack of control over work or a lack of participation in decision making, poor social support, problems with management style such as unsupportive leadership or a lack of communication/feedback, staff shortages or unpredictable staffing, scheduling or long work hours, and conflict between work and family demands.

Research has shown that a combination of these work-related characteristics, such as high work demands coupled with individual characteristics (psychological stress, gender, and personality), can predict job satisfaction, work stress, and the chances of reporting a work-related injury. In a study conducted by the Hospital Employees' Union in BC, 58% of randomly selected union members felt either mentally or physically stressed at the end of their workdays. Josephson and Vingard found that exposure to adverse psychological work conditions in combination with physical demands increased the strength of the relationship to the risk of MSI compared to either condition alone.

The literature suggests that workers who are dissatisfied with their work are more likely to report low back problems. Back pain and other MSI are of multifactorial origin, with work-related physical loads in relation to personal functional capacity only partially explaining the high number of MSI in healthcare. Psychological factors may directly influence mechanical loading on the body through changes in posture, movement, and exerted forces.

Healthcare workers face stresses from a variety of sources, and worldwide the issue of stress and occupational burnout of health professionals is a concern. It is clear that workload, organizational climate, and overall job stress affect worker safety and the likelihood of success of occupational health intervention programs. In the case of HCWs, studies have demonstrated that adherence to blood and body fluid (BBF) exposure control procedures may
be related to key organizational and job stress variables. For example, in a cross-sectional study of HCWs working in correctional centres in the US, adherence with universal precautions was positively associated with several work-related variables, including safety climate and job satisfaction\textsuperscript{110}; whereas security related work constraints, adverse work conditions, job discrimination, and perceived work stress were inversely correlated with adherence. Investigations that have not included measures of work organization and occupational stress may fail to identify reasons for failure to comply\textsuperscript{111}.

The concepts of organizational culture and organizational climate were developed over 50 years ago and have been studied in the healthcare industry in relation to both quality of care and employee moral. Organizational culture can be operationalized by considering factors related to the values and beliefs of the organization, whereas climate is reflective of the feelings and attitudes of employees and administrators within the organization. This can affect both the quality of work life and the quality of care within healthcare organizations\textsuperscript{112 113 114 115 116}.

Hignett\textsuperscript{117} refers to a healthcare facility as a town or microcosm of society with many different activities, social and religious groups and interactions. Complexity characterizes the healthcare industry with various subcultures that shape the values, beliefs and perceptions of each department. A healthcare facility as a whole has a specific workplace culture, as does each of its departments. As well, the various professionals who practice within the healthcare facility may have their own culture and perceptions of the culture within their department\textsuperscript{118}.

McDaniel and Stumpf\textsuperscript{119} examined the workplace culture and certain features of the healthcare environment, and found that strong leadership, work satisfaction, retention, work support, job knowledge, and a sense of belonging were all related to a good workplace culture. A good workplace culture leads to improved recruitment, retention of staff and positive resident outcomes\textsuperscript{120 121}. A poor workplace culture can be regarded as one where workers experience role ambiguity and conflict, low moral, decreased authority and responsibly, and lack of decision making abilities\textsuperscript{10 122 123}.

During the 1980s, the term magnet hospital was coined within the United States to describe hospitals that had reputations for being “good places to work” and “good places to practice nursing”. These institutions were singled out for being particularly successful in attracting and retaining professional nurses\textsuperscript{124 125}. Magnet hospitals perform better than the average United States hospital, with lower reported turnover and vacancy rates and higher job satisfaction levels\textsuperscript{126}.
Infectious Diseases and Blood and Body Fluid Exposure

Infectious diseases are prominent in the healthcare workforce, as was highlighted by the global outbreak of atypical pneumonia\textsuperscript{127} or Severe Acute Respiratory Syndrome (SARS) when very high levels of both occupational transmission as well as nosocomial spread were noted.\textsuperscript{128} The death of three Canadian HCWs from SARS highlights the seriousness of occupational transmission. In a nosocomial outbreak of SARS in Toronto 17 deaths occurred, 47 (36.7\%) people to whom SARS was transmitted were HCWs, and some of those HCWs then transmitted SARS to household and family members\textsuperscript{128}. A retrospective case series of 144 patients with suspect or probable SARS in the Greater Toronto Area revealed that 51\% of the cases were HCWs\textsuperscript{129}. Internationally, HCWs have faced similar risk of SARS\textsuperscript{130 131 132}.

SARS is only the most recent of many emerging pathogens that have appeared in recent years. Other examples include HIV/AIDS, Hantavirus pulmonary syndrome, monkeypox, West Nile virus, and hemolytic uremic syndrome (certain \textit{E.coli} strains)\textsuperscript{133 134}. It has been estimated that some 30 novel pathogens have emerged in the past two decades, many in recent years, and the incidence may be increasing\textsuperscript{135}. Well-known pathogens, such as influenza, measles, and \textit{Varicella zoster} also can cause morbidity to HCWs, thereby placing patients at risk\textsuperscript{136}. Tuberculosis (TB) is expected to increase substantially world wide during the next decade because of the interaction between TB and HIV, the development of multi-drug resistant TB, the decline of public health services and the increase in immigration of people from countries with a high prevalence of TB\textsuperscript{137}.

Hepatitis B virus (HBV), Hepatitis C virus (HCV) and HIV are risks to healthcare workers\textsuperscript{138 139 140 141 142}, although with the widespread adoption of preventive immunization, adherence to universal precautions and use of personal protective equipment, the number of cases has declined considerably\textsuperscript{143 144}.

The Canadian Needlestick Surveillance Network (CNSSN) has monitored HCWs occupational exposures to BBF and has reported surveillance data from April 1\textsuperscript{st}, 2000 to March 31\textsuperscript{st}, 2001 for 12 hospitals across Canada\textsuperscript{145}. According to this surveillance, there were 1,436 reported occupational exposures in the 12 participating sites and the overall rates of injury were 4.24 per 100 full time equivalents (FTEs)\textsuperscript{145}. The highest percentages of percutaneous injuries were due to needles for injection (23\%) and needles for drawing blood (14\%), followed by suture needles\textsuperscript{145}. The Exposure Prevention Information Network (EPINet) at the University of Virginia reported that the annual number of percutaneous and mucocutaneous exposures to BBF was 786,885 in 1996 for American HCWs with the greatest number of BBF exposure
incidents resulting from needles attached to syringes, followed by suture needles\textsuperscript{146}. When HCWs are exposed to blood, the risk of exposure to the HBV, HCV and HIV are far from negligible\textsuperscript{147 148 149}.

Rates of transmission of HBV following an exposure remain substantial for HCWs who are not vaccinated, and HCV has become an increasing concern for HCWs as this virus is the most frequently transmitted infection through needle-stick injuries, with a transmission rate of 2.7\%-10\%\textsuperscript{149 150}. Although the risk of HIV seroconversion is lower for HCWs in Canada as compared to the US, for some high risk groups the estimated cumulative (lifetime) risk may be as high as 4\%\textsuperscript{151}. Even though aggressive research for solutions to HIV continues, a vaccine is probably decades away. Hence, attention to prevention of exposure is paramount.

While most needle-stick 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. Needle-stick 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\textsuperscript{149 152}.

The risk of transmission of infectious diseases can also have psychological effects. During the first SARS outbreak in Ontario, it was documented that the psychological impact of SARS on healthcare workers was extremely high in one Ontario hospital; staff treating sick colleagues found their role difficult, and there was considerable concern about transmitting SARS to family and friends\textsuperscript{153}.

As these examples demonstrate, HCWs are at the frontline of emerging and existing infections and thus prevention programs and strict infection control protocols are crucial.

**Skin and respiratory disorders**

A growing concern for healthcare workers are skin and respiratory disorders as a result of exposure to irritants and allergenic chemicals, including glutaraldehyde, formaldehyde, ethylene oxide and latex\textsuperscript{154 155 156 157}. As noted by Koehoorn and Sullivan\textsuperscript{11}, another factor that adds to the uniqueness of these occupational risks is that many diagnostic and therapeutic treatments intended for patients are deliberately designed to have potent effects on biological
systems. For example, operating room staff can incur exposure to anaesthetic gases, which at high exposure levels can cause headache, loss of attention and concentration problems as well as reproductive hazards\textsuperscript{158}. Chemotherapeutic or anti-neoplastic drugs may also pose risks due to their potential carcinogenic effects\textsuperscript{159}. Healthcare workers face reproductive hazards related to chemical and biological agents, shift work, high physical workload, and psychological stress, although research is lacking in some of these areas\textsuperscript{160}.

Contact dermatitis and non-melanoma skin cancer are the most common occupational skin disorders in North America\textsuperscript{161} \textsuperscript{162}. Another type of skin disorder prevalent in healthcare is latex allergies. It is estimated that 7-10\% of healthcare workers are allergic to latex and latex products\textsuperscript{163}. Latex exposure can occur from direct contact with the skin or from aerosolization of the powder which is inhaled from the latex glove\textsuperscript{163} \textsuperscript{164}. Medical products containing latex are very common in gloves, aesthetic equipment, ventilator tubing, intravenous tubing catheters, drains, syringes, and tourniquets, with the highest concentration of latex products in the operating room\textsuperscript{165}. A multi-disciplinary approach, such as OHSAS's Latex Database, is needed to identify products that contain latex and non-latex alternatives. Protection from skin and respiratory irritants has included substitution with other chemicals, latex-free products, personal protective equipment, accurate health surveillance, and engineering controls\textsuperscript{166}.

1.4. Methods

Data collection

To identify patterns of occupational diseases and injury rates from healthcare organizations across Canada, ‘lost-time’ claims data were collected from each province for the period 1992 to 2002. A ‘lost-time’ claim is defined as a non-fatal injury (or disease) where an employee is compensated for a loss of wages following a work related accident, or exposure to a noxious substance, or receives compensation for a permanent disability with or without any time lost in his or her employment (e.g., if an employee is compensated for a loss of hearing resulting from excessive noise in the workplace). ‘Lost-time’ claim data were obtained from the Association of Workers’ Compensation Boards of Canada (AWCBC) through their National Work Injuries Statistics Program (NWISP). The work injury and disease statistics (Appendix 1), produced by the AWCBC for the NWISP, are derived from administrative records for accepted time-loss injuries used by the twelve (NWT & Nunavut are combined) provincial and territorial WCBs to record time-loss claims for injured workers.
Claims have been coded according to the new Canadian Standards Association (CSA) ‘Z795-03 Coding of Work Injury or Disease Information’ (2003) standard for injury variables (nature of injury or disease). Data for the years 1994 to 1997, which were coded to the Canadian Work Injuries Standard (CWIS), have been correlated to the Z795 standard.

The data analyzed in this report were for the most part accepted lost time injury claims by:

- Province
- Healthcare occupation (see Appendix 2 for definitions)
- Year of Injury from 1992 to 2002
- Nature of Injury (see Appendix 3 for definitions)
- Source of Injury (see Appendix 3 for definitions).

Definition and Source of Data on Healthcare Workers

AWCBC categorizes each claim based on the respective industry. WCBs classify businesses according to their industrial activity on the basis of the Standard Industrial Classification Statistics Canada (Catalogue 12-501). The Health and Social Services subsector, consisting of groupings of companies and institutions primarily engaged in providing health and social services, was used for this study. The Health and Social Services subsector includes a number of businesses, including dental, laboratory, and social assistance. There was still a further need to isolate healthcare workers from within this industrial group. This was undertaken on the basis of occupation. The occupation of an injured or ill employee is coded according to the National Occupational Classification (1991) of Human Resources Development Canada (Catalogue No. MP53-25/1-1993E). The specific occupations included in this analysis are:

031 Managers in health, education, social and community services
311 Physicians, dentists and veterinarians
312 Optometrists, Chiropractors and other health Professionals
313 Pharmacists, dieticians and nutritionists
314 Therapy and assessment professionals
315 Nurse supervisors and registered nurses
321 Medical Technologists and technicians (except dental health)
323 Other technical occupations in healthcare (except dental)
Assisting occupations in support of health services.

- Physiotherapist
- Occupational Therapist
- Staff Registered Nurse
- Licensed Practical Nurse (Registered Nursing Assistant)
- Nurse Aide, Care Aide, Orderly

An important group of occupations in healthcare (housekeeping, laundry, food service, and maintenance occupations) was not included in the analysis of lost time claims. These occupations are not segregated specifically for healthcare in the NOI so we were not able to include these time-loss claims in the data received from AWCBC.

**Determination of Rates**

The analysis of injury claims provides useful information, but in order to undertake an analysis of the patterns of injuries in relation to changes in the workforce size, it is necessary to obtain data on the workplace size by province and occupation.

The WCBs in many provinces use the Statistics Canada average industrial wage within the sector as a way of determining the size of the workforce to derive their injury rate statistics. For the purposes of this project, it was felt that this did not provide accurate enough information. Other sources of workforce size were considered, including requesting payroll hours from the sector associations and using government information, as these would provide the comparative information needed for this project. In the end, it was determined that the most accurate and consistent method of determining the size and composition of the workforce in a timely manner was to use the Labour Force Survey (LFS) data from Statistics Canada.

The main objective of the LFS is to divide the working-age population into three mutually exclusive classifications - employed, unemployed, and not in the labour force - and to provide descriptive and explanatory data on each of these. LFS data are used to produce the well-known unemployment rate as well as other standard labour market indicators. The LFS data for this project were a 12-month average of the total number of hours usually worked by all employed persons in the LFS reference weeks. In order to annualize the size of the workforce, the total weekly hours was multiplied by 52 (weeks in the year). This report used 2,000 hours as the yearly equivalent of productive hours. Throughout the report, the terms “Person-Years” and “FTE” are used interchangeably. This reflects a person year of risk.
Raw NWISP data were available by three occupational groups, but raw labour force data were only available by two occupational groups, therefore the injury rate analyses performed for this report were limited to: “Healthcare Professionals” and “Technical, Assisting and Other Related Occupations”. Where applicable, frequency analyses were performed for the three occupational groups defined by the Standard Occupation Code (SOC 2001), “Nurse Supervisors and Registered Nurses”, “Other Technical Occupations in Healthcare”, and “Assisting Occupations in Support of Healthcare”.

Limitations of data

Using data from various jurisdictions gives rise to concerns about consistency. AWCBC undertakes an extensive data evaluation process by checking for errors and consistency after the data have been received from the Boards. This involves an edit for invalid codes and time series analyses. If unacceptable variances are observed the appropriate Board is contacted to provide explanations or to correct the data. The data are consistent within each jurisdiction over time, but differences may be evident because the acts and regulations administered by jurisdictions are not identical, and because each jurisdiction has unique operating procedures.

All injuries that have been reported by workers, employers or healthcare providers, and which have been accepted for compensation by a WCB are included in this report. These activities are similar but not identical at the various WCBs. All injury variables, from which data for this study are derived, are coded by the WCBs; however, the written narratives (i.e., claim forms) from which coding are done, can be interpreted differently and may depend on the amount of information provided. For example, if a worker experiences two or more independent injuries during the reference period (e.g., the worker may sustain a fracture in March and a back injury in November of the same year), each incident is counted as a separate event. Jobs may also be coded to very different occupations depending on what is provided on claim forms and related information.

Data provided for the years 1992 and 1993 were mostly incomplete for several of the provinces, which brought into question the validity of these data for the other provinces. It was therefore decided that 1992 and 1993 data would be excluded from analyses. It was further determined that the classification of the data for the years 1994 to 1996 were not as detailed as to the “source” and “cause” of injury as subsequent years. These data were used in the development of more aggregate comparisons, but were not considered in some of the more detailed analyses.
The duration of time loss following injuries was considered an important aspect to study. However, it was found that duration rates by province for healthcare workers were not readily available. AWCBC does not have this information as part of their NWISP data. Based on these limitations, it was decided that an analysis of duration of time-loss would not be undertaken on a national basis.

A particular weakness in the data relates to the fact that coverage for occupational diseases is limited. Occupational disease claims are only allowed if the disease can be linked to current or previous employment. Given the multi-causal nature of many diseases (e.g. mental health problems), and the lack of specificity as well as long latency periods of some diseases, many likely occupational diseases are not reflected in these data. In other words, the disease may be treated within the general healthcare system and can only be linked to occupation when specific studies are undertaken. This, and other, limitations are discussed in Section 4. To make comparisons across provinces, it was decided to present data according to common types of claims and diseases. Where possible, data are presented according to occupational category.

Analyzing data from the four Atlantic Provinces proved to have unique challenges. The population and worker base for Nova Scotia, New Brunswick, PEI, and NL is far smaller than for other provinces, and so finding a statistical yield large enough to illustrate a trend was sometimes difficult.

The Québec claim files refer solely to the time-loss claims accepted by the Québec Commission of Health and Safety (CSST). There is no centralized registry kept for rejected claims, non time-loss claims or ‘healthcare only’ claims. Ontario on the other hand does have a centralized registry that enables the tracking of non time-loss or ‘healthcare only’ claims. Saskatchewan and Manitoba had minimal data, as their small population did not afford a large enough sample of claims for disaggregating claims by specific injury type or disease. Alberta and British Columbia had a similar reporting program and thus had similar categorization of injury and disease types.

**The Approach to Policy Analysis**

Statutory and operation regulations, policies and procedures, and other important interventions implemented within each province were collected and examined for their influence on the prevention of occupational disease and injury as well as their impact on claim reporting and acceptance.
The data collection process was coordinated through OHSAH, with the individual provincial associations collecting and analyzing data for their respective provinces. Data for BC and Alberta (the West) were collected through key informant interviews conducted by OHSAH. We were unable to gather information for Saskatchewan and Manitoba due to the short time frame of the project and resource limitations. For Ontario and Québec, data were collected by the Healthcare Health and Safety Association (HCHSA) and the Association paritaire pour la santé et la sécurité du secteur affaires sociales (ASSTSAS), respectively. In Québec, changes in policies affecting occupational health and safety from 1992 to 2002 were obtained from the Québec Commission of Health and Safety (CSST) published annual reports. Any administrative or policy issues not related to workplace health and safety (e.g. Policies by the Ministry of Health) were not included. Finally, the Nova Scotia Association of Health Organizations (NSAHO) collected data for NL, PEI, Nova Scotia and New Brunswick (Atlantic Provinces). See Appendix 4 for more details about the project team.

For the Atlantic Provinces, policies chosen for this review were those that were: newly written or revised between 1993 and 2002; considered applicable to healthcare sector employees (i.e. policies specific to other industries were not included); had potential impact on claims acceptance, reporting process, prevention, and/or time-loss rates; and/or were established apparently in response to injury/time-loss rate trends or needs. Only those policies administered by compensation boards were reviewed. Due to time constraints, it was not possible to analyze any policy or legislative changes that may have been implemented by other government departments (such as Health, Public Health, Community Services, or Labour).
2. RESULTS: OCCUPATIONAL DISEASE AND INJURY RATES

2.1. National injury frequency and rate trends

In the period 1996 – 1998, the number of time loss injuries increased by 4.2%, while the health labour force decreased by 6,700 FTEs (1.2%). However, from 2000 to 2002, the annual number of injuries increased by only 0.6% and the labour force increased by 11.8% (67,800 FTEs). Thus, as illustrated in Figure 1, the national time-loss injury rate increased from 4.1 to 4.3 (an increase of 5.5%) between 1996 and 1998, but this was followed by a 10% decrease in the injury rate (from 4.2 to 3.7 injuries per 100 FTE) in the following two years. This is positive news. The decreasing rate suggests that the many policy changes and interventions implemented throughout Canada have been at least partially effective in reducing the national injury rate in healthcare.

![National Injury Rate for Healthcare and Size of the Healthcare Labour Force](image)

Figure 1. National Injury Rate for Healthcare (1996 – 2002)
Source: AWCBC and CANSIM.

Examining the lost time injury rate by province from 1996 to 2002 (Figure 2) revealed that there is wide variability in injury rates between provinces, with injury rates ranging from 1.6 in New Brunswick in 1996, to 8.2 in PEI in 1999. Given that the nature of healthcare work across the provinces is somewhat consistent, what accounts for this large spread in injury rates? While it may be tempting to suggest that the rates are indicative solely of healthcare initiatives, we must also consider the provincial differences in tracking, reporting, claim adjudication criteria, as well as differences in policy. For example, in New Brunswick the low injury rate may be partly attributable to the fact that a lost-time claim is not recognized until after
the third consecutive day off work, therefore fewer claims are accepted when compared to provinces that recognize a claim after one day.

![Provincial Injury Rates](image)

Figure 2. Provincial Injury Rates (1996 – 2002)
Source: AWCBC and CANSIM

When comparing provinces to the 6-year national average (1996 to 2002) injury rate of 4.1, only Ontario, New Brunswick and Alberta were found to be below the national average (Figure 2). A more detailed study may identify the reasons why, but this is beyond the scope of this study. Some possible explanations for these differences are provided within Section 3.

The injury rate for BC (23%), Manitoba (25.9%), and New Brunswick (22.85) appear to have increased markedly from 1996 to 1998, while Ontario (3.9%), Saskatchewan (3.5%), and Québec (3.2%) had slight declines in injury rates. However, PEI (36.9%), BC (27.5%), and NL (24.2%) experienced a considerable decline of injury rates from 2000 onwards which, for BC, may reflect MSI policy changes and increased employer responsibility for occupational health and safety (e.g. Bill 14 in BC or similar legislation). On the other hand, during 2000-2002 Alberta and Saskatchewan experienced 5.2% and 2.4% increases respectively in their injury rates.
Ontario’s annual injury rate closely reflects the trend in the national injury rate since Ontario’s labour force makes up 35% of the national labour force. The large size of Ontario’s labour force has a profound effect on the national injury rate. Ontario’s low time-loss injury rate is positive, and may imply that health-related policies and programs implemented in this province have been successful. It appears that BC’s injury rate has also had an important effect on the national rate, given that the dramatic decrease in BC’s injury rate from 1999 to 2002 was also reflected in the national injury rate decline (see Figure 2). Several reasons may exist for the positive results BC has seen, from the introduction of MSI regulations in 1997, to the formation of OHSAAH, a provincial health and safety agency, in 1998, to the amalgamations of the Health Authorities in 2000. Possible reasons behind BC’s dramatic change in injury rate are discussed in more detail in Section 3.5.

The national injury rate was then compared in the two occupational groups, “Professional” and “Technical/Assisting Occupations” (Figure 3). It is evident that injury rates for these two occupations follow a similar pattern to the provincial rates, with one noticeable difference being that the “Professionals” injury rate is on average half that of the “Technical, Assisting and Other Related Occupations”.

The injury rate for “Professionals” was fairly steady from 1997 until 2000, and then declined by 9% and a further 10% in 2001 and 2002, respectively, from the previous year. The
average overall change in injury rates across Canada between 1996 and 2002 for this group represents a drop in injury rate from 2.5 to 2.0 injuries per 100 person-years. The “Technical, Assisting, and Other Related” occupations experienced an increase in injury rate between 1996 and 1999 and subsequently a marginal reduction in injury rate by 2002.

Figure 4. National – Total Injury and Disease Claims for all Occupations in Healthcare (1994 – 2002)
Source: AWCBC

On a national basis, the total number of injury and disease claims decreased in 1995 from the year before, but have since increased every year thereafter up to 2002 (Figure 4). However, the slight increase in frequency of injury and disease claims is small in comparison to the dramatic increase in the labour workforce (see Figure 1). Figure 4 also illustrates that time-loss claims due to diseases comprise only a small proportion of the total claims (approximately 7%), fluctuating around 2,000 claims per year from 1994 to 2002 (with the largest number in 2002). These trends are discussed in more detail in Section 2.3.

Figure 5 and 6 illustrate “disease” and “injury” claims by occupational group. Figure 5 reflects the number of disease claims by province. The total number of disease claims in Quebec is considerably greater than in any other province, and is primarily related to tendonitis and epicondylitis. The year-to-year change in disease claims was generally small for each province except for Québec and Ontario, which saw a sudden increase of 19% and 88% respectively in 2002. This increase in claims in Ontario is due to Norwalk and HIV and is explained further in Section 2.3 concerning infectious diseases. For Québec, there was an increase of 175 claims between 2001 and 2002, 42 of which were “Non-infectious enteritis and
colitis (including ileitis)

with 22 attributed to “Viruses” and 12 due to “Healthcare patient or resident of healthcare facility”.

Total Time-Loss 'Disease' Claims for all Occupations

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<td>2001</td>
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Figure 5. Total Time-Loss 'Disease' Claims for all Healthcare Occupations by Province (1994 – 2002)
Source: AWCBC

BC experienced modest year to year fluctuations in disease claims, but saw an overall decrease from 1999 to 2002. All other provinces had less than 200 disease claims per year from 1999 to 2002, and only had minor yearly fluctuations.

Figure 6 reflects the total number of injury claims by province from 1994 to 2002 for all healthcare occupations. As expected, Ontario, Quebec, and BC experienced substantially more injury claims than any other province. Quebec and Ontario had very similar trends, with total number of claims for both provinces decreasing each year from 1994 to 1999, then slightly increasing each year thereafter to 2002. BC experienced a gradual increase in claims from 1994 to 1998, a dip in 1999, then an increase in 2000, and then reductions up to 2002. All other provinces had less than 2000 claims per year from 1994 to 2002, and stayed relatively constant each year when compared to Ontario, Quebec and BC. Data for Manitoba were only available from 1996 onwards.
2.2. **Provincial injury frequency trends by occupational groups**

The next set of figures highlights the incidence of lost time injury and disease claims by healthcare occupation for 1) “Assisting Occupations in Support of Healthcare”, 2) “Nurse Supervisors and Registered Nurses”, and 3) “Other Technical Occupations in Healthcare”. Unfortunately, Labour Force data from Statistics Canada did not provide sufficient detail by occupation to allow for the calculation of injury rates for these occupations. Therefore, these graphs should be read cautiously when making comparisons between provinces and within each province. For the most part, frequency data for each province are closely related to the respective size of each province’s workforce.
Figure 7 reflects the total disease and injury claims for “Assisting Occupations in Support of Healthcare”. Ontario, Québec and BC experienced reductions in claims from 1994 until 1997, levelled off in 1998 and 1999, then increased each year thereafter up to 2002. The trend in claims from 1994 to 2002 for Ontario and Quebec were almost identical, while BC saw greater year-to-year fluctuations. As expected, the total claims for Ontario, Québec and BC greatly exceeded the claims for the rest of the provinces. During the 1999-2002 period, BC’s total claims exceeded those of Québec for assisting occupations even though Québec had a larger workforce. No information was available to explain this inconsistency. All other provinces had total claims at or below 1000 claims per year (except Saskatchewan and Manitoba rose above 1000 claims per year from 2000 to 2002).
Figure 8 reflects the total disease and injury claims for “Nurse Supervisor and Registered Nurse” occupations. Again as expected, Figure 8 shows Ontario, Québec, and BC have correspondingly greater numbers of claims than the other provinces. However, within these three provinces, BC has a larger number of claims for RNs than Québec (between 1997 and 2001) despite having a smaller RN workforce, indicating a higher injury rate for this occupation group during this time period. Reasons for sudden increases in claims in Alberta and Manitoba in 1996 are unknown, bringing into question the quality of data documentation prior to this year. New Brunswick and Nova Scotia followed very similar trends and claim numbers from 1994 to 2002.

“Claims for the Other Technical Occupations in Healthcare” (Figure 9) appear to be more varied than for the other two occupational groups. Again, Ontario, Quebec and BC had substantially more claims per year than all other provinces. The large jump in BC claims from 1996 to 1997 raises questions concerning possible procedural or data tracking changes that may have affected the data. Québec experienced relatively consistent reductions in claim numbers each year, while Ontario saw large fluctuations, with claims in 2002 almost as high as
in 1995. Claims for Alberta more than doubled in 2002 from 2001, raising some questions as to why there has been a sudden increase since claims in all years beforehand were relatively steady.

Figure 9. Total Time-Loss Claims for ‘Other Technical Occupations’ in Healthcare by Province (1994 – 2002)
Source: AWCBC

2.3. **Provincial injury frequency and rate trends for specific injuries and diseases**

Trends are discussed for the following injury and diseases:

a) MSI

b) Puncture wounds

c) Post-traumatic stress, anxiety or mental disorders

d) Infectious diseases

e) Violence

f) Slips, Trips, Dislocations, Fractures and Workplace Trauma

g) Burns
2.3.1. MSI

Figure 10 illustrates the MSI rate for each province from 1997 to 2002. It is clear that MSIs account for more claims than any other injury or disease category, but that there is wide variability in MSI rates across provinces. When examining average MSI rate by province for this time period: Saskatchewan, PEI and BC have average MSI rates above 5 time-loss claims per 100 person-years; Manitoba, NL, Québec and Nova Scotia have MSI rates between 3 and just above 4; and Alberta, Ontario and New Brunswick have MSI rates at 2.3 or below. The MSI rate for each province follows a similar pattern to each province’s overall injury rate from 1997 to 2002. The MSI rate for all provinces except for Manitoba, New Brunswick and NL has decreased from 1997 to 2002. PEI experienced a dramatic decrease from 6.4 in 1999 to 3.5 in 2002. The decrease after 1997 is attributed to the implementation of electric beds and mechanical/electric lifts. Both Quebec and BC also saw substantial reductions in MSI rates from 2000 to 2002.

Provincial MSI Rates

<table>
<thead>
<tr>
<th>Province</th>
<th>NB</th>
<th>ON</th>
<th>AB</th>
<th>NS</th>
<th>QC</th>
<th>NF</th>
<th>MB</th>
<th>BC</th>
<th>PEI</th>
<th>SK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. 6 year MSI Rate</td>
<td>1.73</td>
<td>1.88</td>
<td>2.34</td>
<td>3.08</td>
<td>3.29</td>
<td>4.13</td>
<td>4.16</td>
<td>5.27</td>
<td>5.36</td>
<td>5.37</td>
</tr>
</tbody>
</table>

Figure 10. MSI Time-Loss Claims by Province (1997 – 2002)
Source: AWCBC
In the Atlantic Provinces, most MSI and workplace trauma-related injury claims come from employees in the “Assisting Occupations”. These workers are primarily employed within the continuing care and home care sectors, which employ groups such as continuing care assistants, personal care workers, nurses aides, home support workers, and registered and practical nurses.

According to the AWCBC data (1994 – 2002) for occupations specified by this project, strains, sprains and tears account for 87% of MSI and disease in Ontario (fluctuating around 4,000 claims per year with approximately 100 disease claims per year). The category of sprains and strains is often associated with cumulative effects of stress. Back pain accounts for 7% of MSI since year of first claim in 1997. The numbers are low, but there has been a 23% increase since 1997. Musculoskeletal disease accounted for 3% of the total MSI claims. The numbers of MSI in Ontario have decreased since 1994, whereas the numbers of MSI disease claims have increased since 1997, particularly for sciatica, herniated discs and tendonitis.

The provincial reports showed that MSI can be coded in several ways: 1) the Maritime Provinces use AWCBC codes (02000, 02100, 09720, and 09730); 2) Québec uses CSA codes for MSI; and 3) BC and Alberta use NOI codes (02, 17). The multiplicity in codes confounds the comparison of MSI claim rates across provinces.

Traumatic injuries, NOI code 02, which includes all Alberta (~22 claims per 1,000 FTE) and British Columbia (~45 claims per 1,000 FTE) claims in "sprains, strains, tears" seem to be the majority of the overall nature of claims in each province and the volume of these claims drives the overall injury rate for these provinces. A more detailed analysis of the group was undertaken using NOI codes most specific to MSI (02* "Traumatic injuries to muscles, tendons, ligaments, joints, etc"; 09720 "Back pain, hurt back"; 12410 "Carpal tunnel syndrome", and 17* "MSK system and connective tissue diseases and disorders"). Musculoskeletal System Diseases claims, NOI Code 17, in Alberta claims were generally due to “inflammation / irritation of joints, tendons, muscles, CT" in this category, whereas BC claims in this category were almost equally comprised of inflammation and dorsopathy injuries (mid-back injuries). The BC Musculoskeletal System Disease NOI code 17 claim rate saw a marked decrease over the past four years, equally among "dosopathies" (includes: sciatica, lumbago, disc disorders, radiculitis, etc) and "inflammation / irritation of joints, tendons, muscles, CT" (includes: bursitis, tendonitis, tenosynovitis, rotator cuff, epicondylitis, etc). This reduction would be expected due to the impact of ergonomic regulations in this category (effective 1998) and other MSI interventions.
In BC, the MSI rate was also available by occupations (Figure 11). The trends in number of claims for “Assisting”, “Nursing”, and “Other Technical” are similar, with “Assisting” accounting for the most claims, “Nursing” second, and “Other Technical” last, which is in line with the size of each occupation’s workforce. In 1998, new BC regulations were implemented for laboratories, but this does not appear to have impacted the total number of claims per year (based upon these data).

![Figure 11. MSI Time-Loss Claims by type of HCW for BC (1997 – 2002)](Data Source: AWCBC)

### 2.3.2. Time-loss Claims Due to Puncture Wounds (Needle-stick Injuries)

As illustrated in Figure 12, injury rates for needle and syringe claims were relatively low for all provinces (when compared to MSI rates). Many incidents related to needle-sticks result in near misses and non-reporting, but unfortunately these data are not always captured accurately and consistently across provinces. The majority of needle-stick injuries are believed to be in the
non-time-loss category (see Table 1). It suggests that the acceptance rate for time-loss claims as a result of needle-stick injuries is low given the much higher reporting rate than actual acceptance rate. Figure 12 shows large variation in needle and syringe claim rates across provinces and even within provinces (year to year).

![Figure 12. Provincial Needle and Syringe Claims Rates (1996 – 2002)](image)
Source: AWCBC

BC experienced a large reduction in needle and syringe injury rates from 1996 to 2002, whereas Saskatchewan experienced a large increase in injury rates during the same time period. The majority of provinces saw small changes in injury rate when comparing 1996 data to 2002 data (even though many of these provinces had year-to-year fluctuations).

It is highly recommended that healthcare jurisdictions in Canada use needle-stick injury tracking methods to ensure data are captured consistently and accurately. Two widely known needle-stick injury tracking systems, WINSises and EPINet, are used by many facilities. WINSises is an integrated surveillance system for occupational exposures to body fluids and seroconversions to HBV, HCV, and/or HIV. It provides a standardized method for the compilation of information on these exposures and the subsequent analysis of the data generated. EPINet (Exposure Prevention Information Network) is also a standardized
surveillance system for tracking sharp-object injuries, BBF exposures, and post-exposure follow-up. It is used in some facilities in Canada as well as internationally.

Health Canada is in the process of using EPINet as a national standardized program to collect exposures to BBF and bloodborne pathogens. A pilot study is being conducted by OHSAH on the EPINet system in BC. EPINet data are also being captured in an innovative new injury tracking and claims management system (WHITE) designed by OHSAH. WHITE is currently being trialed by BC Health Authorities. In Québec, a survey is underway to clarify the actual implementation of preventive injury policies and procedures, as there is no central system to track needle-stick incidents that do not result in time-loss claims.

Table 1 is an example of how many needle-stick injuries resulted in a “lost time” claim versus “no lost time” claim in Ontario between 1993 and 2001. The average lost time acceptance rate over this period was 7.67%. There was a gradual increase in lost time claims from 1993 to 1997 and then a sharp increase thereafter up to 2001. The risk for needle-stick injuries appears substantially higher than the actual risk for disease transmission, as also demonstrated in the literature (see Section 1.3).

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<td>Lost Time</td>
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<td>5</td>
<td>9</td>
<td>13</td>
<td>44</td>
<td>73</td>
<td>101</td>
<td>111</td>
</tr>
<tr>
<td>No Lost Time</td>
<td>20</td>
<td>23</td>
<td>13</td>
<td>38</td>
<td>65</td>
<td>109</td>
<td>875</td>
<td>1495</td>
<td>1684</td>
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<td>23</td>
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<td>18</td>
<td>47</td>
<td>78</td>
<td>153</td>
<td>948</td>
<td>1596</td>
<td>1795</td>
</tr>
</tbody>
</table>

Data Source: Occupational Disease Information Surveillance System (ODISS)
Data Snapshot Period: July 2002

The Ontario statistics (available through the WSIB) for needle-stick injuries indicated even fewer claims associated with lost time than data from the Occupational Disease Information Surveillance System. The AWCBC data based on the selected occupations were similar.

Figure 13 illustrates the distribution of needle-stick claims resulting in lost time by occupation in Ontario. 61% were reported by nurses, 9% by housekeeping/cleaners, 8% by medical technicians (lab workers), 7% by assisting occupations (LPN and care aides) and the remaining 15% by all other occupations. It is no surprise that nurses account for the majority of needle-stick injuries. For housekeeping/cleaners however, many injuries occur because of
needles left in beds, linen hampers, etc., resulting in injuries where these staff were not even using needles to begin with.

Needlestick Injuries by Occupation in Health Care in Ontario 1996 - 2002

![Image of needlestick injuries by occupation in Ontario](image_url)

Figure 13. Needle-Stick Injuries Resulting in Time-Loss by Occupation in Ontario
Data Source: EIW PowerPlay Injury Analysis Cube (Dec 2003)

In BC, OHSAH is conducting a study with the Vancouver Island Health Authority (VIHA) on BBF exposure to healthcare workers. The purpose of this study is to better understand risks related to BBF exposure, worker perceptions on BBF exposures and near misses, and to implement effective control measures to adequately protect workers from BBF risks.

The preliminary results from the pre-intervention BBF survey conducted between the Fall of 2003 and the Winter of 2004 are summarized below. A total of 1037 completed surveys were received from workers in acute care hospitals in the VIHA. From survey results, the distributions of percutaneous exposures by occupation in the past 12 months (both reported and non-reported incidents) are as follows: medical technicians (phlebotomists, dialysis technicians and nuclear medicine), 10.2%; support service staff (laundry, housekeeping and sterile processing staff), 12.1%; and nursing and direct patient care staff, 77.7%. In total, respondents reported they had experienced a total of 460 percutaneous exposures in the past 12 months; of these, an astounding 358 (or 77.8%) were not reported. The frequency of handling various needles and sharps (i.e. hollow-bore needles, solid needles, scalpels, and other sharps) was an important risk factor for percutaneous injury among nursing and direct patient care staff. The devices and procedures most frequently reported as being involved in exposure incidents were associated with one another. The devices included injection devices, glass vials and hollow-
bore needles, the procedures included handling glass vials (containing blood or specimens), giving injections and suturing. From the survey results, a total of 382 BBF (37.9%) near-miss exposures (including both percutaneous and mucocutaneous exposures) occurred in the past 12 months. These preliminary results provide further evidence on the severity of under-reporting of needle-stick incidents.

2.3.3. Time-loss Claims Due to Post-Traumatic Stress, Anxiety or Mental Disorders

Claims data for post-traumatic stress, anxiety or mental disorders were limited and only significant for certain provinces (Alberta, BC, Ontario and Québec).

Figure 14 shows stress-related mental disorder for healthcare workers in BC, Ontario and Québec. Similar to needle-stick injuries, this category of claims is a very small proportion of all time-loss claims. The injury rate for these claims in Québec and BC appears to be substantially higher than in Ontario, and quite varied between years. Reasons for this were unknown for this report.

As mentioned in the Background Section, several studies have demonstrated that time-loss from work can be attributed to stress anxiety and mental illness. The number of Québec time-loss claims due to stress or mental illness has decreased from 4.2 time-loss claims per 10,000 workers in 1996 to 2.5 claims per 10,000 workers in 2002 (Figure 15).
The Québec WCB equivalent, CSST more frequently recognized injuries which followed a traumatic event (e.g. post-traumatic stress, see Figure 16). The trend for claims due to anxiety, stress or mental illness has fluctuated around .020 claims per 100 FTE but declined to .014 in 2002. On the other hand, claims due to post-traumatic stress have increased after 2000 to level off at .030 claims per 100 FTE.

The Ontario analysis of post-traumatic claims allowed within the healthcare sector from 1994 to 2002 (Figure 17) show that 58% of claims were directly related to violence. The remaining 42% were listed as exposure to traumatic or stressful events. Similar to the Québec trend, the post-traumatic stress claims have increased steadily since 1996 (from none to 25 per year) whereas anxiety/stress fluctuated between 5-10 claims per year. The average days lost for these claims were 154 days with an average accident cost of $16,000. Return-to-work
practices are difficult in the case of post-traumatic stress as the worker associates the workplace with the incident. The true effects of stress are probably more accurately reflected in absenteeism rates (sick time) as opposed to compensation. In Ontario, it is expected that the claims for post-traumatic stress will increase as a result of SARS, but this trend will not be realized in the data for at least several years.

![Stress Related Claims in Ontario](image)

Figure 17. Stress Related Claims in Ontario (1994 – 2002)
Data Source: AWCBC

In Alberta, Mental Disorder Diseases claims (Figure 18), NOI Code 52, reflect a majority of claims due to "anxiety, stress, neurotic disorders, unspecified". This pattern differs from that of BC where post-traumatic stress comprises the majority for this category. This may reflect an inconsistency in policy between Provincial WCBs in categorization of this disease.
2.3.4. Time-loss Claims Due to Infectious Diseases

Infectious disease claims cannot be entirely isolated from needle-stick injuries although transmission may occur by other means than puncture wounds (e.g., airborne, through moist tissue, inhaled, ingested, etc.). A growing category for time-loss claims has been attributed to infectious diseases (e.g. gastro-intestinal infection, HIV, Hepatitis, Tuberculosis).

Figure 19 illustrates the time-loss claims by province attributable to infectious diseases. Again, as with needle-stick and mental health claims, the number of claims for this category is very small and makes analysis difficult. Data were only available for Alberta, BC, Manitoba, Ontario, Québec and Saskatchewan from 1996 to 2002. Alberta consistently experienced the lowest injury rate. Ontario had almost a 500% increase in injury rate from 2001 to 2002, which is explained in more detail in Figure 20. In Québec, the rate of infectious diseases increased from .09 in 1997 to .56 claims per 1,000 person-years in 2002. Examination of data indicates that most time-loss due to infectious disease arise from exposure to HIV. Since 1997, a clinical HIV therapy program in Montreal was implemented and this is expected to result in increased reporting of HIV time-loss claims.
Looking more closely at infectious disease data for Ontario, it was determined that the outbreak of Norwalk virus in hospital and long term care settings in 2002 accounted for the increase in injury rate, as there was an increase of at least 260 claims that year (Figure 20). Although not illustrated in the report data, as of December 2003, the WSIB had processed 110 SARS-related claims, indicating that a new category of infectious disease will most certainly be seen in future data trends. In 1998, there was also an increase in claims for Acariasis (including scabies, chiggers, mites) in nursing homes, accounting for the increase in claims from the prior year.

In Figure 21, the WCB of BC reported that from 1997 to 2003 the indicated occupations had accepted WCB claims for HIV exposure and received antiretroviral treatment. More than 50% of these claims resulted in time loss.
RNs accounted for the majority of claims during this time period in BC, with a total number higher than the total for all other occupations combined. Again, it is interesting to note that house cleaners accounted for more claims (mainly as a result of needle-stick injuries) than nurse/care aides even though house cleaners do not administer needles to patients. These claims were most likely the result of needle-sticks or other sharps found in beds, linen hampers or laundry rooms because they were not properly disposed of. In addition to HIV claims, there were also eight claims accepted for HVC (2 lab technicians, 2 registered nurses, 1 janitor, 1 respiratory therapist, and 2 care aides) during this time period.
The WCB of BC and the BC Centre for Excellence in HIV/AIDS recently conducted a study on HIV exposure and the costs that result from HIV exposure. This paper is in final draft and will be published shortly, providing more detailed data concerning average claim costs, time loss, etc. for all claims accepted for HIV exposure from 1997 – 2001 in BC.

2.3.5. Time-loss Claims Due to Violence

Figure 22 shows the injury rate for time-loss claims due to violence for each province from 1996 to 2001; those claims with a source of injury indicated as "health care patient or resident of health care facility". Injuries as a result of "violence" make up a modest portion of all time-loss injuries, as can be seen by the size of violence injury rates. The most prevalent nature of injury in this category consists of 'surface wounds' such as abrasions and bruises. OHSAAH's in-depth study of eight Intermediate Care facilities in BC revealed that many injuries due to violence were attributable to interactions with residents suffering from dementia. Experienced front-line workers indicated they were averse to reporting such injuries because in many cases there was no intent for violence by the resident, but only unexpected movement or a 'startled response'. Thus declines in violence injury claims might be more attributable to lack of reporting rather than a decrease of frequency of incidents. Workshops on developing skill and confidence in relating to people with dementia may be responsible for decreased reporting of claims due to violence. Several provinces introduced guidelines for "Working Alone Safely" (see Section 3).
The majority of provinces experienced either no change or a slight reduction in injury rate from 1996 to 2001, with the exception of PEI, BC, and Manitoba. PEI went from the lowest injury rate in 1996 and 1997 (possibility indicating flaws in the recording of data) to the highest injury rate in 1998/1999, then declining to 2.6 claims per 100 person-years. By 2001, BC had 3.25 claims per 100 workers in 1996, peaked at 4.0 in 1998 and gradually decreased to 2.5 in 2001. In BC, new OH&S Regulations (including regulations on violence in the workplace) were implemented in 1998. From 1996 to 2000, Manitoba's rates fluctuated slightly between 2.5 to 3.0 time-loss injuries per 100 person-years and then declined to 2.0 in 2001.

2.3.6. Slips, Trips, Dislocations, Fractures and Workplace Trauma

In Figure 23, frequency of “dislocations, fractures, and workplace trauma” injuries are provided for the Atlantic Provinces (NL, PEI, New Brunswick, and Nova Scotia). Nova Scotia experienced the largest change in injuries, from approximately 125 claims in 1994 to 225 claims
in 2002. NL saw a steady reduction in claims, from 90 per year in 1994 to 30 per year in 2002. New Brunswick (other than a spike in 1996) also enjoyed low numbers of these types of injuries. PEI experienced the lowest number of “slips, falls, dislocations, fractures, and workplace trauma” injuries during this time period compared to the other provinces.

Figure 23. Slips, Falls, Dislocations, Fractures, and Workplace Trauma Claims for Atlantic Provinces (1994 – 2002)
Data Source: AWCBC

Statistics Canada has shown that Atlantic Canada’s population has the highest levels of persons over 65; this does translate to the workforce with the average healthcare employee being between 45 & 60 years old. From the point of view of workplace trauma, the fact that older employees are likely to suffer more serious degrees of injury (i.e., a slip and fall produces a fracture rather than a sprain or contusion) and may be slower to heal, may also explain rates of fractures and dislocations. Further studies may find that variables such as an aging workforce, a less physically fit workforce, changing work sites, and/or increasing patient acuity are impacting the province’s increases in worker fractures, dislocations, and trauma.

In BC, time loss claims from 1994 to 1998 accounted for 9% of accepted claims for “falls on the same level” by all healthcare workers. For registered nurses, 7%, or 437 claims, were attributed to “falls on the same level” during this same time period.
Figure 24 illustrates the traumatic time-loss injury rate for Alberta and BC from 1996 to 2002. BC experienced a higher injury rate than Alberta, but both provinces followed similar fluctuation patterns. The majority of claims for both provinces were related to "fractures" and "dislocations".

![Traumatic Injuries to Bone, Nerves, and Spinal Cord Claims Rate for BC and Alberta](image)

Figure 24. Traumatic Injuries Claim Rates for BC and Alberta (1996 – 2002)
Data Source: AWCBC

### 2.3.7. Time-loss Claims Due to Burns

Burns claim data were only available for Alberta and BC. In both provinces, burns are disaggregated using NOI Code 05, mostly related to "chemical burns, unspecified" and "heat burns, scalds". Burns represent a very small number of time-loss claims. In both provinces, chemical burns and heat/cold burns had similar injury rates.

In Alberta (Figure 25), both "heat burns and scalds" and "chemical burns" claims fluctuated around 0.05 claims per 1000 FTE from 1997 to 2000, increased in 2001, and then declined in 2002. The injury rate for these classifications combined increased from 1997 to 2002, from 0.16 claims to just under 0.25 claims per 1000 FTE.
In BC (Figure 26), the overall injury rate for “burns” was substantially higher than was Alberta’s injury rate. During this period, time-loss claims for “burns” experienced yearly fluctuations, with an absolute increase in injury rate when comparing 1997 to 2002. The injury rate for “chemical burns” increased gradually from 1997 to 2000, and then decreased consistently each year thereafter. The injury rate for “second-degree heat burns” increased from 1997 to 1999, decreased in 2000, and then stayed relatively consistent. The majority of burns occurred in the assisting occupations in support of health services “group 341”.

Further details or explanations on injury rates or trends for “Burns” were not available for this report.
3. RESULTS: HEALTHCARE POLICY AND PRACTICE TRENDS IN CANADA

3.1. Overall observation

The most common policy changes across provinces were related to the need for ergonomic modifications for safer equipment (such as lifts and electric beds), MSI prevention programs, return-to-work programs, and violence prevention programs. With the implementation of these programs, many provinces reported an initial drop in injury rates that coincided with these programs; this occurred, for example in Québec and Ontario around 1996. However, these drops were generally followed by a gradual rise in injury rates, in the case of Ontario and Québec, after 2000.

All provinces report that since 2000 they have experienced an increased prevalence of the following factors that contribute to increased risk of injury: complexity of care, major healthcare restructuring and amalgamations, reduction in the number of patients/resident care beds, and increased workload in an aging workforce. For example, in nursing homes the proportion of residents with cognitive impairments has increased and this has placed caregivers more at risk from resident aggression or injuries during direct care of residents.

This suggests that while there has been an increased focus on prevention and safety programs, their impact was undermined by general changes within the healthcare sector. It is likely that the injury rates would have increased substantially had it not been for the growing attention to prevention with the identified initiatives, rather than decreasing marginally as was the case from 1998 to 2002. However, we do not have the data to substantiate this hypothesis.

It is important to note that regulations affecting time-loss claims are applied differently across Canada. For example, the waiting period before compensation may vary from 3 days in New Brunswick, to an average of 2 days in Nova Scotia, to the following day in NL, Québec, and Ontario. Other provinces provide 98-100% of average weekly wages as compensation as of the day following the time-loss injury. These variations in compensation and waiting period are possible factors influencing the incentive to submit claims. It must be stressed that these differences preclude the reliability of any conclusions comparing rates from one province to another.

To address health and safety risk factors, each province developed policies and implemented programs to reduce time-loss injuries. A list of many identified policy changes and significant health and safety interventions for each province is included in the following subsections.
3.2. Atlantic Provinces

The Atlantic Provinces have several common policies, interventions, and approaches to areas such as chronic pain, occupational stress disorders, and return-to-work (RTW) programs. Many of these policies are new or have been newly revised in the last one to three years. Voluntary MSI and ergonomic program options are available for employers, but there is no provincial policy or legislation guiding or requiring ergonomic programs within health care organizations.

While each of the four Atlantic Provinces do have RTW programs, which appear to be successful in supporting injured employees to return to work as soon as they are healthy and able to do so, statistics do not show that RTW programs on their own are reducing the number of injuries. However it is notable that employers, who are using an integrated approach by combining primary and secondary prevention practices are realizing decreases in injury rates.

Lastly, it must be noted that in each of the four Atlantic Provinces there are key differences in compliance requirements, prevention programs, operating procedures, and legislated responsibilities. This is certainly reflected in how policy is developed, implemented, and monitored by the compensation boards and commissions.

Newfoundland & Labrador (NL)

NL’s Workplace Health and Safety Compensation Commission (WHSSC) shares responsibility for enforcement of the province’s OHS Act; primarily in monitoring committee establishment, provision of committee training, and associated compliance issues. This came with changes to the province’s OHS Act and Regulations.

In 1999, a new policy was implemented for the adjudication and compensation of post-traumatic stress disorder. WHSSC has determined that mental stress claims arising from injury trauma or post-traumatic stress disorder only, are compensable. Rates and/or claims of mental stress or post-traumatic stress disorder do not show any significant change since the policy came into affect.
In accordance with WHSSC’s movement towards decreasing costs and injury prevention, and following the recommendations of their 2001 Task Force, one of the first new initiatives was the design and implementation of a new provincial RTW program. This was implemented in late 2001. WHSSC’s Prevention Services Department also restructured so that employers shown to be at high risk for injury and associated costs were assigned WHSSC hygienists specially trained in that industry’s specific needs. Measures like these seem to be paying off, as the province is beginning to see a gradual decrease in the rate of MSI. Table 2 documents policy changes and other interventions that occurred in NL from 1987 to 2003.

### Table 2 – Newfoundland & Labrador Policies and Practices

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or Other Agency</th>
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<tbody>
<tr>
<td>1987</td>
<td>New Policy Acupuncture Treatment</td>
<td>Recognized treatment</td>
</tr>
<tr>
<td>1987</td>
<td>New Policy TENS Units</td>
<td>Recognized treatment</td>
</tr>
<tr>
<td>1991</td>
<td>New Policy “Chronic Pain”</td>
<td>Claims, Reporting, Time-loss: Recognized as a compensable claim; adjudicated case-by-case</td>
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<tr>
<td>1995</td>
<td>Revised Policy “Cardiac Conditions”</td>
<td>Claims, Reporting, Time-loss: Revised from 1987; compensable where related/exacerbated by work tasks</td>
</tr>
<tr>
<td>1999</td>
<td>New Policy “Mental Stress”</td>
<td>Claims, Reporting, Time-loss: Compensable if related to injury trauma, or post-traumatic stress disorder</td>
</tr>
<tr>
<td>2001</td>
<td>New Policy “Mental Health Adjustment Following Physical Injury”</td>
<td>Claims, Reporting, Time-loss: Compensable as a temporary condition, to a maximum of 12 weeks of treatment program</td>
</tr>
<tr>
<td>2003</td>
<td>Revised Policy “Chiropractic Care”</td>
<td>Prevention, Time-loss: Revised from 1994 policy, recognized as a treatment</td>
</tr>
</tbody>
</table>

**Note:** The underline indicates the potential impact for healthcare workers and effect on rates:

- **Claims:** changes to acceptance of claims.
- **Reporting:** changes in reporting of injuries/disease.
- **Prevention:** prevention of injuries/disease.
- **Time-loss:** extent of time-loss affected by policy or program change.

### PEI

The OHS Division of the Workers Compensation Board of PEI has responsibility for the monitoring and enforcement of the Island’s Occupational Health and Safety Act and Regulations. The Board has an extensive listing of policies, and this may be in part due to its responsibility for the provincial OHS Act. Most of PEI’s WCB policies were reviewed and revised between 2000 and 2002.

Managing the duration of time loss claims continues to be challenging, with PEI showing (across ALL industries) a marked decrease in the percentage of injured workers able to return to work in 7 days or less; however they are holding steady at 23-34% of all workers being able to return to work within 2-6 months. This could be attributed to the Boards’ RTW Principles Policy,
revised and effective 2001. Lastly, the number of time loss claims coded to the healthcare sector has risen at least 1 percentage point each year for four consecutive years. This means that at the end of 2002, healthcare workers accounted for 16% of all lost time claims in the entire province.¹⁶⁹

PEI is the only Atlantic province to have a policy for the compensation of repetitive strain injuries. This may account for the slight decrease in MSI’s seen in 2001 and 2002. Table 3 documents policy changes and other interventions that occurred in PEI from 2001 to 2003.

### Table 3 – PEI Policies and Practices

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>New Policy</td>
<td>“Acupuncture”. Time-loss: Accepted as a treatment</td>
</tr>
<tr>
<td>2001</td>
<td>Revised Policy</td>
<td>“Allergies”. Claims, Reporting, Prevention, Time-loss: Replaces “Allergic Reactions”, 1994; compensable only where medically confirmed; for subsequent claims onus is on worker to show all reasonable precautions where taken.</td>
</tr>
<tr>
<td>2001</td>
<td>Revised Policy</td>
<td>“Arthritis”. Claims, Reporting, Time-loss: Replaces “Arthritis”, 1994; may be compensable by aggravation of pre-existing condition</td>
</tr>
<tr>
<td>2001</td>
<td>Revised Policy</td>
<td>“Cardiac and Circulatory Diseases”. Claims, Reporting, Time-loss: Replaces similar policies from 1994; defines what is compensable</td>
</tr>
<tr>
<td>2001</td>
<td>Revised Policy</td>
<td>“Chiropractic Treatment”. Prevention, Time-loss: Replaces “Chiropractic Treatment”, 1994; accepted treatment</td>
</tr>
<tr>
<td>2002</td>
<td>Revised Policy</td>
<td>“Chronic Pain”. Claims, Reporting, Prevention, Time-loss: Replaces “Chronic Pain”, 1994; not a compensable claim – does make provision for pain-management program of max. 6 wks. after an injury</td>
</tr>
<tr>
<td>2002</td>
<td>Revised Policy</td>
<td>“Physiotherapy Treatment”. Prevention, Time-loss: Replaces “Physiotherapy Treatment”, 1994; includes provision for supportive care</td>
</tr>
<tr>
<td>2002</td>
<td>Revised Policy</td>
<td>“Psychological Conditions”. Claims, Reporting, Time-loss: Replaces “Psychological Conditions”, 1993; compensable only if related to injury trauma or post-traumatic stress disorder</td>
</tr>
<tr>
<td>2002</td>
<td>Revised Policy</td>
<td>“Transcutaneous Electrical Nerve Stimulation”. Time-loss: Use of TENS units is no longer covered by WCB</td>
</tr>
</tbody>
</table>

Note: The underline indicates the potential impact for healthcare workers and effect on rates:
Claims: changes to acceptance of claims.
Reporting: changes in reporting of injuries/disease.
Prevention: prevention of injuries/disease.
Time-loss: extent of time-loss affected by policy or program change.
Nova Scotia

In Nova Scotia, the Department of Environment and Labour is legislated to monitor and enforce the provincial OHS Act and regulations; and the Workers’ Compensation Board has responsibility for prevention services, industry education, and enforcement of the Workers’ Compensation Act.

While perhaps due to some differences in coding and reporting procedures, it is clear that Nova Scotia’s healthcare industry has seen an almost unbroken increase in their percentage of time loss injuries in the last nine years. In 1994, healthcare accounted for 12.3% of all time loss injuries; by 2002 the number was at 17%. Then across ALL industries, the average duration of time loss claims also rose; from an average of 35 days in 1996, to 94 days in 2002.

By 1999, the WCB had established a RTW policy and program. Interestingly, and like the other Atlantic Provinces, the RTW program has not always resulted in a decrease in claims duration or injury rates. However, it is important to note that in Nova Scotia, the number of MSI claims has consecutively decreased in 2000, 2001, and 2002 (from 700 to 600 claims per year). This may be attributable to Nova Scotia’s WCB now having the mandate for both prevention and postvention programs.

Currently, Nova Scotia’s WCB is working to improve services for injured workers who suffer from chronic pain. In October of 2003, in response to a challenge launched three years previously, the Supreme Court of Canada struck down as unconstitutional the ‘Functional Restoration Program Regulation’ of Nova Scotia’s Workers Compensation Act. The court ruled that “… by entirely excluding chronic pain from the application of the general compensation provisions of the Act, and limiting the applicable benefits to a four-week Functional Restoration Program for workers injured after February 1, 1996, the Act and the FRP Regulations clearly impose differential treatment upon injured workers suffering from chronic pain on the basis of the nature of their physical disability, an enumerated ground under s.15 (1) of the Charter.”

This ruling and the subsequent legislative changes are being actively monitored by compensation boards and commissions across the country. While there is great potential for almost immediate impact to claims, reporting, prevention programs, and duration of time loss for healthcare employers and workers; it will likely be at least 1-2 years before statistics show this.
Table 4 documents policy changes and other interventions that occurred in Nova Scotia from 1996 to 2000.

Table 4 – Nova Scotia Policies and Practices

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>New Policy “Criteria for Psychiatric Conditions: Occupational Stress” Claims, Reporting, Time-loss: Compensable as an acute reaction to a traumatic event (i.e., PTSD), does not recognize claims of cumulative stress</td>
<td></td>
</tr>
</tbody>
</table>

Note: The underline indicates the potential impact for healthcare workers and effect on rates:
Claims: changes to acceptance of claims.
Reporting: changes in reporting of injuries/disease.
Prevention: prevention of injuries/disease.
Time-loss: extent of time-loss affected by policy or program change.

New Brunswick

The Workplace Health Safety Compensation Commission of New Brunswick places strong emphasis on a preventative approach to OHS and works extensively with health and safety committees and employers, and provides employee training at all organizational levels. The Commission has legislated responsibility for support and monitoring of compliance of New Brunswick’s Occupational Health and Safety Act, the Compensation Act, and the Workplace Health Safety Compensation Commission Act.

In 1992, the New Brunswick legislature passed the regulation “Code of Practice for Working Alone” under the province’s Occupational Health and Safety Act. This regulation details an employer’s responsibilities to employees who regularly work alone. While it is not known whether the original intent was to address the issue of workplace violence in healthcare settings, this code has the potential to be a very important tool for the Commission and healthcare employees. New Brunswick’s “General Guidelines for Healing” and “Return to Work Principles” were passed in 2000 & 2001, respectively. They may be responsible for a very slight decrease in injury claims in 2002. Across all industries in New Brunswick, the rates of injury, nature of injury, and average payment per claim are very similar to those of other Atlantic
Provinces; including the RTW rate which for all industries, from 1997-2000, had an average of 45% of workers prepared to return to work within 10 days or less\textsuperscript{172}.

Table 5 documents policy changes and other interventions that occurred in New Brunswick from 1992 to 2003.

**Table 5 – New Brunswick Policies and Practices**

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>States employers’ responsibility to employees who work alone.</td>
</tr>
<tr>
<td>1999</td>
<td>New Policy</td>
<td>“Conditions for Entitlement – Stress”. Affects claims, reporting, prevention and time-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>loss: Is compensable if arising from injury trauma, or post-traumatic stress disorder;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>policy gives adjudication guidelines.</td>
</tr>
<tr>
<td>1999</td>
<td>New Policy</td>
<td>Post-Traumatic Stress Disorder. Affects claims, reporting, prevention and time-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>loss: Is compensable where arising from workplace trauma; is acute and not cumulative,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(“... being a witness to an event does not qualify the occurrence as being a traumatic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>event.” Policy# 21-103.1)</td>
</tr>
<tr>
<td>2000</td>
<td>New Policy</td>
<td>“General Guidelines for Expected Healing Times”. Time-loss: Expected trauma/post-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oper healing times; guideline for action if pain continues past expected healing time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>guidelines.</td>
</tr>
<tr>
<td>2002</td>
<td>Revised Policy</td>
<td>“Chiropractic Services”. Prevention, Time-loss: Revised from 1998, recognized as a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>treatment.</td>
</tr>
<tr>
<td>2003</td>
<td>New Policy</td>
<td>“Chronic Pain”. Claims, Reporting, Prevention, Time-loss: Compensable if arising as</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a result of a compensable workplace injury.</td>
</tr>
</tbody>
</table>

**Note:** The underline indicates the potential impact for healthcare workers and effect on rates:
- **Claims:** changes to acceptance of claims.
- **Reporting:** changes in reporting of injuries/disease.
- **Prevention:** prevention of injuries/disease.
- **Time-loss:** extent of time-loss affected by policy or program change.

### 3.3. Québec

Changes in policies affecting Québec health and safety at work from 1992 to 2002 were obtained from the Commission of Health and Safety (CSST) published annual reports. The Québec policy changes that occurred in this time period primarily focused on financial policies influencing costs and indirectly the criteria for accepting claims and length of time-loss per claim.

Some of the more important interventions implemented by the CSST had limited impact in the healthcare sector either because they were small-scale pilot projects or were programs aimed at other sectors (e.g., manufacturing). Examples of such interventions include projects that were aimed at reducing time-loss days for back injury claims (1996, 2000) as well as TMS 2000, which was aimed at reducing the incidence of MSI.
The changes in Québec financial policy certainly impacted on the incidence of time-loss claims accepted. Workplaces took advantage of return-to-work programs that temporarily assigned injured workers to light duty and thus cut down on compensation costs and length of time-loss.

Table 6 documents policy changes and other interventions that occurred in Québec from 1992 to 2002.

Table 6 – Québec Policies and Practices

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Political</td>
<td>Act modifying An Act respecting industrial accidents and occupational diseases</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Prevention of back injuries</td>
</tr>
<tr>
<td>1993</td>
<td>Political</td>
<td>Act modifying An Act respecting industrial accidents and occupational diseases</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Prevention of back injuries</td>
</tr>
<tr>
<td>1995</td>
<td>Administrative</td>
<td>Repetitive strain injuries</td>
</tr>
<tr>
<td>1995</td>
<td>Administrative</td>
<td>Reform of the fee structure</td>
</tr>
<tr>
<td>1996</td>
<td>Administrative</td>
<td>Chronic back pain</td>
</tr>
<tr>
<td></td>
<td>Political</td>
<td>Bill 74 on funding</td>
</tr>
<tr>
<td>1997</td>
<td>Political / Administrative</td>
<td>Decision-making process with regard to occupational injuries</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Classification of employers</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Accident investigation</td>
</tr>
<tr>
<td>2000</td>
<td>Administrative</td>
<td>Beryllium</td>
</tr>
<tr>
<td>2000</td>
<td>Administrative</td>
<td>Physical injuries with psychological aspects</td>
</tr>
<tr>
<td>2000</td>
<td>Administrative</td>
<td>Back pain</td>
</tr>
<tr>
<td>2000</td>
<td>Administrative</td>
<td>Musculoskeletal disorders (MSD)</td>
</tr>
<tr>
<td>2001</td>
<td>Political</td>
<td>Regulation on occupational health and safety</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Rehabilitation and return to work</td>
</tr>
<tr>
<td>2002</td>
<td>Political</td>
<td>Regulation respecting occupational health and safety</td>
</tr>
<tr>
<td>2002</td>
<td>Political</td>
<td>Regulation respecting industrial and commercial establishments</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>Psychological harassment</td>
</tr>
</tbody>
</table>

In 1992, a complete review of Québec’s back injury program was conducted. In 1996, a program was implemented to evaluate and educate workers suffering from chronic back pain for faster return to work. Modifications to safer equipment also helped reduce the incidence of time-loss claims. During 1994-1996 there was a focus on modernizing work by using mechanical lifts (and later electrical lifts) to reduce the workers workload. Since 1997, electric beds are more commonly available in the healthcare sector. Ceiling lifts are being introduced as well but at a slower pace than electric beds and lifts. In 1999, new accident investigation procedures were implemented for CSST officers and an intervention program to prevent occupational diseases associated with asbestos was established.
The increase in Québec time-loss claims since 2000 seems less related to administrative changes in health and safety and more related to policies and procedures in the provision of direct care workers. Claims with high time-loss days (long-term disability) were more numerous in 2002 compared to 1996. This seems counter-intuitive considering the CSST interventions implemented to reduce the length of time-loss days due to injury. Several hypotheses have been put forward to explain this:

- The use of light duty to prevent compensation claims in the workplace might mean that the more severe cases have no light duty positions available and so workers have to stay off work for longer periods than in the past.
- The type of claims has perhaps changed over the years and their length of time-loss has possibly increased as well.

Validation of these hypotheses would require more data and detailed analysis than available for this report.

3.4. Ontario

Ontario has seen major restructuring and amalgamations in the healthcare sector since 1993 when the Healthcare Regulations came into effect. In 2002, the average age of RNs in Ontario was 44.7 – an increase of 3 percent from 1997. During 1994–2000, the number of RNs aged 50-54 employed in nursing rose by 34 percent. In 2002, 67.9 percent of RNs in Ontario were older than 40. This is an 8 percent increase from 1997.

Aging workers often have slower reflexes and suffer more easily from muscle strains, which could present difficulties when performing certain tasks. Recovery periods following any injury are generally longer for older workers. Due to the heavy workloads experienced by healthcare workers, early retirement is common. The Registered Nurses Association of Ontario (RNAO) predicts 6,000 nurses will retire in Ontario in 2004, while only 3,100 are expected to graduate. According to RNAO, by 2011, Ontario will need up to 90,000 new nurses.
Table 7 documents policy changes and other interventions that occurred in Ontario from 1993 to 2002.

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-93</td>
<td>WCB Program</td>
<td>Core Certification Training</td>
</tr>
<tr>
<td>1994</td>
<td>Policy</td>
<td>NEER modifications</td>
</tr>
<tr>
<td>1994</td>
<td>WCB Program</td>
<td>Musculoskeletal Injury Prevention Program</td>
</tr>
<tr>
<td>Nov-95</td>
<td>Legislation</td>
<td>WCB Reform Bill</td>
</tr>
<tr>
<td>1996</td>
<td>WCB Reform Initiatives</td>
<td>New Directive for Workers' Compensation Reform</td>
</tr>
<tr>
<td>1998</td>
<td>Legislation</td>
<td>Workplace Safety &amp; Insurance Act - repeals the entire Workers' Compensation Act</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>Inclusion of Health and Safety in Grade 9 curriculum</td>
</tr>
<tr>
<td>Sep-98</td>
<td>Policy</td>
<td>Post Exposure Prophylaxis For Occupational Exposure to HIV (16-01-02)</td>
</tr>
<tr>
<td>Jun-00</td>
<td>Policy</td>
<td>Workwell (13-01-02)</td>
</tr>
<tr>
<td>Mar-00</td>
<td>Policy</td>
<td>Employers’ Initial Accident-reporting Obligations (15-01-02)</td>
</tr>
<tr>
<td>Dec-02</td>
<td>Policy</td>
<td>Traumatic Mental Stress</td>
</tr>
</tbody>
</table>

Figure 27 examines major policy and legislation changes that have occurred in Ontario in relation to the ‘time-loss’ and ‘non time-loss’ injury rate for the healthcare industry. Healthcare regulations, the WCB Reform Bill and the WSI Act were all followed by periods of declining ‘time-loss’ injury rates. The ‘non time-loss’ injury pattern followed similar suit, but began to increase after formation of the WSI Act.
Legislation & Policy Changes

Figure 27. Lost Time and No Lost Time Injuries in Schedule 1 firms for healthcare in Ontario. This graph also notes the important legislation changes (1993 – 2002)

**Data Source:** Enterprise Information Warehouse (EIW) (Dec 2003)

The following paragraphs discuss the major policy changes (Figure 27) and prevention strategies that were implemented in Ontario from 1993 to 2002.

**Compensation Reform in Ontario**

Reform initiatives within the WCB of Ontario began in 1995. The WCB Reform Bill led to a change in the governance of the Board. The previous bipartite composition was supplemented with multi-stakeholders from professional groups and medical and insurance professionals. There was increased emphasis on the financial accountability of the Board with value for money audits and anti-fraud provisions put into place. Reasons that reform was initiated included:

- Excessive premiums
- Long delays in claim processing
- The WCB under-funded liability of $11.5 billion in 1995
- The New Experimental Experience Rating (NEER) off balance had grown from $42 million in 1992 to $248 million in 1994

The Cam Jackson report, ‘New Directions for Workers’ Compensation Reform’ (1996), mapped the future of the compensation system in Ontario. The following priorities were established the role of prevention, return to work, rehabilitation, and compensation in
occupational illness and injury. The internal responsibility system within an organization was identified as a key resource in the reduction of workplace accidents.

The most significant decrease in time loss injuries in healthcare occurred in 1996. This 12% reduction was partly attributed to the beginning of a new emphasis on the employer’s responsibility for prevention of occupational illness and injury as opposed to the Board’s role as compensator. This was borne out by the fact that there was a 13% decline in the injury rate across all sectors. The injuries involving medical costs but ‘no lost time’ followed a similar pattern (Figure 28). There was a 7% decrease within the healthcare sector and a 5% decrease in all sectors. Previous revisions in (NEER) in 1994 and a commitment to lowering premium rates must also have contributed to the decline. The percentage of claim acceptance and rejection showed marginal change, however, there was a 14% decrease in claim submission from all sectors and a 16% decrease in claim submission from healthcare for lost time injuries. There was a 5% reduction in ‘no lost time’ injury claim submission in all sectors and a 10% reduction in healthcare.

Figure 28. Changes in Claim Submission from 1994 in Ontario (index year)
Data Source: EIW PowerPlay Cubes – Claim Count by SWA (Dec 2003)

The report ‘Effects of Job Strain, Hospital Organizational Factors and Individual Characteristics on Work-Related Disability Among Nurses’ also referred to the possibility of declines stemming from the system making it harder for workers to file claims whilst making it easier for companies to manage claims before filing them with the WSIB.
The Workplace Safety and Insurance Act

In 1998, the Workplace Safety and Insurance Act repealed the Worker’s Compensation Act and formed the Workplace Safety and Insurance Board (WSIB). The WSIB Prevention division was created as well as Health and Safety Associations such as the Healthcare Health and Safety Association (HCHSA).

A strategy document by the Ministry of Labour (MOL) was issued in 1998 entitled ‘Preventing Illness & Injury: A Better Health and Safety System for Ontario Workplaces’. The emphasis was on a workplace injury and illness prevention system with a common strategy coordinated by both the WSIB and the MOL. The health and safety associations were to play key prevention roles within their sectors. Organizational knowledge of health and safety associations and their function within the system has been identified as being an issue within the healthcare sector.

In 1998, the healthcare sector saw an 8% reduction in time loss injury rates and an 11% reduction in ‘no lost time’ injury rates (the highest reduction in the period of the study). All sectors showed a similar trend in lost time injuries with a reduction of 8%. The ‘no lost time’ injury reduction was only 5% in all sectors.

Joint Health and Safety Committee (JHSC)/ Health and Safety Representative

The WCB core certification program began in April 1993. Certification was required for one worker and one employer representative on the committee. The roll out of the program was slow and deadlines for compliance to the legislation were extended. This program also tended to take the focus of organizational health and safety responsibility away from the Internal Responsibility System (IRS). In some cases employers mistakenly believed that the responsibility of health and safety was that of the certified representatives.

It seemed ironic to many health and safety professionals that certification would be allotted to an auditing body - the JHSC, before being mandated for those directly responsible for workplace safety, the IRS. Following amendments to the Criminal Code in 2003, whereby senior officers within an organization can be held liable for health and safety offences it would seem that health and safety training for those acting in a supervisory capacity is essential. The lack of supervisor knowledge of occupational health and safety was identified as an issue during submissions to the SARS commission.
Another legislative issue regarding the JHSC is the 21-day period allowed for employer response to health and safety concerns. This has also been identified as a concern following the outbreak of SARS as the length of time allowed is too long in a time of crisis.

**Young Worker Awareness & Publicity Campaigns**

The WSIB campaigns have centred on community safety awareness and young worker awareness. One of the prevention goals was to change society’s perception of workplace injuries in much the same way that media awareness had made drinking and driving a socially unacceptable practice.

In 1998, health and safety was included in the curriculum of grade 9. The age group of 15 – 19 year olds constitute 1% of the overall injuries in the healthcare sector in Ontario. The age group 20–24 constitutes 6% of the claims. Since the rate of injuries per numbers employed is not available for age groups, it is not possible to evaluate the effectiveness of young worker awareness campaigns based on the data.

**Safe Communities Incentive Program (SCIP)**

SCIP was started in 1997. The program offered small businesses mentoring, coaching and networking in the development of health and safety programs to ensure workplace safety. In addition to incentive programs already in place, the group of small businesses could share proportionally in a 75% refund of any savings due to decreases in claim costs experienced by the group as a whole. Also, participants who were scheduled for a Work-well Audit would have their audit dates deferred for up to one year. Partners such as local MOL inspectors, coaches from larger organizations, safe workplace association representatives, and the WSIB were also invited to attend meetings and provide support to the group as a whole as well as to individual members.

The representation of healthcare participants in the SCIP groups was minimal. Training offered to SCIP participants was less likely to be specific to issues identified as causing injuries in healthcare. This was due mainly to the large number of industry-based participants.

**New Experimental Experience Rating (NEER)**

The NEER applies to organizations that pay more than $25,000 per year in premiums. The costs of the company’s claims are compared to the average for the rate group. The size of
the company is taken into account. The program provides incentives for good health and safety records; companies with low injury rates within their group receive rebates while those with higher rates are charged a surplus. Due to the serious revenue issues this program generated, revisions to reset the NEER off balance were made in 1994. The NEER off balance had grown from $42 million in 1992 to $248 million in 1994.

**Early and Safe Return to Work (ESRTW)**

Bill 99 made it a requirement that all workplaces practice self-reliance. This meant that the board no longer provided vocational rehabilitation. In order to receive compensation benefits the worker was now required to cooperate with return-to-work or labour market re-entry strategies. The employer is obliged to have a return to work program.

**Work-well Audits**

In June 2000, policy changes to Work-well audits increased passing grades, fines and the time allowed to comply with directives stemming from the audit. Work-well Audits administered by the WSIB are mandatory for employers whose performance has been consistently poor for 3 years or more. Performance obviously refers to accident rates that are significantly higher than the average for the specific rate group. Historically, the administration of these audits and the threat of penalization if requirements are not met in the time-frame, resulted in significant improvements to paper policy and often a reduction in accidents. These changes, however, are not maintained over a long period of time.

**Employers’ Initial Accident Reporting Obligations**

The purpose of this policy was to provide clarification on the reporting of claims. It outlined the difference between the provision of first aid and that of healthcare. An injury requiring only first aid did not require reporting. However, ‘An employer must report if the worker received healthcare, regardless or whether the treating practitioner works for the employer or if the worker is treated at work’. In 2000 there was an 8% increase in the number of no lost time injuries reported in the healthcare sector.

The policy also included new rules for modified work - the employer does not have to report an accident if the worker performs modified duty at regular pay for seven calendar days or less following the date of the accident, provided that no healthcare costs were incurred. This
should have led to a reduction in the lost time injury rate, however, 2000 saw an increase of 5% for healthcare and only a marginal decrease of 0.4% in all sectors. Of note is the fact that there was a substantial decrease in 2001 of 4.5% in healthcare and 7% in all sectors.

**MSI**

Ontario does not currently have any ergonomic legislation to prevent MSIs in the workplace. Most of the sprains, strains and tears result from overexertion due to patient or client handling. Regulations to address lifting policies, frequencies and equipment availability for this task are of importance.

In 2004, the Ontario provincial government made $14 million available to selected hospitals for the purchase of equipment to improve the health and safety of nurses. This was the first time that healthcare funding was specifically designated towards equipment aimed at improving worker health and safety. Lead times given to healthcare organizations for compliance to accountability and spending of the additional funding was very limited and could preclude the selection of equipment most appropriate for the organizations healthcare workers.

**Needle-stick Injuries**

The Healthcare Regulations address the issue of sharps and needles under Housekeeping and Waste Regulations 113–114. This section applies to ‘needles, knives, scissors, scalpels, broken glass or other sharp objects that are capable of cutting or penetrating the skin or any part of a worker’s body’. The regulations specify that these objects should be discarded in puncture-resistant containers. Used needles are to be discarded without being recapped or bent. Regulation 114.2 allows provision for a device or equipment for the recapping of needles. It states that the employer needs to provide equipment to ensure that the worker is not punctured during recapping. It also states that the worker is to receive training in the use of the equipment. This device needs to be chosen with consultation from the Joint Health and Safety Committee (JHSC) or health and safety representative.

According to the Employers' Initial Accident Reporting Obligations (5.1), there is no need to report exposure to infectious diseases if a healthcare practitioner only tests and monitors the worker for the presence of an infectious disease, provided the employer maintains accurate records of the incident and any subsequent testing and monitoring. The WSIB does not require reporting until the worker tests positive for a blood-borne infectious disease or until some type of treatment is administered. In September 1998, WSIB policy 16-01-02 stated that compensation
would be paid for post exposure prophylaxis (PEP) treatment for occupational exposure to HIV (this included cases where the source’s HIV status was not known). Rates of under-reporting of needle-stick injuries vary – some estimates are as high as 78% for both hospital and non-hospital staff\textsuperscript{177}. Additionally it is estimated that 47% of workers refuse the PEP because of the side effects associated with the treatment\textsuperscript{178}.

In December 2003, the SEIU started a nationwide campaign for needle-stick and sharps legislation. SEIU and the Ontario Nurses Association (ONA) are lobbying government officials for new legislation similar to the \textit{Needle-stick and Sharps Act}, passed in the U.S. in 2000. Under this Act, every workplace must use safety-engineered sharps devices where there is a risk of exposure to blood-borne pathogens. Since the U.S. passed this needle-stick legislation, there has been a 51 per cent reduction in the number of needle-stick injuries according to a study conducted by the University of Virginia.

\textbf{Mental Stress}

In 1989 the WSIB began a formal review of their mental stress compensation policy. The Workplace Safety and Insurance Act confirmed that the Board would only compensate mental stress claims related to a sudden and unexpected traumatic event. This does not include employment-related actions by the employer. The Board would not compensate for stress that developed over time.

The latest policy 15-02-02 applies to claims dating back to 1989. It now includes the cases where cumulative traumatic events have triggered psychiatric or psychological responses. Of emphasis is the fact that compensation will occur only for incidents occurring outside of the normal conditions of work. The policy was also expanded to include harassment, physical violence, physical threats or being placed in a life-threatening or potentially life-threatening situation.

\textbf{Violence Prevention}

In Ontario, the healthcare sector has the highest number of violence-related claims of all sectors. Assaults or violent acts accounted for 7% of the lost time claims in healthcare in Ontario for the period 1996 – 2002. Between 2001 and 2002 there was a 9% increase in lost time claims for violence. The majority of these incidents result from healthcare residents or patients. The healthcare sector has the highest incidence of violence-related claims of all
workplaces in Ontario. The long-term effects of violence are also seen in the majority of post-traumatic stress claims.

Ontario, unlike some of the other provinces, does not have workplace violence prevention legislation. The general duties provisions of the OH&S Act require the employer to take every precaution reasonable in the circumstances for the protection of a worker. Not only is a violence prevention program important but the inclusion of critical incident stress management is also vital.

Falls

Falls are the second highest category type of accident in Ontario. While falls do affect nurses and nursing aides, homecare workers are more affected. The majority of falls are related to floor and occur at the same level. The healthcare regulations address spillage. However, since falls often result in critical injuries, implementation of a ‘slips and falls’ program should be mandatory.

Chronic Pain

In August 2000, the results of a WSIB two-year study on Chronic Pain were released in a report of the chair of the chronic pain panel. It made four recommendations:

- The WSIB will treat chronic pain in the same way it treats any other workplace injury or illness.
- The WSIB will investigate and make recommendations for:
  - more effective treatment, management and return-to-work strategies
  - revise approach to rating permanent impairment
- WSIB will conduct a review in 5 years (2005) to assess:
  - the effectiveness of prevention & management strategies implemented as a result of the initiative.
  - any new scientific work in this field.
  - Any developments in the court relating to compensation
- The WSIB will continue research in this regard.
3.5. Western Provinces

Alberta

In Alberta, there were no regulatory or policy changes of significance in Alberta until 2002, when changes were made to the Workers Compensation Act. This legislative change, effective May 2002, required employers to now report all injuries regardless of duration (except first aid), where the previous requirement was to only report injuries of longer duration. The provincial occupational health and safety (OH&S) regulation division of the government underwent downsizing in 1992-1993, however few changes in activities occurred until 2002 when "Work Safe Alberta" was created. The purpose of this new OH&S initiative was to place a greater emphasis on prevention. The effects of these two changes are not captured in this report, but will likely be realized in later data.

A policy change was introduced by WCB in 2000 regarding the definition of "psychiatric or psychological disability" for critical incident stress situations. This may have impacted the duration of claims more so than the incidence. Our analysis indicated the majority of claims were due to "anxiety, stress, neurotic disorders, unspecified" with very few claims under "post-traumatic stress".

Table 8 documents policy changes and other interventions that occurred in Alberta from 1993 to 2002.

Table 8 – Alberta Policies and Practices

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>Policy</td>
<td>Partners in Injury Reduction Program (PIR) promoting health &amp; safety and disability management programs</td>
</tr>
<tr>
<td>1994</td>
<td>Practice</td>
<td>* Bulletin: AIDS information for Lab technicians re blood and body fluid exposures; Precautions for workers exposed to HIV</td>
</tr>
<tr>
<td>1995</td>
<td>Legislation</td>
<td>Change to Act: Workers Compensation Amendment Act, 1995, Ch 32</td>
</tr>
<tr>
<td>1995</td>
<td>Legislation</td>
<td>* Change to Act: OH&amp;S Amendment Act (1994, in force Feb 1995); shortened list of reportable injuries and accidents; change in how injuries are reported</td>
</tr>
<tr>
<td>1995</td>
<td>Practice</td>
<td>* Bulletin: Hypersensitivity to Latex</td>
</tr>
<tr>
<td>1996</td>
<td>Legislation</td>
<td>Change to Regulations: specification of requirements for notification of accidents by employer to WCB</td>
</tr>
<tr>
<td>1997</td>
<td>Leadership</td>
<td>Developed Worker and Employer handbooks to clarify roles and responsibilities</td>
</tr>
<tr>
<td>1997</td>
<td>Practice</td>
<td>Policy change: &quot;psychiatric or psychological disability&quot;</td>
</tr>
<tr>
<td>1998</td>
<td>Leadership</td>
<td>Revised mission statement and vision and &quot;Alternative Service Analysis Pilot&quot; project</td>
</tr>
<tr>
<td>1998</td>
<td>Leadership</td>
<td>* Progressive Injury Program - Millard Rehabilitation Centre</td>
</tr>
<tr>
<td>1998</td>
<td>Policy</td>
<td>Consultative medical review by WCB physicians with case physicians who have differing medical opinions</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>* Protocols: Emergency Services Post-Exposure Notification</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>* Bulletin: Immunizations of occupational exposures</td>
</tr>
</tbody>
</table>
1999 Policy    Removed cap on chronic pain syndrome benefits
1999-2000 Practice  * Targeted compliance on employers of HCW for First Aid services to employees
1999-2000 Practice  * WH&S targets education/prevention efforts to high-risk industries based on information from WCB
1999-2000 Practice  * Bulletin: Back Care, Lifting and handling loads [10]; Fatigue and Safety at the workplace [10]
2000 Policy      Revision of PIR program to renew stakeholder commitment; Certificate of Recognition (COR)
2000 Practice    Change to policy: "psychiatric or psychological disability"
2001 Policy      New medical review panel
2002 Legislation  Change to Act: Workers Compensation Amendment Act, 2002
2002 Practice    * "Work Place Alberta" new OH&S initiative with 6 key objectives including prevention of injuries, partnerships, improved compliance
2002 Practice    * Bulletin: Developing a First Aid Plan, Back Injuries, Notifiable Occupational Diseases
2003 Legislation  Change to Regulations: new version of Workers' Compensation Regulation

Alberta undertook a series of “Bulletin” issuances aimed at targeted injury situations.

- In 1998, there was a protocol on "Emergency Service Post-Exposure Notification", which included information on occupational exposures to blood-borne infection and chemoprophylaxis. This was a Workplace Health & Safety Initiative, not from the WCB, that may have led to an increase in the number of reported claims, but not necessarily to the number of accepted time-loss claims.

- In 1999-2000, a bulletin was issued on "Back Care, lifting and handling loads".

- In 2000, a bulletin was released on "Working Alone Safely: a guide for employers and employees". There were no other violence related measures undertaken.

- A MSI prevention initiative that was a series of education bulletins on MSI was released in 2000. While there was a dip in the injury rate in 2000-2001, the impact of a bulletin was likely minimal compared to other possible prevention initiatives, or what has been implemented in Alberta since 2002.
British Columbia

The BC government introduced Bill 14, the Amendment Act on workplace health and safety, in 1998. "Bill 14 defines the mandate and responsibilities of the WCB, sets out the standards for a safe workplace, and indicates what employers, workers and the Board are expected to do to promote safety. Most notably, the proposed legislation requires workplaces with 20 or more employees, regardless of their risk classification, to form a joint health and safety committee."

The most significant change resulting from the new Act was the inclusion of Part 3 to deal specifically with occupational health and safety issues. The Occupational Health and Safety Regulation (the Regulation) was adopted at this time under the authority of the Workers Compensation Act on April 15, 1998, as amended by the Workers Compensation (Occupational Health and Safety) Amendment Act (the “Act”), effective October 1, 1999. The purpose of the Regulation is to promote occupational health and safety, and to protect workers and other persons present at workplaces from work-related risks to their health, safety and well-being. Compliance with the requirements provides the basis on which workers and employers, in cooperation, can solve workplace health and safety problems. The Act describes the jurisdiction of the WCB of BC and its authority to make regulations, inspect workplaces, issues orders and impose penalties. The Act also explains the rights and responsibilities of employers and workers with respect to health and safety.

Table 9 documents policy changes and other interventions that occurred in BC from 1992 to 2003.

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of Change</th>
<th>WCB or * Other Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Practice</td>
<td>Finding Solutions: As part of its mandate to promote workplace health and safety grants and awards to be issued.</td>
</tr>
<tr>
<td>1992</td>
<td>Legislation</td>
<td>Board of governors initiate a comprehensive review of regulations, most of which are more than a decade old.</td>
</tr>
<tr>
<td>1992</td>
<td>Practice</td>
<td>Medical Services Division tackles difficult and costly challenge of chronic pain. The concept of early intervention is introduced through pilot projects.</td>
</tr>
<tr>
<td>1992</td>
<td>Practice</td>
<td>Board implements new system for compiling and reporting financial data</td>
</tr>
<tr>
<td>1993 (1994)</td>
<td>Legislation</td>
<td>Legislative change extends mandatory coverage to virtually all employers and workers in the province</td>
</tr>
<tr>
<td>1993</td>
<td>Legislation</td>
<td>Board bound by Freedom of Information and Protection of Privacy Act</td>
</tr>
<tr>
<td>1993</td>
<td>Legislation</td>
<td>New regulations and policies for their implementation include coverage of: a) protection of workers from violence in the workplace (mandatory risk assessments), b) first aid and c) permissible concentration levels of 16 airborne contaminants.</td>
</tr>
<tr>
<td>Year</td>
<td>Type of Change</td>
<td>WCB or * Other Agency</td>
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<tr>
<td>----------</td>
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<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1993</td>
<td>Practice</td>
<td>Pilot project that allows for electronic submission of Form 7, used by employers to report accidents.</td>
</tr>
<tr>
<td>1995</td>
<td>Practice</td>
<td>The provincial government replaces the WCB Board of Governors with the “Panel of Administrators”.</td>
</tr>
<tr>
<td>1995</td>
<td>Legislation</td>
<td>Changes to <em>Occupational Disease Recognition Regulation of the Workers Compensation Act.</em></td>
</tr>
<tr>
<td>1995</td>
<td>Practice</td>
<td>The Accident and Injury Reporting System (AIRS) allows electronic claims submission by employers.</td>
</tr>
<tr>
<td>1995</td>
<td>Practice</td>
<td>Establishment of five rehabilitation programs.</td>
</tr>
<tr>
<td>1996</td>
<td>Practice</td>
<td>Provincial government announces establishment of Royal Commission to examine WCB including governance.</td>
</tr>
<tr>
<td>1996</td>
<td>Practice</td>
<td>Guiding principles developed for accident prevention, no-fault compensation, collective employer liability, industry funding, universal coverage and administrative adjudication.</td>
</tr>
<tr>
<td>1996</td>
<td>Practice</td>
<td>WCB province wide awareness campaign which includes education to high school students and colleges.</td>
</tr>
<tr>
<td>1997</td>
<td>Practice</td>
<td>Auditor General conducts WCB systems review.</td>
</tr>
<tr>
<td>1997</td>
<td>Policy</td>
<td>Adopted exposure limits for wider range of substances</td>
</tr>
<tr>
<td>1997</td>
<td>Practice</td>
<td>Rehabilitation initiatives: Continuum of Care, Early Intervention Program System (EIPS), Visiting Specialists Clinic</td>
</tr>
<tr>
<td>1997</td>
<td>Practice</td>
<td>Prevention Division establishes a new Program Department to develop initiatives, including high risk industries</td>
</tr>
<tr>
<td>1997</td>
<td>Policy</td>
<td>Safety standards for Laboratories</td>
</tr>
<tr>
<td>1997</td>
<td>Policy</td>
<td>Creation of new Ergonomics Regulation</td>
</tr>
<tr>
<td>1997</td>
<td>Policy</td>
<td>Environmental Tobacco Smoke Regulation</td>
</tr>
<tr>
<td>1997</td>
<td>Practice</td>
<td>Prevention of latex allergies - &quot;Dealing with Latex Allergies at work&quot; 1997</td>
</tr>
<tr>
<td>1998</td>
<td>Legislation</td>
<td><em>Occupational Health and Safety Regulation</em> becomes law</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>Public Sector Accord on Occupational Health and Safety recommending the establishment of the Occupational Health and Safety Agency for Healthcare in British Columbia (OHSAH)</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>Board implements a return-to-work program for employees</td>
</tr>
<tr>
<td>1998-2000</td>
<td>Contract</td>
<td>* Change to contract such that for a period of time RNs received supplemental income from employers for time-loss injuries</td>
</tr>
<tr>
<td>1998</td>
<td>Policy</td>
<td>Interim policy changes concerning the assessment of permanent psychological disability</td>
</tr>
<tr>
<td>1998</td>
<td>Practice</td>
<td>Prevention of BBI : &quot;HIV/AIDS, and Hepatitis B and C: Preventing Exposures at Work&quot;</td>
</tr>
<tr>
<td>1999</td>
<td>Practice</td>
<td>* Establishment of OHSAH</td>
</tr>
<tr>
<td>1999</td>
<td>Legislation</td>
<td>Schedule B of the Workers Compensation Act is updated for occupational diseases</td>
</tr>
<tr>
<td>1999</td>
<td>Legislation</td>
<td>Changes to Occupational Disease Recognition Regulation of the Workers</td>
</tr>
<tr>
<td>Year</td>
<td>Type of Change</td>
<td>WCB or * Other Agency</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1999</td>
<td>Practice</td>
<td>Establishment of Research Secretariat (replaces Finding Solutions)</td>
</tr>
<tr>
<td>1999</td>
<td>Policy</td>
<td>Bursitis, Tenosynovitis/tendinitis: changes concerning exposures leading to, definitions of, claims; to better reflect scientific knowledge</td>
</tr>
<tr>
<td>2000</td>
<td>Policy</td>
<td>The Policy and Regulation Development Bureau completes more than 15 policy issues that were considered priorities</td>
</tr>
<tr>
<td>2000</td>
<td>Policy / Legislation</td>
<td>Public hearings on proposed amendments to the environmental tobacco smoke regulation</td>
</tr>
<tr>
<td>2000</td>
<td>Attitude</td>
<td>* Employers reluctant to take workers back until &quot;fully healed&quot; in 1990's; by 2000 saw attitude change that was better to take people back on light duties than wait until 100% recovered</td>
</tr>
<tr>
<td>2000</td>
<td>Practice</td>
<td>* Release of OHSAn reports documenting cost-benefit of overhead lifts</td>
</tr>
<tr>
<td>2001</td>
<td>Practice</td>
<td>* OHSAn PEARs (Prevention and Early Active Return to Work Safely) program commences</td>
</tr>
<tr>
<td>2001</td>
<td>Practice</td>
<td>* Employers and Unions Memorandum of Understanding established for &quot;No-Unsafe Lifting&quot; of Patients/Residents</td>
</tr>
<tr>
<td>2001</td>
<td>Practice</td>
<td>* Funds provided by government ($15 million) for installation of overhead ceiling lifts</td>
</tr>
<tr>
<td>2001</td>
<td>Practice</td>
<td>Development of Ceiling Lift Implementation Guidelines</td>
</tr>
<tr>
<td>2001</td>
<td>Practice</td>
<td>Core services review for all ministries, boards, commissions and government agencies including the Board</td>
</tr>
<tr>
<td>2001/2002</td>
<td>Practice</td>
<td>Healthcare Amalgamation (52 regions and councils to 6 health authorities)</td>
</tr>
<tr>
<td>2002</td>
<td>Practice</td>
<td>Core Review of WCB administration and services.</td>
</tr>
<tr>
<td>2002</td>
<td>Legislation</td>
<td>Bill 49 changes how benefits for injured workers are calculated, clarifies coverage for mental stress and restructures WCB governance.</td>
</tr>
<tr>
<td>2002</td>
<td>Practice</td>
<td>OHSAn online tools (Website, OSHTips, Latex Database, MSDS Database)</td>
</tr>
<tr>
<td>2002/2003</td>
<td>Practice</td>
<td>OHSAn ergonomic handbooks (laundry, kitchens, pharmacy)</td>
</tr>
<tr>
<td>2003</td>
<td>Practice</td>
<td>OHSAn creates a world-class web-based secure data collection system for injury tracking and claims management</td>
</tr>
<tr>
<td>2004</td>
<td>Legislation</td>
<td>Bill C-45 establishes new OH&amp;S criminal negligence that establishes rules for attributing organizations criminal liability for the acts of their representatives</td>
</tr>
</tbody>
</table>

Figure 30 examines some major policy and legislation changes that occurred in BC in relation to the time-loss injury rate for the healthcare industry from 1997 to 2002. The stabilization and ultimate decline of the BC injury rate appears to be the result of collaborative
stakeholder efforts and the implementation of health and safety interventions (e.g., establishment of OHS AH, provincial ‘no lift’ policies, ceiling lift installations, etc.).

Some of the more substantial policy and practice changes that have occurred in BC over the last several years are described below.

**OHS AH**

The Occupational Health and Safety Agency for Healthcare (OHS AH) in BC was conceived in 1998 in an Accord between healthcare employers and union representatives. OHS AH was created to reduce workplace injuries and illness in healthcare workers and to return injured workers back to the job quickly and safely. It was seen as a synthesis between research and decision-making – the goal being the collaborative identification of evidence-based best practices. OHS AH, in conjunction with the many other stakeholders, has been successful in decreasing injuries and time loss, and thereby bringing about a reduction in WCB premiums. The provincial injury rate for the healthcare industry was decreased by 27% between 1998 and 2002. Annual days lost per 100 FTE have also been steadily decreasing – dropping 38% between 1999 and 2002 (This saves over 100,000 days otherwise lost from work
by healthcare workers). WCB premium rates have fallen as well - representing some $51 million in reduced costs to the sector in the last two years alone (i.e., paid to WCB in 2004 compared to what would have had to be paid had the assessment rates remained the same as they were in 2002).

**Restructuring BC’s Health Authorities**

Between 1997 and 2001, the management and delivery of most healthcare services in BC had been the responsibility of an array of health boards, councils and service societies. In December 2001, the previous 52 health regions and councils merged to form a new governance and management structure with:

- five Health Authorities that govern, plan and coordinate services regionally; and
- one Provincial Health Services Authority that coordinates and/or provides provincial programs and specialized services, such as cardiac care and transplants.

The new structure made it easier to design, implement and evaluate occupational health interventions.

**Provincially Funded Research**

The *Finding Solutions* program was the WCB's annual research and training grants program to encourage external involvement in occupational health, safety and rehabilitation objectives. Between 1992 and 1999, the program provided more than $5 million to fund 111 projects. The WCB created the Research Secretariat in July 1999 to strengthen its commitment to supporting occupational health, safety and workers' compensation research and the transfer of research knowledge. The Research Secretariat has held three research competitions to date, awarding a total of $4.6 million to 42 research projects and four research training awards.

In 2000 and 2001, OHSAH held an open competition entitled the Stakeholder Driven Initiatives Program. This program was designed to give stakeholders the opportunity to conduct pilot projects, evaluate innovative interventions, and establish best practices. A collaborative approach was emphasized that included both union and management and involved both researchers and decision-makers. Two million dollars was budgeted for more than fifty projects implemented across BC’s healthcare sector to address workplace conditions for a wide variety of healthcare workers. Projects included violence prevention, home-care interventions, ceiling
lift trials, adaptive clothing, and prevention initiatives in laundries, kitchens, laboratories. Other initiatives focused on chemical and biological hazards, stress in the workplace, and resident aggression.

MSI

The injury rate for healthcare workers in BC has been consistently higher than the injury rate for all industries combined, with MSI representing the predominant type of WCB claim. MSI due to patient handling or other manual materials handling represent more than half of the overall WCB claims in healthcare.

Several unique initiatives in British Columbia have specifically targeted the prevention of MSI and the enhancement of health for healthcare workers.

- In April 1997, new Occupational Health and Safety Regulations (BC Regulation 296/97) were introduced that included, for the first time in Canada, legislated requirements for managing the risk of MSI.
- The ‘Ergonomics (MSI) Requirements’ (Sections 4.46 to 4.53 of the Regulation) specify required actions to identify, assess and control the risk of MSI through a process that involves education and training of employees, and consultation with workers and the joint committee or worker health and safety representative.

These requirements were gradually phased into the WCB compliance monitoring system over a period of several years and have been instrumental in providing incentive and guidance for establishing coordinated MSI risk management programs. BC is the only province with ‘Ergonomics (MSI) Requirements’.

OHSASH, as noted above, established several programs to assist health authorities to implement the ergonomic requirements, and to decrease injuries and their sequelae. Two of these OHSASH programs are described below.

PEARS

The Prevention and Early Active Return-to-work Safely (PEARS) program integrates MSI prevention, early intervention, and return-to-work processes. The overall purpose is to reduce the incidence and duration of MSI time loss and related costs. The program is based on a combination of evidence of what works locally with evidence from international scientific literature that suggested an integrated (workplace as well as clinical), and bipartite (employers
as well as unions) approach may be the most effective means of promoting health in the workplace. Cornerstones of the program include primary prevention, workplace assessment and modification, evidence-based decision-making, and strong union involvement in all aspects of program design and implementation. PEARS is funded by OHSAH with matching (or greater) funding from the Health Authorities.

The PEARS program was piloted in two facilities in the Lower Mainland of British Columbia. A rigorous evaluation of PEARS at Vancouver General Hospital (VGH) showed that the program was extremely effective in returning workers back to their regular duties in a shorter period of time. It also successfully reduced total compensation costs, particularly among registered nurses and health sciences professionals. An evaluation of the PEARS program at the second pilot site produced similar results, with employees returning to work significantly faster after PEARS was introduced. The success of the two PEARS pilots paved the way for expansion to other regions in the province. There are now eleven PEARS programs in place or under development at 80 sites across BC, that will continue to maintain the principles on which the program was founded.

Safe Patient Handling

OHSAH conducted rigorous evaluation and cost benefit analysis of measures to reduce patient-handling injuries; and, based partly on the results of this research, in March 2001, the Health Employers Association of British Columbia (“HEABC”) and the Association of Unions (Facilities Sub-sector) (“the unions”) signed a memorandum of understanding (MOU) in which they agreed to work towards eliminating all unsafe manual lifts of patients/residents through the use of mechanical equipment, except where the use of mechanical lifting equipment may be a risk to the well-being of patients/residents, in which case adequate staff would be make available to safely handle the patient/resident.

To further the efforts to reduce patient handling injuries, OHSAH, the WCB, the Ministry of Health Services and others collaborated to develop a financing framework to support the purchase of necessary mechanical equipment and related training in 2001. These efforts resulted in the distribution of $15 million for the procurement of electric beds and overhead lifts by the Ministry of Health Services to support this initiative. In August 2002, the WCB of BC followed suit with the provision of $6 million from the acute care group reserve to support safe patient handling initiatives.
Needle-stick Injuries

In BC, the WCB has specific regulations pertaining to biohazardous materials in the workplace (OH&S Regulation 296/97 Section 6.33-6.41). The WCB defines a biohazardous material as a pathogenic organism, including a blood-borne pathogen, which due to its known or reasonably believed ability to cause disease in humans, or any material contaminated with such an organism. The regulations require an employer to develop and implement an exposure control plan (ECP) if a worker has or may have occupational exposure to a blood-borne pathogen. This plan must include the following components: risk identification and assessment of all at risk workers; implementation of control measures, including provision of Hepatitis B vaccine at no cost to at risk employees; written work procedures; worker education and training; annual program evaluation/review and documentation.

The main purpose of an ECP is to reduce or eliminate the hazards of occupational exposure to blood-borne pathogens. Specific responsibility and accountability with respect to the ECP rests with a variety of personnel within the organization, including: senior management, front-line management, occupational health and safety services, department of infection control/epidemiology, and employees. An effective exposure control plan will not only decrease the number of worker BBF exposures, but improve worker perceptions of workplace health and safety culture in general. For a plan to be effective it must not only be documented in a written record, but also understood and accessible to all stakeholders and potentially affected individuals. In BC, there are several participatory BBF exposure control initiatives underway, as discussed in was Section 2.3.

Violence Prevention

Healthcare workers must interact closely with their patients/clients and their families, often under difficult circumstances. Patients/clients may act aggressively due to their medical condition or the medication they are taking. They may also have a history of violent behaviour, or feel frustrated and angry as a result of their circumstances\(^{180}\).

Approximately 40% of all violence-related claims come from HCWs, although these workers make up less that 5% of the workforce in BC. HCWs have more accepted claims and lose more days off work due to acts of violence than any other group.

In November 1993, the WCB introduced new regulations concerning the protection of workers from workplace violence. These regulations require all employers, where a risk of
violence at the workplace exits, to undertake a risk assessment and establish a violence prevention plan to eliminate, or where elimination is not possible, minimize the risk.

The sections on violence in the workplace (sections 4.27 to 4.31) of the Occupational Health and Safety Regulation identify steps that must be taken both to prevent incidents of violence and aggression and to deal with incidents if they occur. In 2000, the WCB of BC created a handbook to assist healthcare organizations to develop, implement, and review violence prevention programs and to comply with the Regulation. This handbook was a collaborative effort of representatives of both the employer and worker communities.

“Code White” refers to a trained team response to a disturbance that is a behavioural emergency involving clients in healthcare settings. OHSAAH, in collaboration with the WCB, HEABC, the RCMP and other stakeholders from across the province, developed an educational guide to assist facilities that are establishing Code White response teams as one component of addressing aggressive behaviour in the workplace. The focus of the Code White team is to de-escalate a threatening situation before an individual is injured or property is damaged. The guide provides stakeholders with a standard program for Code White, including the roles and responsibilities of the team, education and training, documentation, follow-up protocols, and policies and procedures.

Analysis of Laboratory Workplace on Healthcare Workers

In 1997, the WCB introduced an addition to the regulations pertaining to safety standards for laboratories. Detailed data were not available for this report to assess the full impact of these regulations on laboratory related injuries.
4. LIMITATIONS

Access to reliable data

The ability to analyze trends and patterns in workplace injury and disease depends on quantifiable measurements that accurately reflect the reality of the workplace. The ability to develop appropriate, effective policy and intervention initiatives depends on the analysis of these quantifiable measurements. The problem for most of the groups undertaking the development of policy and interventions is having access to quality data of workplace injuries and disease. Most provincial Workers’ Compensation Boards do not provide appropriate data in a timely manner to assist with injury reduction. Problems with the consistent classification of incident and injury data exist across many of the WCBs. Many provinces have difficulty in accurately reflecting the extent of the healthcare workplaces in claim data or accurately categorizing the healthcare occupations.

As was identified in Section 1.4 and Appendix 3, the ability to conduct this analysis with the provincial WCBs would not have been feasible given the difficulty in getting accurate data on workforce size. This report is limited in its analysis, as most of the participating agencies involved with this project don’t have access to their own provincial data (except for Ontario). BC’s adoption of the WHITE system developed by OHSAH will rectify this in the future.

Standardization of injury classifications

The databases compiled by the AWCBC through their NWISP provided the data utilized in this project. However, there are considerable differences in the categorization of time-loss claims, such that there is not enough commonality in the data to undertake comparison analyses across provinces. The best solution to this problem would be the adoption of common standards for occupation and categorization of injuries by each provincial WCB.

One clear deficiency in our analysis was our inability to clearly identify all the various service and support occupations in healthcare, i.e., housekeeping, laundry, food service, and maintenance occupations. The data available from AWCBC did not provide the ability to extract data at this level for analysis, such that the data for all health care workers is generally not included in the report.

One other recurring problem was the increasing occurrence of claims data without appropriate descriptors (i.e. occupation, location, type of injury, date of injury, etc.). An example of this concern was reflected in the Alberta data. Time-loss claims coded as “Unknown/Non-
coded Injuries (Alberta NOI Code 99) illustrated that as many as 5% of claims were coded as unknown. While this reflects a more significant issue for Alberta than other provinces, it does raise questions about the quality of the provincial data.

**Inclusion of reported claims to deal with emerging trends**

There are many risks in healthcare that have the potential to result in serious injury, (e.g., needle-stick injuries, cumulative trauma disorders, etc.) but do not necessarily translate into time-loss injuries. As can be seen by the Ontario data, the ‘non time-loss’ injury rate is at least equal or greater than the ‘time-loss’ injury rate. Underreporting of needle-stick injuries is a huge concern too, as evident in the BBF study underway in BC (see Section 2.3). This is important information that should be made available in order to properly analyze incident trends.
5. CONCLUSION AND RECOMMENDATIONS

As reported in Section 1 and as demonstrated by provincial data, overall injury and illness rates vary considerably within the healthcare sector by province, occupational group, and injury/illness type.

The national time-loss injury rate decreased from approximately 4.1 injuries per 100 FTE in 1996, to 3.7 injuries per 100 FTE in 2002. At the same time, the size of the healthcare labour force increased substantially. Examining provincial injury rates revealed wide variability, with injury rates ranging from 1.6 in New Brunswick (1996) to 8.2 in PEI (1999). Only Ontario, New Brunswick, and Alberta were found to have an average injury rate lower than the national average from 1996 to 2002. Again, though, caution should be used in comparing across provinces due to the differences in coding, and categorisation criteria. Trends in injury rates for “Healthcare Professionals” and “Technical, Assisting and Other Related” occupations had similar patterns to the provincial average.

MSIs accounted for more time-loss claims than any other injury or disease within every province. From 1997 to 2002, Saskatchewan, PEI and BC had average MSI rates above 5; Manitoba, NL, Québec and Nova Scotia had MSI rates between 3 and just above 4; and Alberta, Ontario and New Brunswick had MSI rates at 2.3 or below.

Although needle-stick injuries and infectious diseases make up only a small proportion of the total claims, they are associated with considerable anxiety from workers’ fears of contracting fatal diseases. Underreporting of needle-stick injuries and near misses are also substantial when compared to the actual number of time-loss claims. BC experienced a large reduction in needle and syringe injury rates from 1996 to 2002, whereas Saskatchewan experienced a large increase in injury rates during the same time period. The majority of provinces saw little or no change in injury rate when comparing 1996 data to 2002 data.

Mental stress comprises very few time-loss claims, but this appears to be due more to acceptance criteria than actual incidence of injury/disease.
As with needle-stick and mental health claims, the number of claims for infectious diseases was very small. Data were only available for Alberta, BC, Manitoba, Ontario, Québec and Saskatchewan from 1996 to 2002. Alberta consistently experienced the lowest injury rate. Ontario had almost a 500% increase in injury rate relating to infectious diseases from 2001 to 2002. And in Québec, the rate of infectious diseases increased from .09 to .56 claims per 1,000 person years from 1996 to 2002.

Injuries as a result of “violence” make up a varying portion of all time-loss injuries within each province. The most prevalent injury in this category consists of ‘surface wounds’ such as abrasions and bruises. The majority of provinces experienced either no change or a slight reduction in injury rate from 1996 to 2001, with the exception of PEI, BC and Manitoba. PEI went from the lowest injury rate in 1996 and 1997 (possibility indicating flaws in the recording of data) to the highest injury rate from 1998 through to 2000. BC had 3.25 claims per 100 workers in 1996, peaked at 4.0 in 1998 and gradually decreased to 2.5 in 2001.

We identified the statutes, regulation, policy and intervention strategies for all provinces except Saskatchewan and Manitoba due to short time frames and resource limitations. The most prevalent changes by province included: ergonomic modification to safer equipment such as lifts and electric beds, MSI prevention programs, return-to-work programs, and violence prevention programs. With the implementation of prevention programs each province reported an initial drop in injury rates soon after implementation followed by a gradual rise in injury rates after 2000. Research team members across Canada estimated that it would be 2-3 years before statistics were available to be able to determine the impact of the new policies and programs on injury rates and time-loss.

All provinces report that since 2000 they have experienced an increased prevalence of the following factors that contribute to increased risk of injury: complexity of care, major healthcare restructuring and amalgamations, reduction in available patients/resident care beds, and increased workload in an aging workforce. This suggests that without the focus on prevention and safety programs the injury rates would have increased substantially due to the increased risks rather than increasing marginally as was the case from 2000 to 2002.

Data Recommendations
Many factors were discovered that limited tracking and comparison of trends and patterns of time-loss injuries across Canada. Provinces use different criteria for coding injuries. Regulations affecting time-loss claims are applied differently across Canada. WCBs are limited in their ability to provide accurate estimations of the health care labour force to develop injury rates, and labour force information available from Statistics Canada does not provide easily accessible breakdowns of the healthcare workforce by all desirable occupational codes. Many provinces have different adjudication processes (i.e., some were more receptive to repetitive strain injuries (also known as cumulative trauma disorders) and/or stress). To address these and other data issues, the following recommendations are made:

- Undertake a **standardization** across all WCBs of the **coding** of injuries, including the source and nature of injury, in order to reduce the inconsistencies in the collection, identification and, ultimately, comparison of illness and injury data, that would improve the accuracy and consistency of AWCBC data.

- While it is recognized that claims adjudication policies and practices are provincial prerogatives, and will always be influenced by political differences across the provinces and over time, **more explicit clarification of adjudication policies and practices** would allow for adjusting for these differences – which influence not only the allowance of claims, but also there reporting. Clarification of financial incentives/disincentives to reporting; waiting periods; and acceptance criteria (particularly for mental stress and cumulative trauma claims) would be most desirable.

- The level of risk differs by occupation within the large groupings (e.g. RNs, LPNs and physicians are all in the same group of “health care professionals” – yet their risks differ widely), therefore, **data on the specific occupations that are aggregated within the larger groups** would improve the ability to analyze the injury patterns and trends of these specific occupations, or at least adjust for the different workforce compositions in comparing across jurisdictions.

- Accessible, standardized labour force definitions should be developed and data collected for all or at the same discrete level by each WCB for all or comparative analysis of injury rates by occupational groups and across jurisdictions;

- Include **time of incident** in the data collected, so that injuries may be related to workplace conditions occurring during specific shifts (e.g., effects of shift work or staffing levels at time of injury);
• Provide **demographic data** to help determine the impact, for example, of an aging healthcare workforce.

While the above measures would help in the monitoring of the work-related injuries in the healthcare workforce, it has to be recognized that each WCB will always be limited in its ability to provide needed data, in particular long-term illnesses. Cross-sectional surveys, (such as the one proposed for nursing personnel, being developed as a partnership between Health Canada, the Canadian Institute for Health Information (CIHI) and Statistics Canada) would be useful adjuncts, especially in areas such as mental health. Even better would be longitudinal studies of healthcare workers, using secondary data sources (such as healthcare utilization data and other linked data) to minimize “survey fatigue”. A longitudinal study of healthcare workers is currently being developed in British Columbia, for example. Ideally, longitudinal studies linking survey data (that combines health data with workplace exposure and risk information), with comprehensive secondary data, would provide the best monitoring tool for the analyses of trends and the effectiveness of interventions.

**Recommendations to decrease work-related injuries and illnesses**

Considerable efforts have been taken across the country to address this area of growing concern. Sharing across provinces of data on the effectiveness of programs, policies and interventions that impact positively on reducing injury, illness and disability should be encouraged. Specifically, successful tools, strategies and interventions that should be shared include:

• Programs to track injuries (including data collection tools for needle-stick, MSI and other types of injuries). OHSAH’s Workplace Health Indicator Tracking and Evaluation (WHITE) system is one such example;

• Infection control guidelines and training programs;

• Return-to-work programs including interventions for rehabilitation of injured workers;

• Ergonomic programs to reduce MSI and improve workplace productivity and efficiencies;

• Provincial funding programs to support electric beds, safe patient handling equipment, etc.;
• Examination of staffing levels, workload and other factors related to workplace organization; including the effectiveness of flexible scheduling of direct care activities; health and safety training, and other efforts to establish a healthier work climate;
• Violence prevention training to enable workers to defuse violent situations including training on how to interact with elderly residents/patients with cognitive problems;
• Support programs to reduce psychological stress in the workplace.

There is growing recognition that the health of the healthcare workforce needs attention. 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. Any efforts that can promote further research in this area, including the sharing of effective strategies to improve workplace health, and a means to promote knowledge translation of these best practices, should be encouraged.

Hopefully the evaluation begun in this report will serve as a catalyst to more cross-provincial collaboration.
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APPENDICES

Appendix 1 - AWCBC Data Overview

Concepts and Objective

The work injury and disease statistics originate from administrative records used by the twelve (NWT & Nunavut are combined) provincial and territorial Workers’ Compensation Boards and Commissions (Boards) to record time-loss claims from injured workers. Statistics shown in this publication represent a census of all work-related time-loss injuries and diseases accepted by the Boards.

The objective of the National Work Injuries Statistics Program (NWISP) is to provide information on occupational health and safety in Canada for the purpose of accident prevention.

Definitions

Injury and Disease (Injury): An injury in this report is any injury or disease resulting from a work-related accident or exposure to a noxious substance. Disease, as distinct from a physical injury, results from conditions in the work environment.

(a) Nature of injury or disease: the principal physical characteristics of an injury.
(b) Part of body injured: the part of body directly affected by an injury.
(c) Source of injury or disease: the object, substance, exposure or bodily motion that directly inflicted the injury.
(d) Type of accident or injury event: the event that directly resulted in the injury.

Time-loss Injury: A time-loss injury is an injury where an employee is compensated for a loss of wages following a work-related accident (or exposure to a noxious substance), or receives compensation for a permanent disability with or without any time lost in his or her employment (for example, if an employee is compensated for a loss of hearing resulting from excessive noise in the work place). In this report, work injuries and diseases are cross-tabulated on the basis of the NWISP standard.

Fatality: A fatality is a death resulting from a work-related incident (including disease) that has been accepted for compensation by a Board.
Industry: An industry is defined as a group of enterprises (for example, companies or establishments) that are engaged in the same or similar kind of economic activity. Boards classify businesses according to their industrial activity for administrative purposes. In this report, the industry of the injured or ill worker is shown on the basis of the Standard Industrial Classification, 1980, Statistics Canada (Catalogue 12-501).

Occupation: Occupation is defined as the principal activity a person is engaged in at his or her place of work. The occupation of an injured or ill employee is coded according to the National Occupational Classification, 1991, Human Resources Development Canada (Catalogue No. MP53-25/1-1993E).

Worker or Employee: In this report, a worker or an employee is a person who is covered by workers' compensation legislation. This includes self-employed persons who have been accepted for coverage by the Board in the worker's jurisdiction.

Target population

The target population is all work-related time-loss injuries that have been reported by workers, employers or healthcare providers, and which have been accepted for compensation by a Board. A worker may experience two or more separate and independent injuries during the reference period (for example, the worker may sustain a fracture in March and a back injury in November of the same year). If this occurs each incident is counted as an event.

Reference Period

Given the National Program's standards and definitions, the data published by the National program may differ from information released by the Boards.

Time-loss injuries: the standard reference period for reporting time-loss work injuries statistics is the calendar year, but the data may have been compiled by a Board on a fiscal-year basis. This report contains time-loss injuries, by calendar year of accident (or diagnosis in case of a disease), that were accepted for payment during the year of the accident, or the three-month period immediately following the reference year.

Fatalities: for purposes of the National Program, a fatality is recorded during the year when the claim was accepted by a Board, not the year when the fatality occurred.
Coverage and Data Limitations

The National Program uses administrative records to compile work-related injury and disease statistics. Such records provide a readily accessible data source for general statistical information, thus eliminating the need for costly surveys. However, the reader must be aware that the data are collected by boards primarily to meet specific program requirements, (i.e., to compensate and rehabilitate workers who have been injured on the job).

The National Program's statistics originate from claim records submitted to Boards by workers, employers, and/or health-care practitioners. Records created during the administration of a program provide census type coverage; thus, the information is not affected by statistical errors such as sampling variability. On the other hand, the population covered may be restricted. In the case of workers' compensation, it has been estimated that only approximately eighty percent of the work force is covered, with coverage differing slightly from jurisdiction to jurisdiction. For example, self-employed persons, professional offices, and industries such as finance may be excluded. Commonly, excluded businesses may apply for voluntary coverage.

Statistics are generated when claims for injured workers are accepted and processed by WCBs. These activities are similar but not identical at the various Boards. All injury variables, from which tables are derived, are coded by the Boards; however, the written narratives (for example claim forms) from which coding are done, can be interpreted differently and may depend on the amount of information provided. Jobs may also be coded to very different occupations depending on what is provided on claim forms and related information. For these reasons, the user is advised to use the highest level of aggregation possible.

A problem may also arise when Boards categorize enterprises by industrial activity; that is, when they assign businesses to rate groups for assessment purposes. For example, it is possible that ambulance services could be included with local government services.

One weakness in the statistics is the coverage of occupational diseases. These are included only if the disease can be linked to current or previous employment and if the claim is accepted for compensation by a Board. Given the long latency periods of some diseases, the link between a disease and employment may not be readily evident. This means the ailment may be treated within the general healthcare system and would not be included in the statistics.

A general data system is based on large numbers and, therefore, one can assume that the results are generally valid. But a universal data system usually cannot answer very specific questions. For example, the National Program's database is not well suited if a caller asks for
estimates of window washers who died when they fell from a defective scaffold. In this example, window washers are included with several other occupations in an occupational group called "Specialized Cleaners", and there is no code in the standard to indicate whether or not the equipment was defective.

The National Program’s statistics display the expected patterns in terms of level and trend. They provide the user with a statistical tool to identify health and safety problems in the workplace, a first step for taking corrective action. Then, data are also needed to monitor the success, or failure, of health and safety programs after changes in legislation have been introduced, or after other improvements, such as to personal protective equipment, have been made.

Data Evaluation

The AWCBC checks for errors and consistency after data are received from the WCBs. This involves an edit for invalid codes and time series analyses. If unacceptable variances are observed the appropriate Board is contacted to provide explanations or to correct the data.

Data Comparability

The National Program collects data from the twelve Boards or Commissions. Within each jurisdiction the data are consistent over time, but differences may be observed if inter-jurisdictional comparisons are made (for example, specific businesses may be excluded from coverage in certain jurisdictions). Variances arise because the acts and regulations administered by the Boards are not identical, and because each Board has unique operating procedures.

Data Confidentiality

Before the data are supplied to the AWCBC, the Boards remove all personal identifiers. To ensure that individual workers or businesses cannot be identified, values smaller than 5 may be replaced by a special symbol in custom retrievals.
Data Availability

The AWCBC database contains summary information about all the data items for which the National Program collects data. Other tabulations, meeting specific needs, can be produced on request.

Number of Codes Database

- Variable
- Nature of Injury
- Part of Body
- Source of Injury
- Event
- Occupation
- Industry

The tables provided by AWCBC show data by province or territory. While this information is useful for certain analyses, different needs require other statistics. For example, a safety officer may want to know how many back injuries in construction are caused by falls from elevation. A table displaying part of body by event for the construction industry would provide this information.

A table showing nature of injury by part of body injured informs the user about the seriousness of the injury and the adequacy of protective equipment. For example, a manufacturer of safety boots may be interested in a tabulation that shows injuries to the foot caused by punctures. If the source of injury were included in the table, the analyst or safety officer would also be informed about the object or substance that caused the injury. This could trigger appropriate action for eliminating the hazards, or for training workers in the safe handling of objects or substances.

Another table, nature of injury by event, informs about how the injury occurred. For example, many sprain and strain injuries result from overexertion while workers are lifting objects. Adding the dimension of source of injury to this table provides information about how workers came into contact with specific injury producing objects or substances. For example, it may be found that certain safety glasses protect against frontal impacts, but not against objects striking from the side.
Appendix 2 - Healthcare Occupations and Labour Force Data

The AWCBC uses the National Occupational Classification (NOC 1991), Human Resources Development Canada (Catalogue No. MP53-25/1-1993E) to classify all the occupations in its database.

The NOC 1991 provides a standardized framework for organizing the world of work in a manageable, understandable and coherent system and has been successfully implemented in a number of major applications over the past decade. It is based on extensive occupational research, analysis and consultation conducted across the country, reflecting the changes in the Canadian labour market.

The NOC Web site contains the classification structure and descriptions of 520 occupational unit groups and includes over 30,000 occupational titles. The occupation groupings that were used in the selection of the AWCBC data are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Occupation Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>031</td>
<td>Managers in health, education, social and community services</td>
</tr>
<tr>
<td>311</td>
<td>Physicians, dentists and veterinarians</td>
</tr>
<tr>
<td>312</td>
<td>Optometrists, Chiropractors and other health Professionals</td>
</tr>
<tr>
<td>313</td>
<td>Pharmacists, dieticians and nutritionalists</td>
</tr>
<tr>
<td>314</td>
<td>Therapy and assessment professionals</td>
</tr>
<tr>
<td>315</td>
<td>Nurse supervisors and registered nurses</td>
</tr>
<tr>
<td>321</td>
<td>Medical Technologists and technicians</td>
</tr>
<tr>
<td>323</td>
<td>Other technical occupations in healthcare</td>
</tr>
<tr>
<td>341</td>
<td>Assisting occupations in support of health services</td>
</tr>
</tbody>
</table>

The Statistics Canada Canadian Labour Force Survey was used to establish the size of the healthcare workforce. The LFS uses the Standard Occupational Classification (SOC 1991) to distinguish it from Human Resources Development Canada (NOC 1991). The two classifications differ only in the aggregation structure of the classification. Both provide a complete listing of all the categories under which Canadian jobs are classified and their descriptions. The occupations considered in our analyses are:
Professional Occupations in Health, Nurse Supervisors and Registered Nurses

- Specialist Physicians
- General Practitioners and Family Physicians
- Dentists
- Veterinarians
- Optometrists
- Chiropractors
- Other Professional Occupations in Health Diagnosing and Treating
- Pharmacists
- Dieticians and Nutritionists
- Audiologists and Speech-Language Pathologists
- Physiotherapists
- Occupational Therapists
- Other Professional Occupations in Therapy and Assessment
- Head Nurses and Supervisors
- Registered Nurses

Technical, Assisting and Related Occupations in Health

- Medical Laboratory Technologists and Pathologists' Assistants
- Medical Laboratory Technicians
- Animal Health Technologists
- Respiratory Therapists and Clinical Perfusionists
- Medical Radiation Technologists
- Medical Sonographers
- Cardiology Technologists
- Electroencephalographic and Other Diagnostic Technologists, n.e.c.
- Other Medical Technologists and Technicians (except Dental Health)
- Opticians
• Midwives and Practitioners of Natural Healing
• Registered Nursing Assistants
• Licensed Practical Nurses
• Ambulance Attendants and Other Paramedical Occupations
• Other Technical Occupations in Therapy and Assessment
• Dental Assistants
• Nurse Aides and Orderlies
• Other Aides and Assistants in Support of Health Services
Appendix 3 - Source and Nature of Injury Coding

This report uses the second edition of CSA Standard Z795, Coding of Work Injury or Disease Information Standard to provide a consistent method of recording and classifying information about work-related injuries and diseases. The Standard sets out a coding structure for information about the nature of an injury or a disease, and about factors directly associated with those injuries and diseases. It should be noted that the Standard does not deal with occupational accident information or causes. The underlying causes of an accident go well beyond the direct causes of an injury. Accidents result from a complex sequence of events that precede the injury event or disease onset. Consequently, it is not intended that information coded according to this Standard be used for identifying accident causes or for attributing fault. This Standard was prepared by the Technical Committee on Work Injuries under the jurisdiction of the Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

Coding Structure for the Injury Variables

The coding structure for the injury variables is based on the US BLS Occupational Injury and Illness Classification system. The coding structure provides for more detail than has been used in previous Standards and should reduce the rate of inapplicable codes (i.e., reduce the rate of NEC occurrences). The injury and disease coding structure contained in this Standard is essentially hierarchical in nature. There are five levels in the hierarchy. Level one is the Division level; level 2 is the Major Group level; level 3 is Group level.

Source of Injury or Disease

The Source of Injury or Disease variable identifies the object, substance, exposure, or bodily motion that directly produced or inflicted the injury or disease identified by the Nature of Injury or Disease codes. This coding structure allows for more detailed coding of the source than was possible under previous standards and will help to reduce the extent of NEC coding. As well, it will allow for more precise identification of problems. This variable also contains codes for bodily motion that will allow for more detailed information on repetitive strain injuries. The Source of Injury or Disease classification identifies the object, substance, exposure, or bodily motion that directly produced or inflicted the injury or disease identified under the Nature of Injury or Disease coding structure.
Secondary Source of Injury or Disease

The purpose of the Secondary Source variable is to capture more information about the injury event than is captured by the Source variable alone. For example, consider the following two examples:

(a) when a worker is struck by a failing object, that object is the source but we do not know from where or what the object fell. Secondary source in this case would be the shelf from which the object (source) fell (event);

(b) where a worker falls to a lower level, the surface or object on which the worker fell is the source but we do not know what initiated the worker’s fall. Secondary source here would be the object, person, condition, or substance that initiated the fall (event) to a lower level (source).

Therefore, the Secondary Source variable relates to the event and to the source. But, depending on the circumstances of the case being coded, secondary source may relate more directly to the event (see example (b) above) or more directly to the source (see example (a) above). The Secondary Source variable provides more information about how the event and source contributed to the injury or disease by identifying what object, substance, condition, or person directly initiated the event or what directly generated the identified source.
Appendix 4 - The Project Team

The Occupational Health and Safety Agency for Healthcare in BC (OHSAH)

OHSAH is a provincial health and safety agency jointly governed by healthcare unions and healthcare employers and is the recipient of CIHR’s Knowledge Translation Award 2004. OHSAH’s Founding Executive Director, Dr. Annalee Yassi, provided the content leadership for this project. She is a Royal College Fellow in Community Medicine and Occupational Medicine, a Tier 1 Canada Research Chair, and has over 20 years experience conducting research in occupational health and safety in the healthcare sector. She directs a successful CIHR-funded Community Alliance for Health Research (CAHR) program entitled Making Healthcare a Healthier Place to Work and works in partnership with researchers nationally and internationally on projects funded by CIHR, CHSRF, HEALNet, MSFHR and the WCB Research Foundation. Doug Pawson, recruited to OHSAH from his role as Director of the Saskatchewan Occupational Health and Safety Agency at the Saskatchewan Association of Health Organizations (SAHO), managed the project. He has played a leadership role in creating a national association of healthcare sector health and safety organizations. Dr. Mark Gilbert, Community Medicine Resident on rotation with OHSAH, assisted in this project, consistent with his trainee objectives of learning about WCB policy across the country and its impact on injuries and illness. And finally, Yuri Cvitkovich, Aaron Miller and Chris Engst assisted with content development.

The Health Care Health and Safety Association of Ontario (HCHSA)

HCHSA is an agency established under the Workplace Safety & Insurance Act, whose mandate is to support the prevention and reduction of the occurrence of workplace accidents, injuries and occupational diseases in the healthcare sector in Ontario. HCHSA is a partner in this work and assists healthcare sector organizations to adopt practices and approaches that result in ongoing reductions in workplace injuries and occupational diseases. Wendy Currie-Mills from HCHSA coordinated the work in Ontario. Susan Griffiths with assistance from Dora Pender developed the material.
The Nova Scotia Association of Health Organizations (NSAHO)

NSAHO is a non-profit, non-government, membership-driven association of health providers within the province of Nova Scotia. NSAHO supports the health community through the provision of responsive services and programs that meet the diverse needs of its membership. Tracey Leary of NSAHO collected and synthesized information for the Atlantic Provinces.

Association paritaire pour la santé et la sécurité du secteur affaires sociales (ASSTSAS)

ASSTSAS is a joint sector-based association dedicated exclusively to occupational health and safety prevention in the health and social services sector in Québec. The agency offers expert occupational health and safety consultants providing information, training, consulting, technical assistance, research and development in numerous fields including ergonomics, assault prevention, and psychological counselling. Diane Parent of ASSTSAS coordinated the work in Québec. Sylvie Bédard developed the material.