Abstracts

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. Compared to non-UCWCP employers, UCWCP membership was associated with a 9% increased likelihood of claim closure for both medical and 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.

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

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
healthcare and estimated hazard ratios (HR) and 95% confidence intervals (CI).

Results Multiple atlases of occupational injuries was constructed to visualise trends in location, industry, injury characteristics, and severity. Accessibility to healthcare, specifically specialty health care, affected risk of increased severity, claim duration, and disability.

Conclusions This innovative way of combining and visualising data may identify risk factors for occupational injury, including those that may be spatially or community-based. It may provide new strategies for proactive injury prevention or severity reduction efforts.

Oral Presentation

RISK OF MESOTHELIOMA AND RISK OF EXPOSURE TO ASBESTOS IN PEOPLE SUPPOSEDLY UNEXPOSED TO ASBESTOS

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Objectives Malignant mesothelioma (MM) is a rare and generally fatal cancer, usually caused by asbestos, although about 5%–10% of cases report no asbestos exposure. This study aimed to identify sources whereby people in Western Australia (WA) may be unknowingly exposed to asbestos or to other exposures which may cause MM.

Methods Cases with no known asbestos exposure were selected from the WA Mesothelioma Register. Matched controls were selected from hospital patients admitted for conditions unrelated to asbestos. Occupational histories were coded by an industrial hygienist. Data were analysed using conditional logistic regression.

Results Eligible cases were far fewer than anticipated. After 9 years there were 38 MM cases (from a total of more than 400 reported cases of MM over the same time period), 65 other cancer controls and 69 medical controls recruited. Odds ratios did not differ by type of control so both sets of controls were combined. Thirty-eight MM participants and 134 controls were recruited. Risk of MM was increased (OR=3.1, 95% CI 1.0–9.6) after no known, but likely, exposure to asbestos at work.

Conclusions Because of its widespread use, very few people in WA have never been exposed to asbestos and careful elucidation of occupational and environmental histories usually uncovers likely exposures sufficient to cause MM. This study suggests that most cases of MM in people with apparently no known exposure to asbestos occur, at a low rate, among the large numbers of people who have had small amounts of incidental asbestos exposure.

Oral Presentation

Risk Assessment

AN OCCUPATIONAL EPIDEMIOLOGY MODEL FOR CLIMATE CHANGE IMPACT ASSESSMENT

Ford Kjellstrom*, 1Matthias Otto, 3Fraser Brims, 4Jennie Hui, 1Bill Musk, 1Australian National University, Canberra, Australia; 2Nelson-Marlborough Institute of Technology, Nelson, New Zealand; 3Massey University, Palmerston North, New Zealand; 4Imperial College, London, UK

Thermal physiology science shows the health threats to workers caused by exposure to heat when doing heavy physical labour. Climate change increases environmental heat levels in most of the world and it is a key issue for climate change and health research. Our model links climate and workforce data (current and predicted) and estimates work capacity loss at individual and population level and related economic loss. The model incorporates climate conditions, population estimates, workforce distributions, heat exposure estimates, exposure-response relationships, and socio-economic impact functions. The basis of the model is occupational epidemiology.

Much of the data upon which heat stress health risk functions are based comes from thermal physiology laboratory research. While this research has provided valuable information about human function at different heat exposures, the individuals studied are generally not the same mix of ages and physical conditions of typical working populations. Very few published studies have included the quantitative occupational epidemiology analysis needed for climate change related health risk assessments. For example, different model settings produce annual moderate intensity work hours lost due to heat (in the shade) by the 2050s at 0.7%–3.0% for China. Many of these lost hours will reduce productivity and predicted (in the shade) by the 2050s at 0.7%–3.0% for China. Many of these lost hours will reduce productivity and economic losses. Our model can identify evidence missing for reducing the uncertainties in impact estimates, which can guide decisions about climate change mitigation and adaptation.

Poster Presentation

Chemicals

CHRONIC CADMIUM INTOXICATION WITH RENAL INJURY AMONG WORKERS IN A SMALL-SCALE SILVER SOLDERING COMPANY

Won-Jun Choi*, Seong-Kyu Kang, Gachon University Gil Medical Centre, Incheon, Republic of Korea

Risk Assessment

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