The Prevalence and Incidence of Work Absenteeism Involving Neck Pain
A Cohort of Ontario Lost-Time Claimants

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Study Design. Cohort study.

Objective. To measure the prevalence and incidence of work absenteeism involving neck pain in a cohort of claimants to the Ontario Workplace Safety & Insurance Board (WSIB).

Summary of Background Data. According to workers’ compensation statistics, neck pain accounts for a small proportion of lost-time claims. However, these statistics may be biased by an underenumeration of claimants with neck disorders.

Methods. We studied all lost-time claimants to the Ontario WSIB in 1998 and used 2 methods to enumerate neck pain cases. We report the prevalence and incidence of neck pain using 2 denominators: (1) annual number of lost-time claimants and (2) an estimate of the Ontario working population covered by the WSIB.

Results. The estimated percentage of lost-time claimants with neck pain ranged from 2.8% (95% CI 2.5–3.3) using only codes specific for neck pain to 11.3% (95% CI 9.5–13.1) using a weighted estimate of codes capturing neck pain cases. The health care sector had the highest percentage of claims with neck pain. The annual incidence of neck pain among the Ontario working population ranged from 6 per 10,000 full-time equivalents (FTE) (95% CI 5–6) to 23 per 10,000 FTE (95% CI 20–27) depending on the codes used to capture neck pain. Male workers between the ages of 20 and 39 years were the most likely to experience an episode of work absenteeism involving neck pain.

Conclusion. Neck pain is a well-recognized source of disability in the working population. Surveys of workers suggest that the annual prevalence of activity limitations related to neck pain varies from 11.0% in the UK to 14.1% in Quebec, Canada. However, these statistics do not agree with claim rates reported by Workers’ Compensation Boards. According to workers’ compensation statistics, work-related neck pain represents a minor health burden to society.

For example, in 2005 in Saskatchewan, Canada, neck pain claims accounted 1.7% of all claims accepted by the Workers’ Compensation Board. During the same period in Ontario, claims related to the cervical and thoracic regions accounted for 4.5% of all lost-time claims. Moreover, Silverstein et al reported that between 1990 and 1998, 3.0% of annual claims to the Washington State Department of Labor and Industries were for “non-traumatic” “soft tissue disorders of the neck.” In Washington State, the annual incidence of neck pain lost-time claims was 19.1 per 10,000 full-time equivalents (FTE).

The discrepancy between survey and administrative statistics is partly attributable to differences in neck pain severity (i.e., lost-time claimants likely represent the proportion of workers with worse injuries). However, it is also possible that workers’ compensation statistics do not accurately capture the true burden of disability related to specific disorders. Although worker’s compensation records offer a rich source of data for epidemiologic research, their use may lead to erroneous estimates of the prevalence and incidence of work absenteeism related to a type of disorder.

Reporting (underreporting and inaccurate reporting) and diagnostic uncertainty can lead to measurement error when using workers’ compensation data in research. However, for injuries such as soft tissue disorders of the neck, an additional source of systematic error may be related to the coding protocols used by workers’ compensation boards. According to these protocols, an...
We initially selected 60 nature of injury codes and recorded in the database. Therefore, sprain and strains of the cervical spine would not be coded because they are given a low coding priority relative to other injuries such as concussions and lacerations. We studied this potential source of bias and found that omitting to count these claimants would lead to a gross underestimation of the true number of lost-time claimants with soft-tissue disorders involving the neck. Specifically, we found that the number of lost-time claimants with soft-tissue disorders to the neck varied from 88% in those coded with a disorder of the neck region, to 69% for claimants coded with disorders of the back and 55% for claimants with a brain injury (concussion). The objective of this article is to report on the prevalence and incidence of work absenteeism involving neck pain in a cohort of claimants to the Ontario Workplace Safety & Insurance Board (WSIB).

The Context

**Ontario Workplace Safety & Insurance Board**

The Ontario WSIB is a public insurance system legislated by the Workplace Safety & Insurance Act to provide no-fault insurance for workplace injuries and diseases to Ontario workers and workplaces. In 1998, approximately 65% of Ontario workers were covered by the WSIB.

Two main types of coverage exist within the WSIB: “Schedule 1” and “Schedule 2.” Under “Schedule 1” coverage, employers are not individually liable to pay benefits directly to workers or their survivors. These employers are required to submit a claim to the WSIB within 3 days of a worker’s injury if the injury resulted in lost time from work, wage loss, or the worker receiving health care. Employers covered under “Schedule 2” are companies that do not pay premiums to the WSIB but are compulsorily covered through a system of individual liability (they are required to pay an administrative fee with each claim submitted—approximately 29% of the total injury costs). These companies include telephone and telegraph companies, navigation companies, international bridges, provincial government (including boards, commissions, and Crown agencies), airlines with a regularly scheduled international passenger service, municipalities (including municipal boards and commissions, except hospital boards), public library boards, and school boards. “Schedule 2” employers are required to report all workplace injuries to the WSIB and they are responsible to pay the total costs of benefits for their injured employees. In this article, all injuries reported by “Schedule 2” employers are aggregated under the rubric “Schedule 2.” Workers who are self-employed or employed by companies that are not required to have WSIB coverage are not required to report injuries to the WSIB.

**Methods**

**Source Population and Design**

The source population included all injured workers 18 years of age or older with an accepted lost-time claim to the WSIB in 1998. Our design includes a cross-sectional and a prospective component. First, we measured the prevalence from a cross-sectional analysis of all injured workers with active lost-time claims in 1998. Second, we measured the incidence of lost-time claims involving neck pain by forming a historical cohort of injured workers with a new lost-time claim corresponding to injuries that occurred between January 1 and December 31, 1998. The incidence analysis only included claimants who did not make a claim for neck pain in the year before their index claim. The study received ethics approval from the University of Toronto Ethics Review Board.

**Definition of Neck Pain**

We aimed to measure neck pain related to soft-tissue disorders of the cervical spine/shoulder area including disc lesions and radiculopathy. The clinical presentation of neck pain may include symptoms in the head, trapezius muscle, shoulder, upper back, upper arm and arm. We excluded neck pain associated with fractures, tumors, infections, rheumatoid arthritis, myelopathies, lacerations to the neck–shoulder region, shoulder tendinitis as well as dislocations and subluxations of the glenohumeral joint.

**Data Sources and Linkage**

**WSIB Claim Data File.** We used the WSIB claim data file to identify lost-time claims involving neck pain. This file includes (1) age; (2) sex; (3) date of accident; (4) injured part of body; (5) nature of injury; and (6) occupation.

**Employer File.** The employer file provides information about the sector of activity of all firms registered with the WSIB. This data were used to classify firms into 1 of 16 industrial sectors.

**Data Linkage**

We used firm numbers to deterministically link records from the claim data and employer files. The linked data file used for analysis was stripped of all identifiers.

**Enumeration and Validity of Neck-Pain Claimants**

We used the “part of body” and “nature of injury” codes from the WSIB claim data file to identify injured workers with lost-time claims involving neck pain. The nature of the injury describes the principal physical characteristics of the injury or disease (e.g., sprains bruises, tendonitis). The part of body identifies the worker’s anatomic location that was directly affected by the nature of injury (e.g., cervical region/cervical vertebrae, multiple back regions). The methodology used to identify lost-time claimants is described in detail elsewhere.

In summary, we reviewed all 610 nature of injury and 188 part of body codes used by WSIB coders to code claims. These codes comply with the National Work Injuries Statistics coding standards. We initially selected 60 nature of injury and 27 part of body codes that may relate to neck pain and reached consensus on a final set of 173 code combinations. We combined these codes into 10 groups based on body regions (e.g., cervical region, back region). We then randomly selected 434 claims for an in-depth chart review. Based on the available information, the reviewer (D.V.E.) who was blind to the code...