Conclusions These findings are reassuring. Lower risks in some comparisons may reflect chance or a degree of health selection out of hazardous work. In any event, current employment practices are not placing diabetic workers at particular risk of workplace injury.

301 MULTIPLE JOBS AND INCREASED RISK OF INJURY: FINDINGS FROM THE NATIONAL HEALTH INTERVIEW SURVEY

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Objectives Approximately 5–10% of US jobholders report working multiple jobs within the same week, and up to 20% have reported working in more than one job within a year. However, occupational injury surveillance research has largely explored only exposures at the primary job or the job in which the injury occurred. The objective of this study was to compare the risk of injury for those working in multiple jobs (MJH) with those working in only one job (SJH).
Methods The National Health Interview Survey is the only national survey to collect information annually about self-reported injuries in the last 3 months information about working multiple jobs. Using information for years 1997–2011, we calculated the rate of multiple job holding in the US and compared characteristics and risk of injury (work and non-work) with those who worked in only one job.
Results The risk of work and non-work injury was higher for MJHs compared with SJHs (9.9 vs. 7.4 *non-work* injuries per 100 workers, and 4.2 vs. 3.3 *work* injuries per 100 workers) and the rate of injury remained higher after controlling for work hours ($p < 1$). There was a significant elevated risk of injury for some subgroups (e.g. young workers aged 18–24 who worked in multiple jobs had a risk of injury, both during outside of work, of 19 per 100 workers, almost 40% higher than their SJH counterparts).
Conclusions Our findings suggest that multiple job holding is associated with an increased risk of injuries (work *and* non-work) and must be considered in injury surveillance. Suggested pathways exist for MJH to increase the risk of injury: fatigue, inexperience in jobs, hurried behaviour, or additional biological/emotional stress from alternating between different types of exposure.

302 PREDICTING RISK OF LOST WORK-TIME INJURY IN SMALL CONSTRUCTION COMPANIES

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Objective The construction industry experiences a high rate of injuries. A pattern of minor injuries may increase risk of severe injuries within a company. The assistance of outside safety and health professionals (S&HP) may help reduce risk of injury in construction firms. The goal of this study was to determine the association between minor injuries and risk of lost-time injury and to determine the association between company contact with an external S&HP and risk of lost-time injury.
Methods Workers' compensation data were evaluated covering 1,360 construction companies from 2004–2009. In analysis 1, minor injury experience prior to lost-time injury was categorised as: 0–1 claim, 2–3 claims, 4–6 claims, 7 or more claims. For analysis 2, S&HP contact prior to lost-time injury was categorised as: 0 contacts, 1 contact, 2 contacts, and3 or more contacts. Hazard Ratios (HR) and 95% confidence intervals (CI) were estimated using a proportional hazards regression model and accounting for repeated events and time-varying covariates. A model based variance estimate accounted for correlated observations within companies over time. Models included confounding covariates of company size and union status.
Results Compared to experiencing 0–1 claims, increased risk occurred with experiencing 2–3 claims (HR = 1.25, CI = 1.32-1.75), 4–6 claims (HR = 1.36, CI = 1.19- 1.56), and 7 or more claims (HR = 1.52, CI = 1.12- 1.39). Compared to experiencing no S&HP contact, reduced risk occurred with experiencing 1 contact (HR = 0.77, CI = 0.67–0.88) and 2 contacts (HR = 0.63, CI = 0.55–0.74). Once companies reached the highest category of contacts, three or more, there was no longer and significant reduction in risk (HR = 1.06, CI = 0.92–1.22). Companies of larger size were associated with greater risk of a lost-time claim, as were union companies.
Conclusion The results indicate increasing non-lost-time claims experience is associated with increasing risk of lost-time injury, whereas contact of a S&HP may reduce the risk of lost-time injury.

303 ELEVATED RISK OF PSYCHIATRIC DISORDERS AFTER OCCUPATIONAL INJURY

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Objectives Psychiatric conditions are known to occur after traumatic injuries. This study aimed to determine the incidence rates of psychiatric disorders within one year after occupational injury and to compare the incidence of psychiatric disorders among people sustaining occupational and non-occupational injuries, and the enrollees of the National Health Insurance (NHI) without injury.
Methods We used cohort approach in this investigation. All eligible subjects were insured by the NHI of Taiwan, and aged 18–65 years old. We identified enrollees who sustained occupational injury and non-occupational injuries in 2001. Those in the reference group were patients who ever used the NHI for any medical condition in 2001. The patients who had been treated due to any injury within one year before and after the target injury/condition in 2001 and who had been treated due to psychiatric disorders within one year before the date of target injury/condition were excluded.
Results A total of 563,461 patients were enrolled in this study. Among them, 1060 patients sustained occupational injury, 7442 patients sustained non-occupational injury, 554,959 patients ever used NHI for any medical condition in 2001. The incidence rates of any psychiatric disorders within one year after occupational injury requiring hospitalisation, occupational injury treated as outpatient, non-occupational injury requiring hospitalisation, non-occupational injury treated as outpatient,

and any disease were 10.4%, 2.5%, 8.5%, 1.5%, and 1.3%, respectively. Occupational injury was found as a significant factor for developing psychiatric disorders within one year after the target injury.

Conclusion The incidence rate of developing any psychiatric disorders was higher in patients after occupational injury than those after non-occupational injury and any medical condition. Further investigations are warranted to identify risk factors for psychiatric disorders following occupational injuries.

Session: 16. Lung cancer

304 LUNG CANCER RISK AMONG HAIRDRESSERS - A POOLED ANALYSIS OF CASE-CONTROL STUDIES CONDUCTED BETWEEN 1985 AND 2010

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Objectives Increased risk of lung cancer has been observed among hairdressers mostly in studies that did not adjust for smoking as a confounder; the objective of the present study was to evaluate this in the SYNERGY project while adjusting for smoking.

Methods SYNERGY consists of 16 pooled case-control studies conducted in Europe, Canada, China and New Zealand between 1985 and 2010. Lifetime occupational and smoking information was collected through interviews from 19,369 cases of lung cancer and 23,674 matched populations or hospital controls. Hairdressers were identified using the ISCO codes 5–70.20 (women's hairdresser) and 5–70.30 (men's hairdresser/barber). Odds ratios (ORs) and 95% confidence intervals (95% CI) of lung cancer risk were estimated using unconditional logistic regression.

Results Overall, 170 cases and 167 controls ever worked as hairdresser or barber. The ORs for lung cancer in male hairdressers/barbers were 1.04 (95% CI: 0.79, 1.37) before adjustment for smoking and 0.91 (95% CI: 0.66, 1.25) after, and did not change markedly with regard to the time of employment. The ORs in women were 1.65 (95% CI: 1.16, 2.35) before adjustment for smoking and 1.12 (95% CI: 0.75, 1.68) after; although women employed before 1954 experienced an increased lung cancer risk also after adjustment for smoking (OR 2.66, 95% CI: 1.09, 6.47). Smoking habits differed in female hairdressers vs. non-hairdressers, while there was no significant difference in smoking habits between male hairdressers/barbers and non-hairdressers/barbers.

Conclusion Our results suggest that most findings of increased lung cancer risk among hairdressers are likely due to smoking behaviour among this occupational group and not directly related to occupational exposure.

305 ENGINE EXHAUST EXPOSURE AND LUNG CANCER RISK IN FARMING

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Objectives Farmers have lower lung cancer rates than the general population, due to lower rates of smoking and possibly exposure to endotoxins. Farmers do, however, have exposure to potential lung carcinogens such as diesel exhaust from the operation of diesel-powered equipment. Using data from the Agricultural Health Study (AHS), a US-based prospective cohort study, we evaluated the risk of incident lung cancer from enrollment (1993–1997) to 2008 in relation to farm equipment use. Methods. Information on farm equipment use was obtained by self-report at study enrollment. There were 233 lung cancers among male farmers and 133 among spouses. Relative risks (RR) were estimated using Poisson regression controlling for lifestyle (including smoking) and agricultural factors. Analyses were stratified by exposure to other agricultural exposures and histological subtypes. Results. Overall, there was no significant association between any type of farm equipment and lung cancer risk but we observed a nonsignificant effect of daily driving diesel tractors for adenocarcinomas (RR = 1.95, 95% CI:0.92–4.10). A significant interaction between driving diesel tractors and exposure to animals was also observed for this subtype in farmers (nonexposed to animals: RR = 5.75, 95% CI:2.17–15.28, exposed: RR = 0.94, 95% CI:0.34–2.57, p-interaction = 0.04). A similar effect modification for driving diesel tractors was observed in spouses for lung cancer overall (nonexposed to animals: RR(≥monthly vs less than monthly) = 2.25, 95% CI:1.15–4.43, exposed: RR = 0.42, 95% CI:0.15–1.20, p-interaction = 0.01). Although the interaction was nonsignificant for adenocarcinomas in spouses (p = 0.37), the magnitude of risk was similar (nonexposed to animals: RR = 2.77, 95% CI: 1.05–7.31). Conclusion. These findings suggest that use of diesel-powered farm equipment may increase lung cancer risk in people working in agricultural settings among those not exposed to animals, exposure that has been previously inversely related to lung cancer risk, possibly due to endotoxins. Further efforts are needed to refine the exposure assessment for diesel exhaust fumes in low and chronically exposed populations.

306 LUNG CANCER AND CLEANING-RELATED EXPOSURES: RESULTS FROM TWO CASE-CONTROL STUDIES

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Objectives To evaluate the association between lung cancer and cleaning-related exposures.

Methods Two case-control studies conducted in Montreal to explore occupational associations with cancer included 2016 lung cancer cases and 2001 population controls. Occupational exposure to several agents was assessed using a combination of subject-reported job history and expert assessment. Participants also provided information on personal characteristics such as smoking and medical history. Using multivariate logistic regression analyses, we evaluated the associations between lung cancer and employment in 12 cleaning-related occupations, and exposure to eight chemicals related to cleaning products. For the most recent study, we analysed the effect of cleaning agents on lung cancer risk separately for asthmatics and non-asthmatics.