

Trends in Injuries, Illnesses, and Policies in Canadian Healthcare Workplaces

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ABSTRACT

Background: Analysis of workers' compensation data and occupational health and safety trends in healthcare across Canada was conducted to provide insight concerning workplace injuries and prevention measures undertaken in the healthcare sector.

Methods: Timeloss claims data were collected for 1992-2002 from the Association of Workers' Compensation Boards of Canada. Labour Force data from Statistics Canada were used to calculate injury rates. The Occupational Health and Safety Agency for Healthcare in British Columbia coordinated with provincial occupational health and safety agencies in Ontario, Quebec and Nova Scotia to analyze injury data and collate prevention measures in their regions.

Results: The national timeloss injury rate declined from 4.3 to 3.7 injuries per 100 person-years since 1998. Musculoskeletal injuries consistently comprised the majority of timeloss claims. Needlestick injuries, infectious diseases and stress-related claims infrequently resulted in timeloss claims although they are known to cause great concern in the workplace. Prevention measures taken in the various provinces related to safer equipment (lifts and electric beds), return-to-work programs, and violence prevention initiatives. Different eligibility criteria as well as adjudication policies confounded the comparison of injury rates across provinces.

Discussion: Since 2000, all provinces experienced healthcare restructuring and increased workload in an aging workforce. Despite these increased risks, injury rates have decreased. Attribution for these trends is complex, but there is reason to believe that focus on prevention can further decrease injuries. While occupational health is a provincial jurisdiction, harmonizing data in addition to sharing data on successful prevention measures and best practices may improve workplace conditions and thereby further reduce injury rates for higher risk healthcare sector occupations.

MeSH terms: Healthcare sector; injuries; preventive measures; nursing care

La traduction du résumé se trouve à la fin de l'article.

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Healthcare workers (HCWs) have greater risk of workplace injuries and mental health problems than many occupational groups in Canada; nursing personnel also have considerably more sick time than personnel in most other occupations.¹⁻⁹ In 2001, the timeloss injury rate for all HCWs was 5.0 injuries per 100 person-years compared to 3.7 for all BC industries.¹⁰ Similar to other jurisdictions,¹¹ disaggregating the long-term care (LTC) occupations from all HCW occupations revealed that nursing aides had very high injury rates (17.6 per 100 person-years), with registered nurses also having higher than average rates (5.4 per 100 person-years).¹² This article provides an overview of trends in workplace injuries and prevention measures in the healthcare sector across Canada.¹³

Reviews note that HCWs face substantial occupational risks from exposure to poor ergonomics associated with patient care; patient violence; and exposure to allergens and infectious agents. For example, it is well established that musculoskeletal injuries (MSI) occur due to equipment and environmental inadequacies, high work demands, inadequate staffing, poor work morale and low social support.¹⁴⁻²⁴ Nursing personnel report MSI prevalence as high as 60% for upper-body and 72% for lower-body symptoms.²⁵⁻³¹ Psychological distress has been linked to patient violence/aggression,³²⁻³⁹ high workload⁴⁰⁻⁴⁷ and stress.⁴⁸⁻⁷⁰ Skin and respiratory disorders are concerns due to exposure to irritants as well as a large variety of substances known to cause skin or respiratory sensitization.⁷¹⁻⁷⁶ Infectious diseases including tuberculosis, influenza, Severe Acute Respiratory Syndrome (SARS), HIV and hepatitis are also of concern.⁷⁷⁻⁹⁴ Creating "healthy workplaces" to support worker well-being, retain personnel, and ultimately ensure high-quality patient care is therefore increasingly being promoted.⁹⁵⁻¹⁰⁰

Health Canada commissioned this study to obtain an overview of trends in workers' compensation claims and provincial-level prevention initiatives in order to gain insight into successful strategies for improving working conditions in healthcare.

METHODS

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

coordinated all data collection and analysis with partner occupational health and safety provincial associations in each respective region (see Acknowledgement section). Timeloss injury and occupational disease data for 1992-2002 were collected from the National Work Injuries Statistics Program (NWISP) compiled by the Association of Workers' Compensation Boards of Canada (AWCBC). 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.

Healthcare labour force data from Statistics Canada's socio-economic database were only available by two occupational groupings. Injury rate determinations were limited to: "healthcare professionals" and "technical, assisting and other related occupations". Where applicable, injury 'frequency' analyses were provided from NWISP data for the three occupational groupings 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".

Collaborating agencies in the provinces provided a chronology of regulatory changes and prevention measures implemented in each province in their region.

RESULTS

During 1996-2002, injury rates in healthcare across provinces ranged from 1.6 to 8.0 timeloss injuries per 100 person-years (Figure 1). The national timeloss injury rate peaked at 4.3 in 1998 and decreased steadily from 4.2 in 2000 to 3.7 in 2002 (Table I). Injury rate reductions may indeed be attributable to prevention programs, whether initiated from government or from within the sector itself, but injury rates are also influenced by socio-economic factors including labour relations issues and adjudicative policy trends. Ontario's time-loss injury rate trends may suggest the impact of prevention measures (Figure 2). Similarly, BC's positive results seem to be at least partially attributable to the formation of OHSAH, a bi-partite health and safety agency (Figure 3).

While comparison of rates across provinces is problematic due to substantial

TABLE I
Health Sector National Injury Rate – All Occupations

	1996	1997	1998	1999	2000	2001	2002
Injuries	22,333.0	22,243.0	23,281.0	23,152.0	23,913.0	23,712.0	24,066.0
Total hours*	20,886.9	20,769.8	20,631.9	21,647.1	22,136.9	23,417.2	24,747.3
Injury rate**	4.11	4.12	4.34	4.11	4.15	3.89	3.74
Full-time Equivalents	5,431	5,400	5,364	5,628	5,756	6,088	6,434

* The Labour Force Survey (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.
** Injury rate is reported as injuries per 100 person-years.

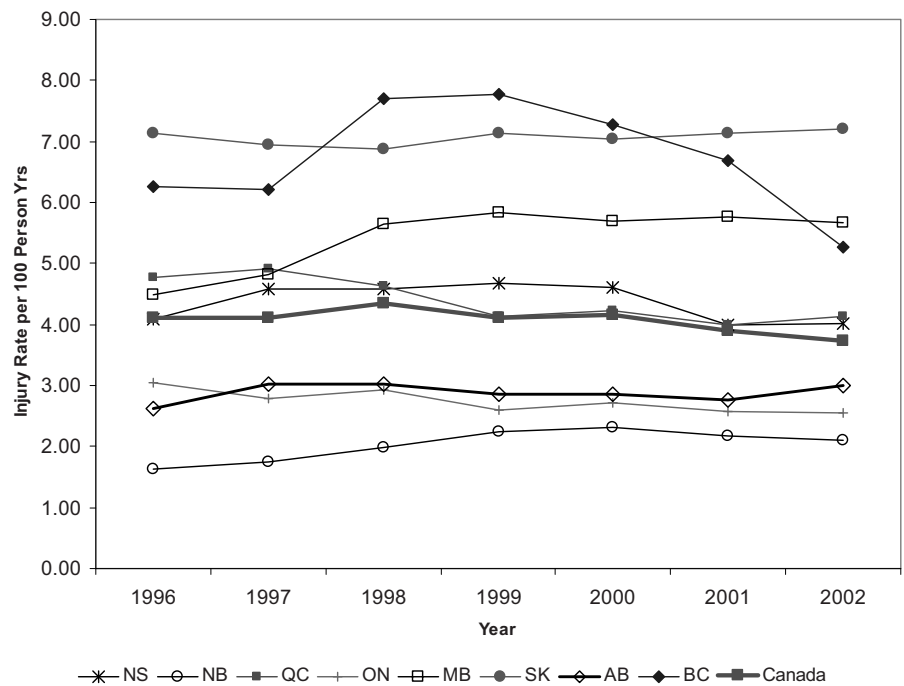


Figure 1. Provincial injury rates (1996-2002)
Source: AWCBC and CANSIM

provincial differences in coding, reporting, and adjudication criteria for timeloss claims, there are major injury rate differences across occupational groups in all provinces (see Figure 4 for definitions). The "Healthcare Professionals" injury rate is almost half that of the "Technical, Assisting and Others". Injury frequency patterns for these "assisting occupations" show that Ontario, BC and Quebec all saw steady declines in injuries from 1994 to 1999, with injuries for Ontario and BC levelling off, but injuries for Quebec beginning to rise again each year after 1999. 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 for RNs, to more than 500 reported injuries per year thereafter.

Musculoskeletal injuries (MSI) consistently comprised the majority of timeloss claims in each province. From 1997 to 2002, Saskatchewan, Prince Edward Island (PEI) and BC had average MSI rates above 5.0 injuries per 100 person-years; Manitoba, Newfoundland/Labrador, Quebec and Nova Scotia had MSI rates from 3.0 to just above 4.0; and Alberta, Ontario and New Brunswick had MSI rates at 2.3 or below. The multiplicity of different MSI codes confounds the comparison of MSI rates across provinces, making 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 Quebec, back pain is underestimated with AWCBC data because many

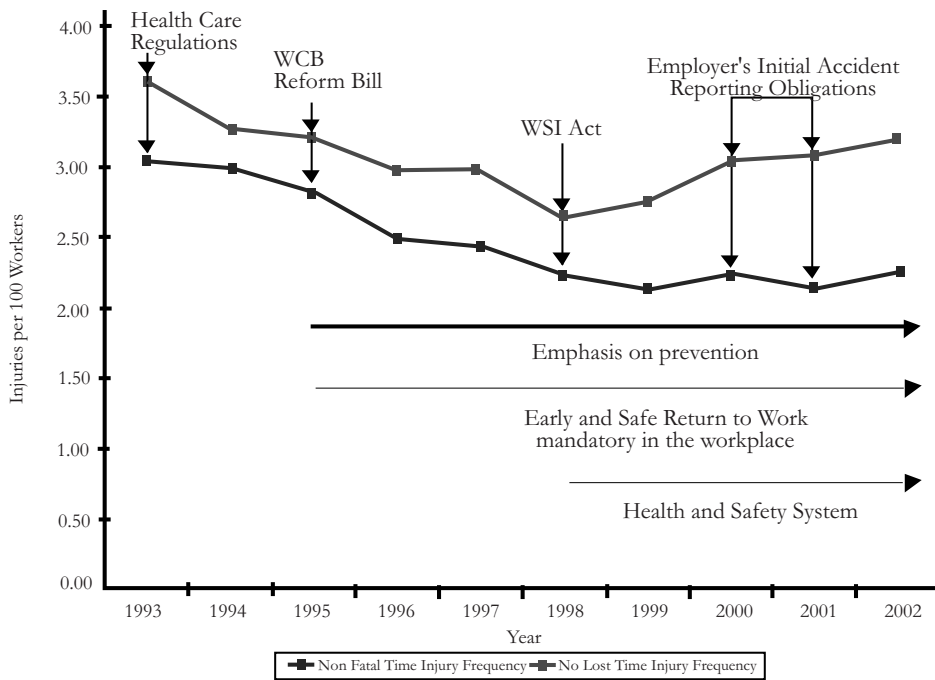


Figure 2. Lost time and no lost time injuries in Schedule 1 firms for healthcare in Ontario
 This graph also notes the important legislation changes (1993-2002)
 Data Source: Enterprise Information Warehouse (EIW) (Dec 2003)
 WSI Act refers to the Workplace Safety and Insurance Act.

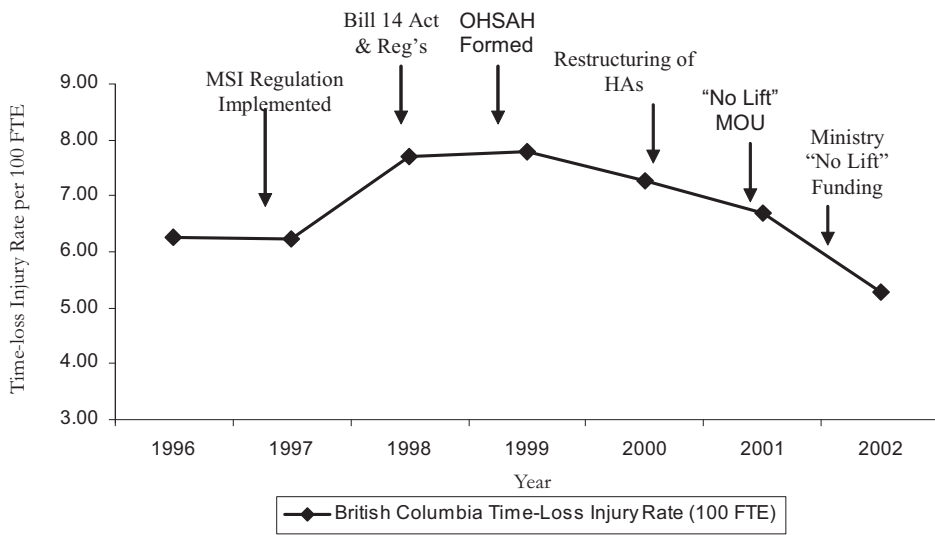


Figure 3. British Columbia injury rates in healthcare in relation to regulatory and other province-wide interventions (1996-2002)
 Bill 14 defines the mandate and responsibilities of the Workers' Compensation Board and sets the standards for a safe workplace and requires each workplace to establish a joint health and safety committee.
 OHSAH refers to the Occupational Health and Safety Agency for Healthcare.
 HA refers to Health Authorities.
 MOU refers to Memorandum of Understanding.

cases are coded as 'sprains' without indicating the part of body affected.

Violence-related injury is an emerging concern (as much as 4.4 incidents per 100 person-years) although most of these

injuries do not result in timeloss (less than 0.01 claims per 100 person-years). The most prevalent injury in this category consists of 'surface wounds' such as abrasions and bruises. The majority of provinces,

with the exception of PEI, BC and Manitoba, experienced minimal changes in the rate of violence-related injuries (timeloss and non-timeloss) from 1996 to 2001. Access to "no timeloss" claims data in every province is necessary to provide a better indication of the overall severity of this issue. PEI went from having the lowest reported provincial violence frequency rate in 1996 and 1997 to the highest from 1998 through 2000.

There is wide inconsistency among provincial WCBs in categorizing infectious disease claims, and this category comprises only a small proportion of all timeloss claims. Provincial rates ranged from 0.01 to 0.06 timeloss claims per 100 person-years. Infectious diseases claims are rarely filed although they are associated with stress, especially within the context of SARS and HIV.

Puncture wounds as a proxy for needlestick injuries ranged from less than 0.01 to 0.05 claims per 100 person-years across provinces for 1996-2002. Research on this subject indicates that needlestick incidents are largely under-reported, yet are an ongoing concern for healthcare workers.¹⁰¹⁻¹⁰⁸ The low rate reflects the fact that needlestick injuries do not generally result in accepted timeloss claims; in addition, coding may be problematic.

With regard to accepted stress, anxiety, and other mental disorder timeloss claims, only BC, Ontario, Quebec and Alberta had sufficient data to comment on trends. Most WCBs only recognize mental health claims that occur following a traumatic event (i.e., post-traumatic stress). Quebec and BC reported a substantially higher claim rate than the other two provinces. In Ontario, 58% of all stress-related claims were related to violence, with a steady increase in post-traumatic stress from 1996 to 2002. Quebec saw a steady reduction in stress, anxiety and mental disorder claims from 0.06 to less than 0.01 claims per 100 person-years during the same time period.

Prevention measures and regulation changes

The most common prevention measures implemented across provinces were related to 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 frequency, for example in Ontario around 1996-1999 with a gradual increase thereafter (see Figure 2).

Collaborating agencies in all regions reported that since 2000, each province has experienced an increased prevalence of factors that are known to contribute to risk of injury, including healthcare restructuring and increased workload in an aging workforce.^{6,41,50-53,57,95,98,100} This suggests that while there has been an increased focus on prevention and safety programs, the impact of these efforts may have been undermined by increased risks within the healthcare sector. It is likely that injury rates would have increased substantially rather than decreasing marginally, as was the case from 1998 to 2002, had it not been for the emphasis on prevention. However, we do not have data to substantiate this hypothesis.

There are different eligibility criteria, adjudication policies and practices across the country that affect the likelihood of a claim being accepted or even reported. For example, acceptance of repetitive strain injuries (RSI) is inconsistent. There are also different rules concerning when an injury “counts” as a timeloss injury. For example, the waiting period before compensation may vary from: 3 days in New Brunswick; an average of 2 days in Nova Scotia; and the following day in Newfoundland/Labrador, Quebec and Ontario. Levels of compensation payments also differ across provinces, which may influence the incentive to submit claims. These factors preclude the reliability of any conclusions comparing rates across provinces. Available data were not disaggregated to the level of specific occupations and inter-provincial comparisons of occupational groups proved problematic since the occupational mix within the broad categories varies among provinces.

DISCUSSION AND CONCLUSIONS

MSIs comprise the majority of healthcare sector timeloss claims in every province, primarily occurring during direct patient care activities. While many strategies have

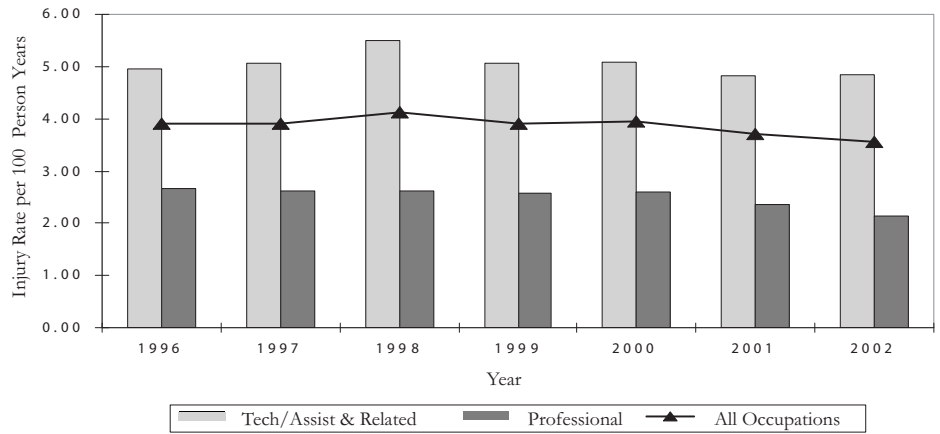


Figure 4. National injury rate by occupations in healthcare (1996-2002)
 Source: AWCBC and CANSIM
Technical, Assisting and Related Occupations comprised of: Medical Laboratory Technologists and Pathologists’ Assistants; Medical Laboratory Technicians; Animal Health Technologists; Respiratory Therapists and Clinical Perfusionists; Medical Radiation Technologists; Medical Sonographers; Cardiology Technologists; Electroencephalographic and Other Diagnostic Technologists; 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.
Professional Occupations comprised of: 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, and Registered Nurses.
 Source: National Occupational Classification (NOC 1991), Human Resources Development Canada (Catalogue No. MP53-25/1-1993E).

been implemented to specifically target patient/resident care issues, MSI risks are still prevalent and still require attention. Needlestick injuries and infectious diseases make up only a small proportion of timeloss claims. However, studies have shown that even before the SARS outbreak, exposure to infectious agents, including bloodborne pathogens, was associated with anxiety from fear of contracting a fatal disease.^{83-94,101-108} The very serious risks of infectious diseases must not be disregarded because of the scarcity of timeloss claims due to these conditions. Mental stress also accounts for very few timeloss claims, even though numerous national surveys and studies suggest that burnout and mental stress are increasing problems in healthcare.³⁸⁻⁷⁶ The paucity of mental health timeloss claims undoubtedly relates to criteria governing acceptance of such claims.

Injury and illness rates vary considerably within the healthcare sector by province, occupational group, and injury/illness type. Cross-provincial comparisons are confounded not only by different adjudicative policies but by different coding practices. The harmonization of Workers’ Compensation data would facilitate the

evaluation of prevention measures for reducing workplace injuries and improving working conditions. Labour Force data disaggregated by occupational category is especially important to facilitate injury analyses since risks differ for occupations within large groupings (e.g., RNs and physicians are in the same group yet their risks differ widely). Injury tracking would be more feasible if WCB data included: time of incident (enabling analysis by staffing level); type and size of healthcare workplaces (facilitating comparisons); and demographics (enabling the analysis of the impact of an aging work force).

Sharing data across provinces should be encouraged regarding the effectiveness of programs, policies and interventions that impact positively on reducing injury, illness and disability. There are several successful programs to track injuries (including data collection tools for needlestick, MSI and other types of injuries).¹³ It is recognized that occupational health and safety is within provincial jurisdiction and each WCB will always have provincial criteria concerning adjudication. Cross-sectional surveys (e.g., those proposed by Health Canada, Statistics Canada and the Canadian Institutes for Health

Information for nursing personnel) would be useful adjuncts, especially in areas such as mental health. Ideally, longitudinal studies linking survey data with comprehensive healthcare utilization data and other linked data, would provide the best monitoring tool for the analyses of trends and the effectiveness of interventions.

There is growing recognition that the health and safety of HCWs needs attention. Improved integration of occupational health and safety programs into the orientation and job description of HCWs may result in improved work conditions and quality patient care. Further research in this area is warranted.

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RÉSUMÉ

Introduction : On a effectué une analyse des données sur l'indemnisation des accidentés du travail et des tendances en santé et sécurité au travail à l'échelle du pays en vue de se familiariser avec les blessures en milieu de travail et les mesures préventives prises dans le secteur de la santé.

Méthodologie : Les données sur les réclamations pour jours de travail perdus de 1992 à 2002 ont été recueillies par l'Association des commissions des accidents du travail du Canada (ACATC). Les données sur les heures travaillées utilisées pour calculer les taux d'accidents du travail ont été fournies par Statistique Canada. L'Occupational Health and Safety Agency for Healthcare (OHSAH) en Colombie-Britannique a collaboré avec des organisations de santé et sécurité au travail de l'Ontario, du Québec et de la Nouvelle Écosse en vue d'analyser les données sur les lésions professionnelles et recueillir les mesures préventives à cet égard dans leurs régions.

Résultats : Depuis 1998, on a noté un déclin dans le taux de lésions professionnelles (pour 100 travailleurs par année) au niveau national de 4,3 à 3,7. Les troubles musculo-squelettiques constituaient la majorité des réclamations pour jours de travail perdus dans chaque province. Les réclamations liées au stress, à des piqûres accidentelles avec des aiguilles et à des maladies infectieuses donnaient peu fréquemment lieu à des jours de travail perdus, bien qu'il s'agisse d'incidents reconnus pour causer d'importantes préoccupations en milieu de travail. Les mesures préventives prises par les diverses provinces avaient trait à de l'équipement plus sécuritaire (lève-personne et lits électriques), des programmes de retour au travail et des initiatives de prévention de la violence. La différence dans les critères d'admissibilité et la politique d'indemnisation rendait difficile la comparaison des taux de lésions professionnelles entre les provinces.

Discussion : Depuis l'an 2000, toutes les provinces ont connu une restructuration du secteur de la santé et une charge de travail accrue, dans un milieu où la main-d'oeuvre est vieillissante. Or, malgré des risques accrus, le taux de lésions professionnelles a diminué. Les motifs à l'appui de ces tendances sont complexes, mais tout porte à croire que mettre l'accent sur la prévention peut réduire le taux de lésions professionnelles. Bien que les questions de santé au travail relèvent des provinces, l'harmonisation des données de même que le partage de données sur les mesures préventives fructueuses et les meilleures pratiques pourraient sans doute améliorer les conditions en milieu de travail et, partant, réduire davantage le taux de lésions professionnelles dans les professions à risque élevé du secteur de la santé.

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Letter to the Editor/Correspondance

Effect of Fast Food on Blood Pressure in China

To the Editor:

I read with interest the recent report that inter-regional cardiac outcome disparities throughout Ontario were partially explained by fast-food service intensity.¹ Such an association has also been demonstrated in China, especially with regard to hypertension.^{2,3}

Zhou et al.³ showed a close relation between daily urinary sodium excretion and blood pressure in mainland China (Figure 1). In general, blood pressure and urinary sodium excretion as a measure of sodium intake tended to be higher in northern China, e.g., Beijing (formerly called Peking), and Shijiazhuang than in southern China, e.g., Guangzhou (formerly called Canton). Of note was the observation that, in Guangzhou, a 1989 study showed a gradual rise of blood pressure as compared with a 1985 study, associated with a corresponding increase in urinary sodium excretion. The increase in sodium intake between these two surveys coincided with the rise in the number of American fast food restaurants, such as McDonald's and Kentucky Fried Chicken, that had opened in Guangzhou during that period.^{2,4,5} Association does not ensure causality, but the evidence is striking enough to merit further study.

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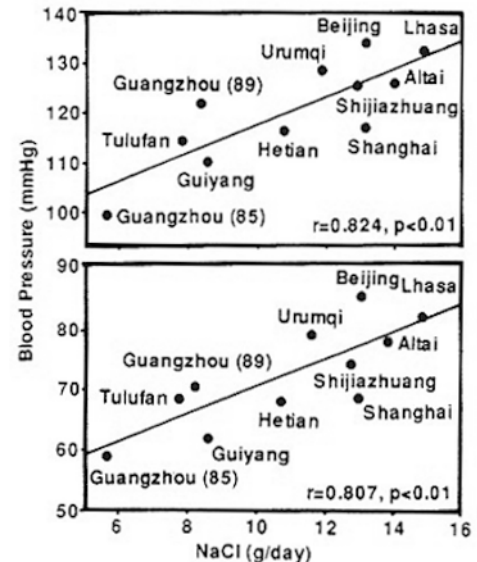


Figure 1. Close relation between daily urinary sodium excretion (X-axis) and systolic (top) and diastolic (bottom) blood pressures (Y-axis) in mainland China. The numbers in parentheses after the city of Guangzhou denote the different years, i.e., 1985 and 1989. (From Ref. 2).

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