

epoxy resin systems (ERS). Yet little is known about the risk when using up-to-date skin protection. Occupational skin exposure is rarely monitored and skin exposure to ERS is often left unrecognized. The objective of this project is to analyze the risk of sensitization and ACD among workers handling ERS and to assess a novel approach to optimize the prevention of dermatitis and sensitization by fluorescence visualization of exposure.

Skin exposure will be visualized by a fluorescent tracer added to the ERS. UVA-light will illuminate the skin and the fluorescent areas will be recorded by a computer vision system with a limit of detection of 1×1 mm. In cooperation with global manufacturers of wind turbines, we will randomize 350 lamination workers to either an intervention or a control group. The intervention group will be shown images of their UVA-exposed skin, while the control group will not. The intervention will take place daily in 4 time periods, each lasting a month, during the 2 year follow-up period. All participants will be patch tested at baseline and at the end of follow-up with a tailored patch-test series containing 11 different products including epoxy resins and hardeners, in total comprising 30 potentially sensitizing compounds, that the workers handle. Participants are screened for dermatitis at start and at end of follow-up or end of employment. We will analyze the risk of sensitization, dermatitis and the risk of developing dermatitis when sensitized. We will also assess determinants for ERS exposure including working tasks and procedures. The potency of resins and hardeners to elicit contact allergy will be highlighted, as well as the frequency of concomitant contact allergies to different ERS compounds.

P.2.07 **TIMES OF SICK LEAVE DUE TO TEMPORARY DISABILITY RELATED TO A NON-WORK-RELATED ILLNESS AND RE-ADAPTATION TO WORK**

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Objective To evaluate if the times of sick leave due to temporary disability related to a non-work-related illness (NWRI) depends on whether or not the workers have required a vocational rehabilitation.

Method Historical cohort study of university workers in São Paulo, Brazil, between 2010 and 2015. Data were obtained from work institutional databases that recorded personal, occupation, physician's examination and vocational rehabilitation data. The Charlson Comorbidity Index was obtained from medical history according to the most prevalent diagnoses in each physician's assessment report and respective sick leave episode duration. Associations between variables were analyzed by simple and multiple Cox regression models.

Results Depressive disorders, convalescences and back pain were responsible for 70% of all sick leaves due to non-work-related conditions that caused temporary disability. Follow-up time was decreased when the number of NWRI per worker increases, follow-up times until readaptation between 4 and 320 days and great variability within the same disease. The CCI weight was of 0 in 96.2% of sick leaves. In the Cox model, the number of physician's examinations (HR=0.96), non-insulin-dependent diabetes mellitus (HR=0.40) and primary essential hypertension (HR=0.29) were found to be

significant protective factor for sick leave duration until vocational rehabilitation. Recurrent depressive disorders (HR=1.5), conjunctivitis (HR=2.78), acute sinusitis (HR=4.99), skin conditions (HR=3, 80), back pain (HR=1.62), kidney and ureter calculus (HR=2.31), pelvic abdominal pain (HR=2.33) and falls at the same level (HR=3.71) were risk factors to longer sick leave duration until vocational rehabilitation.

Conclusion When there was more medical assessment during the period of sick leave the times were reduced and some diseases such as upper airways, eyes and skin, pain and depression require longer times until vocational rehabilitation.

P.2.09 **HEALTH RISKS OF WORKER WHO WORK WITH THE INFECTIOUS AND HEALTH CARE WASTE TRANSPORTATION FROM HOSPITAL BY PRIVATE TRANSPORT SECTOR**

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Infectious and health care waste dramatically increasing due to the varieties of health care activities. This aims to identify problems and the health risk of worker who work with the infectious and health care waste transportation from hospital by private transport sector (PTS). The cross-sectional study was applied to the factors effecting with the outcome. 13 PTSs and 127 workers were employed in this study. The results found that: total of 127 workers from 13 PTSs in Thailand, among this 86.6% of workers were male, mean age of 31 years old, and the mean of working with infection and health care waste of 5.03 years. The main job specification was health care waste collector of 57.5%, drivers of 26%, both driver and collector of 16.5%. Only 38.6% was trained (control, precaution and protection) by the Ministry of Public Health (MoPH). A part one year later, the worker had an accident or injury (punch with needle or other sharp) from infectious and health care waste during working 42.5%, 37.8% have had contaminated or touch with the infectious fluid, 18.9% had traffic accident (car turnover, clash, offside cone) and 8.3% had the infectious and health care waste or leachates flood pour out from vehicle or container. The factors associated with risk of the health of the infectious and health care waste worker taken into account of affect of other factors, it were found that prevention and precaution training, job position, age and yearly health check were statistical significant with the health risk, respectively (OR=4.61, 95% CI=0.26 to 1.44, p=0.01) job position (OR=3.68, 95% CI=1.09 to 12.35, p=0.05), Age (OR=2.97, 95% CI=0.16 to 48.49, p=0.01) and yearly health check (OR=0.96, 95% CI=0.34 to 2.72, p=0.01).

P.2.10 **HEALTHCARE PROVIDER COMMUNICATION AND THE DURATION OF TIME OFF WORK AMONG INJURED WORKERS: A PROSPECTIVE COHORT STUDY**

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Background In addition to biomedical treatment, healthcare providers (HCPs) may make psychosocial contributions to injured workers that aid rehabilitation and the return to work (RTW) process. We examined the effect on disability duration of several types of HCP communications with injured workers and stakeholders in the RTW process.

Objectives To test the effect of various HCP communications on time off work following injury.

Research design We analysed survey and administrative claims data from n=715 injured workers in Victoria, Australia. Survey responses were collected around five months post-injury and provided data on HCP communication and confounders. Administrative claims data provided data on compensated time off work. We conducted multivariate zero-inflated Poisson regression analyses, which evaluated both the likelihood of future time off work and its duration.

Measures HCP communications included good interactions, estimated RTW date, activity discussions, prevention discussions, and stakeholder contact. Time off work was the count of cumulative compensated work absence in weeks, accrued post-survey.

Results Only RTW dates were predictive of no future time loss (OR: 2.65, 95% CI: 1.74–4.03). RTW date (IRR: 0.71, 0.67–0.74), good interactions (IRR: 0.73, 0.70–0.76), and stakeholder contact (IRR: 0.92, 0.88–0.95) reduced time off work, while activity discussions predicted more time off work (IRR: 1.13, 1.08–1.19).

Conclusions HCPs may be able shorten disability durations through several types of communication. Of those evaluated in this study, RTW dates had the most robust effect.

P.2.11 VITAMIN D DEFICIENCY AND HEPATITIS B VIRUS INFECTION AND RISK OF HEMATOLOGICAL MALIGNANCIES AMONG KOREAN SEMICONDUCTOR WORKERS: A CASE-CONTROL STUDY

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Objectives This study aims to identify an association between potential risk factors and risk of hematological malignancies, especially for Non-Hodgkin's Lymphoma (NHL) and leukemia, among Korean semiconductor workers.

Methods We collected 54 cases who ever worked over 30 days at a Korean semiconductor manufacturing company and were diagnosed as NHL (ICD-10 codes: C82–C85) and leukemia (C91–C95) from January 1st 1998 to December 31st 2017. A total of 324 controls, frequency matched by age and sex (1:6 ratios) with no diagnosis of hematological malignancies, were randomly selected. The information on work history, occupational exposure and medical examination data was also collected for the study analysis. Multivariable logistic regression analyses were performed to estimate odds ratios (ORs) after adjusting age, sex, education, employment year, smoking, alcohol and body mass index.

Results No significant association between hematological malignancies and occupational risk factors, including job title, cleanroom work and occupational exposures, was observed. As for leukemia, however, ORs were significantly increased by natural immunity to hepatitis B virus (HBV) [HBsAg(-), HBsAb(+), HBcAb(+)] (OR=11.92, 95% confidential interval 1.05–135.89) and a past or current (ever)

HBV infection [HBsAg(+/-), HBsAb(+/-), HBcAb(+)] (6.52, 1.51–28.10). Furthermore, ORs for NHL were also significantly increased by insufficient serum 25-hydroxyvitamin D [25(OH)D] (12–20 ng/mL) (10.67, 1.27–89.53) and deficient 25(OH)D levels (<12 ng/mL) (12.22, 1.37–109.16) (p<0.05).

Conclusions Risk of hematological malignancies was not associated with occupational risk factors but significantly elevated by two factors, such as HBV infection and insufficient or deficient 25(OH)D level. A longitudinal cohort study is needed to confirm the association between these risk factors and cancers.

P.2.12 CLUSTERING OF MALIGNANT PLEURAL MESOTHELIOMA IN ASBESTOS FACTORIES IN A 29-YEARS FOLLOW-UP STUDY TO IDENTIFY HIGH-RISK INDUSTRIES IN TAIWAN

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Objective Exposure to asbestos is the major cause for malignant pleural mesothelioma (MPM) but the causal link of individual cases is difficult to establish for lack of exposure information and long disease latency.

Methods We established a retrospective cohort of workers employed in asbestos industries during the period of 1950–1989 and the occurrence of MPM during the period of 1980–2009 was examined with the Taiwan Cancer Registry. Estimated rate ratios (eRR) were computed for each factory where any case of MPM was diagnosed by assuming Poisson distribution with a minimal latency of 20 years.

Results A total of 18 MPM (17 males, 1 female) in 8 factories were found. The incidence rate of MPM for the 8 factories was 18.0 per million, ranging from 6.2 per million (military factory) to 268.2 per million (asbestos cement). We observed significantly increased risks for MPM in asbestos cement, thermal insulation and shipbuilding industries, with eRR (genders combined) of 113.6, 87.5, and 15.8 respectively. The sensitivity analyses considering latency showed similar findings in latency ≥ 30 years, and the shipbuilding industry presented a significant eRR given a latency ≥ 40 years. The gender-specific eRR showed similar results in men, but high eRR of 729.6 was observed in an asbestos cement factory where a female MPM was diagnosed.

Conclusions This nationwide study in Taiwan comprehensively showed different asbestos manufacturing processes, including asbestos cement, thermal insulation, and shipbuilding industries, at significantly increased risks for MPM. We recommend to establish a medical screening program for workers previously exposed to asbestos to identify MPM and other asbestos-related diseases at an earlier stage.