

**Objectives** Research suggests an association between violence towards healthcare workers and poor return-to-work (RTW) outcomes. This association may be due to healthcare specific factors such as care setting and injury type. The aim of the study is to investigate RTW outcomes after injuries due to violence compared to other injuries in the British Columbia health and social services sector.

**Methods** The study used data on 42 080 time-loss workers' compensation claims from the health care and social services sector in British Columbia during 2009–2014. Cox regression and quantile regression were used for time-to-event analysis and final RTW status was assessed at one year.

**Results** The final cohort had 3173 violence-related claims (14.8%). Residential Social Services had the highest proportion of violence-related claims (34.2%). The effect of violence on RTW was greatest for counsellors and social workers, where 15.1% of workers with violence-related claims did not RTW compared to 8.0% with non-violent claims. For nurses, the largest occupation, 8.7% of workers with violence-related claims and 8.2% with non-violent claims did not RTW. Among injury types, violence is the strongest predictor for non-RTW for those with a mental illness. Among workers with a mental illness claim, 24.6% of those associated with violence did not RTW, whereas for those not associated with violence 15.0% did not RTW.

**Conclusion** Findings suggest that violence is associated with poorer RTW outcomes in certain care settings and injury types. Future work will use matched analysis and number of disability days paid to investigate this association in more detail.

## Poster Presentation

### Musculoskeletal

#### 0419 ANXIETY AND DEPRESSIVE DIAGNOSES AMONG WORKERS WITH MUSCULOSKELETAL INJURY

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**Background** Evidence suggests that the prevalence of mental disorders is elevated following work-related physical injury, and that these disorders may contribute to disability outcomes. The objective of this study was to examine the prevalence of anxiety and depressive disorders by gender and injury type before and after work-related musculoskeletal injury.

**Methods** Accepted workers' compensation lost time claims for back strain/sprain or upper body connective tissue injury were extracted for workers in the Canadian province of British Columbia from 2000 to 2013. One-year period prevalence was measured using diagnoses from physician and hospital data. Workers with at least two diagnoses for anxiety or depression, or one of each, within 365 days were considered a case.

**Results** The prevalence of anxiety and/or depression was 13.2% before and 14.9% after injury. The prevalence in

women was approximately twice that of men. Women with back strain/sprain had a slightly higher prevalence (19.0% before and 21.8% after injury) than women with connective tissue injuries (17.3% before and 18.5% after injury), while men had no difference in prevalence by injury.

**Conclusion** A greater difference in the prevalence before and after injury was expected. These findings indicate that many anxiety and depressive disorders may precede work-related musculoskeletal injury. The higher prevalence for women with back strain/sprain compared to women with connective tissue injury was surprising given that return-to-work outcomes are better for back strain/sprain. The next analysis will investigate associations between demographic, clinical, and workplace characteristics and new-onset anxiety and depressive disorders following work-related musculoskeletal injury.

## Oral Presentation

### Other

#### 0420 THE "THIRD WAVE" OF ASBESTOS EXPOSURE IN OCCUPATIONAL SETTINGS

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Exposure to asbestos in occupational circumstances has decreased considerably in most developed countries over the last three decades, with improved exposure control and monitoring in most work situations and the prohibition on the use of asbestos in most occupational circumstances. Unfortunately, occupational exposures do still occur through renovation, repair and demolition of buildings, either with asbestos removal being a specific focus of the work or asbestos exposure being incidental to the main purpose of the work. Focus has also increased in recent years on exposure in non-occupational circumstances to *in-situ* asbestos, particularly through "Do-It-Yourself" (DIY) home renovations. These occupational and non-occupational circumstances are the so-called "third wave" of exposure to asbestos.

Despite considerable efforts in terms of occupational education and training, and broader publicity, there appears to be a lack of awareness by many workers of the potential for asbestos exposure and the circumstances in which such exposures can be expected. This leads to potential exposures not being appropriately controlled and probably to workers being inadvertently exposed or exposed at levels higher than is necessary or considered acceptable. Although many of the high-risk situations are known or can be reasonably anticipated, there is a lack of information on the frequency and levels of exposures associated with many of these third wave exposure situations, making it difficult to develop appropriate guidance regarding preventing and controlling the exposures.

This presentation will consider these issues as part of the overall symposium on "In situ asbestos and the risks of exposure for workers".

## Poster Presentation

## Injuries

## 0421 INJURY SEVERITY, RETURN TO WORK, AND OUTCOMES IN COLLECTIVELY-BARGAINED ALTERNATIVE WORKERS' COMPENSATION ARRANGEMENTS

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**Introduction** The construction industry experiences severe injuries. When an employee is injured, the goal is to minimise long-term disability and efficiently return the employee to work. The Union Construction Workers Compensation Program (UCWCP) of Minnesota provides an alternative, collectively-bargained system administered by workers' compensation insurance providers. The program includes exclusive provider network for medical care and access to alternative dispute resolution process. The goal of this study is to determine injury outcome differences for UCWCP members.

**Methods** Workers' compensation claims were examined over a ten year period. UCWCP membership and date of enrollment were determined. Claims were stratified by medical or lost-time status. Multiple measures of severity and outcome were examined, including claim rate and duration, time to return-to-work, and permanent partial disability status. We calculated rates and comparative risk based on UCWCP. A logistic model will estimate rate ratios (RR) and 95% confidence intervals (CI) as a function of claim rate. Time-to-event models will assess differences in duration of disability based on UCWCP. Proportional hazards regression estimated hazard ratios (HR) and 95% CI.

**Results** UCWCP employers had a lower rate of lost-time claims. Compared to non-UCWCP employers, UCWCP-membership was associated with a 9% increased likelihood of claim closure for both medical and lost-time claims (HR=1.09, CI=1.05–1.13; HR=1.09, CI=1.02–1.17). Most differences occurred in the first 90 days. Return-to-work likelihood and reduced permanent disability appeared to be related to UCWCP.

**Conclusions** Alternative workers' compensation arrangements may include elements that collectively protect workers' interests, reduce injury severity, and are cost-effective for insurers.

## Oral Presentation

## Specific Occupations

## 0422 A TOTAL WORKPLACE SAFETY AND HEALTH PROJECT FOR SECURITY OFFICERS IN A SINGAPORE UNIVERSITY – FROM NEEDS ASSESSMENT TO INTERVENTIONS AND EVALUATION

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**Objectives** To implement and evaluate a Total Workplace Safety and Health Project (Total WSH) at a security office in a Singapore university.

**Methods** Total WSH is an integrated approach to the management of health and safety in the workplace. In the first phase of our project, we evaluated the gaps and challenges of the safety and health management system within the department, and gained understanding of the health status of the security officers, through assessment tools including a Basic Health Survey, workplace visits and semistructured interviews. Recommendations were subsequently discussed with the senior management for implementation in the intervention phase, with evaluation of process and outcome measures thereafter.

**Results** Strong communication among all staff in the security office was noted, and this is related to the openness of staff across different management levels. All staff took part in the Basic Health Survey, which found that 91% have a "Good" or "Excellent" Work Ability Index. There is a high proportion of employees with chronic diseases and obesity. In addition, 36% of employees consume sweet drinks daily, while only 16% and 37% consume two servings of fruits and vegetables a day respectively. Recommendations were made related to the safety and health management system, and health promotion such as improving access to healthy food, facilitating physical activity during work, and implementing a chronic disease management system. These recommendations would be implemented from January 2017 onwards.

**Conclusion** Total WSH is effective in enabling the holistic management of safety and health in the workplace.

## Oral Presentation

## Injuries

## 0423 GEOSPATIAL TRENDS IN OCCUPATIONAL INJURY AND WORKERS' COMPENSATION UTILISATION

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**Introduction** Workers' compensation data provide a source of information on occupational injuries and their burden on workers and the workplace. Injured workers utilise healthcare systems for treatment of their injuries and various factors may influence access to care and the ultimate outcome of the claim. Some factors may be dependent wholly, or in part, on geographical access to care and the communities in which employees live. We explored a new injury surveillance and analysis technique by coupling of geographical information systems (GIS) and workers' compensation data.

**Methods** Employee addresses were geocoded using Esri Street Map to determine spatial trends. Time/distance (accessibility) to health care providers were calculated. Geographic masking maintained individual-level confidentiality. We calculated rates and comparative risk of severity and disability duration of workers' compensation claims based on accessibility. Using a negative binomial model, we estimated rate ratios (RR) and 95% confidence intervals (CI) as a function of claim rate. Cox proportional hazards regression assessed differences in duration of disability benefit levels based on accessibility to