

should be tailored to men's and women's specific needs and barriers. The timing of such interventions should be considered given the time-varying differences observed between men and women.

Poster Presentation

Other

0465 GENDER, AGE, AND THE CHANGING BURDEN OF WORK-RELATED DISABILITY IN CANADA AND AUSTRALIA

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Objectives This research investigates the changing burden of work-related disability in Canada and Australia and how this varies by gender and age. The secondary objective is to demonstrate a means of comparing work disability data internationally.

Methods Workers' compensation data from Canada and Australia were used to analyse the relative disability burden of workers injured between 2004 and 2010. The two measures used were the number of claims with compensated time-loss and the corresponding time-loss years accrued, indexed to 2004. Gender and age-stratified analyses were conducted using descriptive statistics.

Results Male workers had more claims and cumulative time-loss in both countries. They also had steeper reductions in claim volumes and cumulative time-loss over time, indicating a narrowing in overall gender differences. Age-stratified analysis showed that differences between men and women were smaller among younger workers compared to older workers. In Canada, the proportion of claims attributable to females grew at the same rate as the proportion of time loss until 2007–08 when a gap emerged. In Australia, the proportion of claims and time loss attributable to females grew closer over time.

Conclusions While the volume of claims and cumulative time-loss has decreased in Canada and Australia, and the largest proportion is attributable to workers who are male and aged 35–54, a growing proportion is attributable to female and older workers. These changes have been driven by demographic factors (growth of females in the workforce, ageing workforce) and structural factors (economic recession and policy changes), particularly in Canada.

Oral Presentation

Working Conditions

0466 LABOUR MARKET AND HEALTH TRAJECTORIES DURING PERIODS OF ECONOMIC RECESSION AND EXPANSION IN THE UNITED STATES, 1988–2011

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Objectives Negative labour market experiences are associated with worse health outcomes, although little research has examined health effects of trajectories over time. This study examined associations between labour market and health (LMH) trajectories in the US between 1988 and 2011 and whether associations differed across four macroeconomic periods defined by contraction or expansion.

Methods Working-age cohorts were derived for each period using data from the Panel Study of Income Dynamics. Cohorts started from a baseline state of employment/good health, and were followed over time to characterise LMH trajectories. Modified Poisson regression provided relative risks (RR) with robust 95% CIs for the association between trajectories.

Results LM trajectories ending in unemployment (RRs 1.7–2.5 across periods) or inactivity (RRs 2.3–3.2) had a greater risk of worse health trajectories, compared to stable employment. Individuals recovering into employment following a period of inactivity experienced a greater risk of worse health (RRs 1.6–2.1). There were persistent health-gradients across trajectories, with stable-employed individuals having the highest probability of remaining in good health, and 'LM exit' trajectories having the lowest probability. Overall relationships were consistent across the four periods.

Conclusions The increased likelihood of having worse health among unemployed/inactive individuals, yet attenuated risk among those recovering into employment following these intermediary states, suggests that health outcomes are not only dependent on the LM end-state, but also on the distinct pattern over time. Findings suggest that the contextual economic period has limited impact on these overall relationships, although future research might incorporate methodological frameworks with direct measures of the social-economic context.

Oral Presentation

Burden of Disease

0470 COMPARISON OF OCCUPATIONAL CANCER BURDEN ESTIMATES

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The lung is the most common target for workplace carcinogens and burden of cancer projects have produced a range of attributable fraction (AF) estimates (6%–14.5%). Various approaches, available data, and contexts of these different studies contribute to sometimes incongruent final estimates.

We recently completed a Canadian burden project (CBD) and compared its results to burden studies from UK (UKBD), US (USBD), Finland (FinBD), and the Global Burden of Disease (GBD) to illustrate the impact of new epidemiologic data, availability of exposure data, differences in industry composition, inclusion of a broader set of carcinogens and/or cancer sites, and differences in the overall methodological approach on AF estimates.

The number of lung carcinogens considered by the different studies ranged from 8 in the GBD to 21 in the CBD and UKBD. More well-established carcinogens such as silica, which are driven by similar patterns of exposure (especially in construction) across countries, have more consistent estimates (2.4% in both the CBD and UKBD). Others such as asbestos have significant challenges in historical exposure assessment, as well as differences in exposure context between countries, leading to variability between estimates (5.9%–8.0%). Differing methods and assumptions regarding radon also led to variable estimates (0.6%–1.3%). Relatively recent epidemiologic evidence for diesel exhaust and lung cancer incorporated into the Canadian estimates led to higher AFs than previous estimates.

Changing evidence, differences in context, and variability in methods mean that burden estimates are not strictly comparable across projects, and continuing to assess the burden for different countries remains relevant.

Poster Presentation

Exposure Assessment

0471 EVALUATION OF AIRBORNE CHEMICAL EXPOSURES TO ALUMINIUM WORKERS

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Aluminium workers are exposed to a complex mixture of airborne chemicals. Workers in different stages of aluminium manufacturing are exposed to different mixtures of chemicals. At twelve US aluminium facilities, we used information from an industrial hygiene database containing 30 years of sampling results for 227 separate chemical agents to build job exposure matrices (JEMs). We selected chemicals that represented major exposures in the workplace (e.g., oil mist and fluorides) and those that have been associated with heart disease [e.g., polycyclic aromatic hydrocarbons (PAHs) and welding-related metals]. We used cluster analysis to empirically group the chemical agents and establish exposure profiles by job. For PAHs and welding-related metal exposures, we also built quantitative JEMs. There were 21 PAH chemical agents, including individual PAHs (e.g. benzo[a]pyrene) and groups of PAHs (e.g. coal tar pitch volatiles). For metals, there were 54 different chemical agents associated with welding tasks. The categorical JEMs have three categories of exposure: unmeasured, very low exposure, and moderate or higher exposure. The stage of the manufacturing process made a large impact on the distribution of exposures. While 62% of jobs in smelters involved PAH exposures, only 2% of jobs in fabrication facilities did. Conversely, oil mist exposure is more common in fabrication facilities, compared with smelters (24% and 7% of jobs exposed, respectively). We observed that the exposure profiles in smelters was very different to those observed in fabrication facilities or refineries. These chemical exposure JEMs will help clarify the role chemicals play in heart disease.

Poster Presentation

Cardiovascular Disease

0472 A GLOBAL PERSPECTIVE ON COAL-FIRED POWER PLANTS AND CARDIOVASCULAR DISEASES

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