

0322 THE USEFULNESS OF COMPENSATION STATISTICS TO DETECT HEAT-RELATED HEALTH OUTCOMES IN A TEMPERATE CLIMATE: THE EXPERIENCE OF QUEBEC

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Objectives To explore relationships between summer outdoor temperatures in Quebec (Canada) and occupational compensation statistics for heat-related illnesses.

Method Daily compensation counts of heat-related illnesses (heat strain, heatstroke, loss of consciousness, etc.), occurring between May and September, were obtained from the workers' compensation board of Quebec for each health region between 1998 and 2010. Regional daily maximum outdoor temperatures were obtained from Environment Canada. Associations between daily compensation counts and temperature were estimated using negative binomial or Poisson regression models for each region and were adjusted for relative humidity and temporal trends. Pooled effect sizes for Quebec (all health regions combined) were obtained using a fixed effect model for meta-analysis.

Results In an average population of 3.7 million workers, 259 illnesses classified as heat-related were compensated between 1998 and 2010, giving an average annual rate of 0.11 case per 100 000 workers per summer month. During the study period, 63.0% of heat-related outcomes occurred on days with a maximum daily average temperature below 30°C. Occupations with the largest number of compensations were those of labourers (32%), firefighters (11%) and truck drivers (4%). The pooled incidence rate ratio (IRR) was 1.41 (95% CI 1.35–1.46) per 1°C increase in daily maximum temperature. Effects of barometric pressure and lag will be explored.

Conclusions Heat-related illnesses do occur in temperate climates. Our results suggest that compensation statistics, albeit crude indicators of health effects, can be useful to identify industry sectors and occupations that would benefit from preventive interventions aimed at high risk workers.

0323 WORKPLACE PSYCHOSOCIAL RISK FACTORS FOR CARPAL TUNNEL SYNDROME: A POOLED PROSPECTIVE STUDY

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Objectives Seven research groups conducted coordinated studies of carpal tunnel syndrome (CTS). In this analysis of the pooled cohort, we estimate associations of workplace psychosocial factors and CTS incidence with adjustment for biomechanical factors.

Method 3515 workers were followed up to 7 years. Case criteria included symptoms consistent with CTS and an abnormal electrodiagnostic study. Psychosocial exposure was measured using the Job Content Questionnaire to assess risk among those with high job strain measures. Individual level occupational biomechanical exposures included the %time spent >30° wrist extension, % time in >30° wrist flexion, total repetition rate, and the %time spent in forceful exertion (>1kg-pinch; >4kg-grip). A sub-cohort of 1091 participants had both psychosocial and biomechanical exposure data. Adjusted hazard ratios were estimated using Cox proportional hazards models.

Results After adjustment for gender, age and BMI in the sub-cohort, high job strain (HR=1.40; 95% CI:0.86–2.28) and high psychological demand (HR=1.25; 95% CI:0.79–1.98) showed statistically non-significant elevation in risk of CTS, and high decision latitude (HR=0.70; 95% CI:0.44–1.13) showed non-significant decrease in risk. When the same models were adjusted for biomechanical exposures, confounding was not evident; the primary exposure effect estimates changed between 1–7% for high job strain (HR=1.30; 95% CI:0.81–2.17), high psychological demand (HR=1.17; 95% CI:0.74–1.83), and high decision latitude (HR=0.71; 95% CI:0.43–1.18).

Conclusions For this sub-cohort analysis, adjustment for biomechanical exposures did not alter the associations between workplace psychosocial factors and incident CTS. The findings suggest that workplace psychosocial risk is independent of workplace biomechanical risk.

0324 OCCUPATIONAL EXPOSURE TO BENZENE AND RISK OF NON-HODGKIN LYMPHOMA IN A POPULATION-BASED COHORT STUDY OF CHINESE WOMEN IN SHANGHAI

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Objectives The association between benzene exposure and non-Hodgkin lymphoma (NHL) has been the subject of debate, and an IARC working group recently concluded for the first time that there is now limited evidence to support this association in humans. We evaluated the relationship between occupational benzene exposure and NHL risk among 73 087 women in a population-based cohort study of women in Shanghai.

Method Benzene exposure estimates were derived using a previously developed exposure assessment framework that combined ordinal job-exposure matrix intensity ratings with quantitative benzene exposure measurements from an inspection database of Shanghai factories collected between 1954–2000. Associations between benzene exposure metrics and NHL (n = 102) were assessed using Cox proportional hazard models, with study follow-up occurring from 1997–2009.