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THE BURDEN OF OCCUPATIONAL CANCER IN ONTARIO: FOCUS ON MESOTHELIOMA. *J Payne and E Pichora (Cancer Care Ontario, Toronto, ON, M5G 2L7)

The proportion of cancers attributable to occupational exposure is small by comparison with that of diet, physical exercise, and smoking. However, the risk of occupational cancer is much higher among working populations exposed to carcinogenic agents. One such cancer site is mesothelioma, which more than 80% of the time is associated with occupational asbestos exposure. In Canada, cancer registries do not contain data on occupational history, therefore the only source of occupational cancer data is workers compensation. In attempt to quantify the known burden of occupational cancer, data on neoplasm claims (ICD-9 140–239) filed with the Ontario Workplace Safety & Insurance Board (WSIB) through 31Mar2004 were linked with data from the Ontario Cancer Registry, on an individual basis. The extraction at WSIB resulted in a database of 6564 records, 5670 (86.4%) of which successfully linked with a record in the Ontario Cancer Registry. Mesothelioma claims were defined as those with a diagnosis of pleural or peritoneal cancer or a cancer with a mesothelioma morphology. The diagnosis of mesothelioma was considered valid if the corresponding diagnosis in the cancer registry indicated a respiratory, digestive, or reproductive cancer or a cancer with a morphology of mesothelioma. This resulted in a sample of approximately 750 allowed mesothelioma claims, all but 11 of which were for males. These claims will be described in terms of demographics (e.g., age at filing), claim administration (e.g., time from diagnosis to claim filing), and exposure (e.g., most responsible agent). The distribution of diagnosis dates for allowed mesothelioma cases versus all provincial cases will be used to estimate the proportion of cases filing for, and receiving, workers compensation benefits. This proportion, estimated to be well under 50%, is expected to lead to the development of a notification system for mesothelioma patients to increase their awareness of their potential eligibility for workers compensation benefits.

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QUASI-EXPERIMENTAL EVALUATION OF A WORKPLACE ERGONOMIC INTERVENTION. *I Rivilis, D Cole, M Frazer, M Kerr, S Ibrahim, R Wells. (Institute for Work & Health, Toronto, Ontario, M5G 2E9)

Few studies of high quality have evaluated the impact of participatory ergonomic (PE) interventions on work related musculoskeletal disorders (WMSD). We used a longitudinal quasi-experimental design to study the effectiveness of a PE intervention, with one depot of a large courier company as the intervention depot and another similar depot as a control. Over the 14 month intervention period, a joint labour-management team identified solutions to reduce WMSD and implemented 14 ergonomic changes most rated favourably by the employees affected. Employees in the two depots completed pre- and post- questionnaires, including measures of participation in the intervention, work organization risk factors, and musculoskeletal health outcomes. Those responding to both questionnaires (n=122) did not differ on key demographic, risk factor and outcome variables from those only completing the pre questionnaire. Partial regressions explored the relationships among variables as set out in a conceptual model. Manual stepwise regression models were constructed controlling for baseline exposure levels and relevant confounders as identified in univariate analyses. Results indicated that greater participation in the process was associated with increased levels of job influence (p=0.0059) and communication in the workplace (p=0.0940). Improvements in communication were associated with reduced pain intensity (p=0.0077) and improved work role function (WRF) (p=0.0248). In addition, lower levels of pain were related to greater WRF post intervention (p=0.0493). Depot did not explain additional variation in changes in risk factors or health outcomes over and above those measured. In conclusion, while the effects on health outcomes were mixed, a PE approach was shown to successfully improve risk factors for WMSD. Also, this evaluation highlighted particular aspects of a PE intervention that are important indicators of effectiveness on the path to changes in worker health.

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EPIDEMIOLOGICAL EVIDENCE FOR DEVELOPING A NEW PARADIGM FOR THE COMMON MUSCULOSKELETAL DISORDERS. *K T Hegmann (University of Utah, Salt Lake City, UT 84108)

Common musculoskeletal disorders (MSDs), including carpal tunnel syndrome (CTS) and shoulder impingement have been thought to be related to physical factors, such as force and repetition. Supportive evidence for relationships with those physical factors is available from some cross sectional studies, and the most common construct may be simplistically labeled 'wear and tear.' However a large prospective cohort study failed to confirm relationships with physical factors, instead suggesting that there are non-occupational, non-physical factors, such as obesity and smoking that are the independent risks, thus questioning the mechanisms of the MSDs. A large, multi-center cross sectional study (n=860) of MSDs was analyzed for a series of non-occupational factors. Factors associated with CTS in the right hand in univariate analyses, e.g., include age Odds Ratio (OR)=1.03 [95% Confidence Interval (95% C.I.) 1.01, 1.05], diabetes mellitus OR=3.00 (95% C.I., 1.52, 5.90), obesity OR=2.39 (95% C.I., 1.59, 3.59), high cholesterol OR=2.51 (95% C.I., 1.58, 4.00), and hypertension OR=2.12 (95% C.I., 1.32, 3.39). Univariate factors associated with shoulder impingement on the right side, e.g., include age OR=1.04 (95% C.I., 1.02, 1.07), diabetes mellitus OR=3.00 (95% C.I., 1.27, 7.07), obesity OR=1.58 (95% C.I., 0.91, 2.74), high cholesterol OR=1.63 (95% C.I., 0.83, 3.18), and hypertension OR=1.94 (95% C.I., 1.02, 3.66). Logistic regression shows similar results, however with fewer statistically significant findings. Similar relationships are not found in these datasets for all other MSDs. The results for CTS and shoulder impingement are comparable to those for cardiovascular disorders and suggest that the underlying cause of these MSDs may actually be primarily vascular. Supportive anatomic studies are available elsewhere for vascular problems. The extent to which physical factors are associated with these MSDs and whether there is interaction with physical factors remains to be demonstrated.

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CLASSIFYING LOW BACK PAIN: A PROPOSAL FOR FOUR OUTCOME TYPES. *L E Griffith, D Cole, S Hogg-Johnson, H Shannon, S Walter (Institute of Work and Health, Toronto, ON M5G 2E9)

Introduction: A meta-analysis of workplace exposures and low back pain requires combining data from studies using a variety of outcome definitions. Diverse definitions have not only led to different estimates of prevalence of back pain, but also have differed in their associations with potential risk factors. In the absence of a gold-standard or uniform definition of back pain, we undertook a consensus process to identify potentially combinable sets of outcomes for our meta-analysis. Methods: We used prior work on classifying musculoskeletal disorders and the International Classification of Functioning, Disability and Health (ICF) to develop a theoretical framework. We conceptualized back pain as being measured by four distinct outcome types: pathology, symptoms, functional limitations (at work and outside of work), and participation. We then undertook a preliminary literature review and identified 55 studies. The text describing the definition of back pain was then reviewed by three experts who used a consensus process to identify sets of potentially combinable outcomes within each outcome type. Results: Each of the 55 studies contributed outcomes to at least one outcome type. Most studies (n=48) reported symptom outcomes, where combining different levels of duration, frequency and intensity of outcomes proved challenging. The other outcome types were less frequently reported and each was comprised of two sets of combinable outcomes: 11 studies reported participation (sick leave <4 weeks or ≥4 weeks); 9 studies reported functional limitation ("any" or "moderate to severe"); and 5 studies reported pathology (lumbar disc disease or "abnormal back"). Conclusions: To identify potentially homogeneous groups of studies that can be combined in a research area with no gold-standard or uniform outcome definition a consensus process can be undertaken. A broader consensus process may be needed to identify combinable groups when outcome definitions are extremely diverse.

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