and urinary benzene (U-Benz) to detect low level occupational and environmental exposure to benzene.

**Methods** We monitored airborne benzene by personal air sampling, and U-Benz, s-PMA, t,t-MA and cotinine (U-Cotinine) in spot urine samples, collected at 8 am and 8 pm, in 32 oil refinery workers and 65 subjects, randomly selected among the general population of urban and suburban Cagliari, Italy.

**Results** The median concentration of airborne benzene was 25.2 ± 0.1 mg/m³ in oil refinery workers, and 8.5 ± 0.5 mg/m³ in the general population subgroup. U-Benz in morning and evening samples was significantly more elevated among oil refinery workers than the general population subgroup (p = 0.012, and p = 7.4 x 10⁻³, respectively) and among current smokers compared to non-smokers (p = 5.2 x 10⁻⁴, and p = 5.2 x 10⁻⁵ respectively). Benzene biomarkers and their readings in the two sampling phases were well correlated to each other. The Spearman’s correlation coefficient with airborne benzene was significant for U-Benz in the evening sample, but not for t,t-MA and s-PMA in either sampling. Morning U-Cotinine excretion showed a good correlation with U-Benz in the morning and in the evening sampling (p < 0.001), and with s-PMA in the evening sample (p < 0.001), but not with t,t-MA in either samplings. t,t-MA in the evening sample was the only biomarker showing a moderate inverse correlation with BMI (p < 0.05). The multiple regression analysis adjusting by BMI and number of cigarettes smoked during the day confirmed the results of the univariate analysis.

**Discussion** Our results suggest that unmetabolised U-Benz would allow a more reliable biomonitoring of low-level exposure to benzene than s-PMA and t,t-MA.

**Conclusions** This work demonstrates the development of a pesticide exposure matrix using pooled data from multiple countries, which will be used for the largest evaluation of pesticides and lympho-hematopoietic malignancies to date.
related injury and disability are well-known. However, the characteristics of workers who have multiple workers’ compensation claims in a defined period of time is less clearly understood. This study estimates the extent to which industries, occupations or injury characteristics are associated with a higher risk for the registration of repeat claims. We present a parallel analysis of Ontario, Canada, and Victoria, Australia to determine if there are differences in repeat claim patterns between these two jurisdictions.

Methods First lost-time claims of greater than ten days of wage-replacement benefits were identified in the period January 2000 to December 2004 using administrative records of workers’ compensation claims. Claimants were followed prospectively for subsequent claims for 3 years from the date of the first claim to estimate the risk for a repeat claim by industry, occupation and injury characteristics.

Results The five year cumulative incidence of an initial claim in Victoria (14.5/1000 person years) was twice the rate observed in Ontario (7.6/1000 person years) The probability of a second lost-time claim of ten days or longer duration within 5 years of the date of the first injury was 0.25 in Victoria and 0.12 in Ontario. The probability of a second claim was related to age, sex, nature of injury, occupation and industry. The distribution of characteristics of second injuries was similar between Ontario and Victoria.

Conclusion This study has used population-based work disability insurance records to compare the incidence of repeat compensation claims in two jurisdictions. Despite differences in scheme benefit policies, this study has found broadly similar patterns in the two settings. The potential for causal inference regarding risk factors for repeat claims is discussed.

RESULTS OF A MYOTONOMETRICAL MUSCLE STUDY IN PATIENTS WITH WORK-RELATED HAND OVERLOAD DISORDER

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Introduction Implementation of the new myotonometrical diagnostic method in occupational medicine enables non-invasive, easy and quick evaluation of the functional state of muscles.

Aims Use of the myotonometrical method to study hand muscles in patients with work-related hand overload disorders, and analysing the correlations of the results of myotonometrical testing broken down by various diagnosed disease groups. To analyse whether myotonometry could be used in occupational medicine as a method for evaluating the functional state of muscles.

Method 25 patients with diagnosed work related carpal tunnel syndrome or/and tenosynovitis in the right wrist were studied. Diseases were diagnosed using ENMG and ultrasound examinations.

The mechanical characteristics of frequency, stiffness and elasticity of right hand muscle m. abductor pollicis brevis were recorded by means of the Myoton-3 hand-held myotonometer.

For data processing, the Stata program and the Student T-test were used.

Results An average age of patients 54, standard deviation 6.6, min 42 and max 67, the length of service 24.8 years, the average workday length 6.8 hours. Significant changes regarding muscle decrement and stiffness were apparent in affected workers as compared to the norm.

In subjects with the diagnosis of abdl poll br decrement vs norm, the average values were 2.0 and 1.6, p < 0.001; i.e. there was a significant difference. Stiffness differed significantly from the norm: 311.4 vs 348.8, p = 0.004.

Conclusion In case of carpal tunnel syndrome and tenosynovitis due to overload of the right wrist area, also signs of an overload of the abductor pollicis muscle can be detected by myotonometric testing. Consequently, myotonometrical muscle study could be used as an auxiliary diagnostic method as well as an initial study in the course of physical examination in order to evaluate possible hand muscle overload.