

**Conclusions** Indicators for risk of violence need to be sensitive to context. While there is a considerable amount of data available for the development of leading and lagging indicators, challenges exist in coordinating data across multiple data stewards and little data is collected in some domains relevant to effective violence prevention. Future research will focus on validating indicators based on currently available data.

## Poster Presentation

### Exposure Assessment

#### 0451 PERCEIVED HEAT EXPOSURE WHILE AT WORK. A QUESTIONNAIRE STUDY IN WEST JAVA, INDONESIA

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**Background** Heat stress is a well-known occupational health concern. Heavy work under extreme heat exposure has been linked to several illnesses and premature death. In Indonesia, chronic kidney disease (CKD) is the ninth deadliest disease and the treatment for CKD tops the list of the health care spending's.

**Objectives** o Evaluate the heat exposure for industry workers in West Java, Indonesia

o Demonstrate the workers' perceptions of the heat situation

**Methods** A pilot study was conducted on two industries in February 2017, winter season in West Java. Heat measures were taken using wet bulb globe temperature (WBGT). Interviews were conducted using HOTHAPS questionnaire with 54 male workers. Medical records from the occupational health unit were also available.

**Result** The pilot study showed that workers were exposed to heat above threshold limit value (28°) in 48% of the WBGT measurements. 54% of the workers interviewed were uncomfortable with the ambient temperature. 8% of the workers had abnormal creatinine levels ( $\geq 1,2$  mg/dl) indicating a severe problem with heat exposure. An extended data collection is planned for July to investigate the heat impacts of the summer season, and to include female workers.

**Conclusion** Heat exposure at work leads to negative health outcomes for the industry workers. Further investigations on the workers' perceptions of heat is necessary for refining, creating and implementing heat prevention strategies.

## Oral Presentation

### Other

#### 0452 USES OF CAREX SYSTEMS FOR INDIVIDUAL COUNTRIES AND INTERNATIONAL CONTEXTS

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CAREX was designed to promote prevention through raising awareness and targeting high risk populations. CAREX was designed as a system that could be applied to other countries and its use internationally has been broadened to include national burden of occupational cancer projects in specific countries, as well as in the Global Burden of Disease project. CAREX Canada is based on a combination of occupation and industry and, when possible, estimates level of exposure as well as prevalence. This has allowed it application as a job exposure matrix for use in other applications. The Occupational Cancer Research Centre, in collaboration with its partners, has used it successfully with both its Occupational Disease Surveillance System and Burden of Occupational Cancer projects. In applying CAREX to other applications, it is important to recognise that it is based on the concept of hazard rather than risk, which is appropriate for primary prevention. Thus, in burden of disease projects it is important to choose relative risks that are appropriate for exposure based on broadly defined groups. In applications to disease surveillance, prevalence rates less than 100% can lead to non-differential misclassification and low levels of exposure can mute associations, especially when added to the existing limitations of data typically used for surveillance. Addressing these limitations can facilitate the successful application of CAREX in wider applications.

## Oral Presentation

### Shift Work

#### 0453 SHIFT WORK AND OVERALL AND CAUSE-SPECIFIC MORTALITY IN THE DANISH NURSE COHORT

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Withdrawn at the author's request

## Oral Presentation

### Other

#### 0454 MULTIPLICATIVE TWO-WAY INTERACTIONS BETWEEN OCCUPATIONAL LUNG CARCINOGENS IN THE SYNERGY PROJECT

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**Objective** The Synergy project derived quantitative exposure-response associations for five occupational lung carcinogens (asbestos, chromium-VI, nickel, polycyclic aromatic hydrocarbons, and respirable crystalline silica) and lung cancer in a pooled analysis of population based case-control studies. Considering a proportion of workers were exposed to more than one of these carcinogens, a joint effect on lung cancer risk is possible.

**Methods** We estimated joint effects by including an interaction term between two occupational carcinogens in the logistic regression models that were developed for the Synergy project. Analyses were conducted with either both exposures dichotomized (ever vs. never exposed), or with one exposure on a continuous scale (cumulative exposure), and the other dichotomized. Analyses were conducted for all lung cancer subtypes combined and stratified by subtype. We applied a Bonferroni correction.

**Results** We observed a negative interaction between occupational exposure to nickel and asbestos. The interaction effect was largest for the subtype of squamous cell carcinoma: ratio of odds ratios: 0.76 (95% CI 0.65–0.88), odds ratio of the joint effect: 1.40 (95% CI 1.26–1.56). No other interaction effects were statistically significant after correction for multiple testing. Analyses in which one of the exposures was included on a continuous scale resulted in similar results.

**Conclusion** We observed little evidence for a statistical multiplicative interaction between most of the occupational carcinogens. The negative multiplicative interaction between asbestos and nickel was not explained by a high correlation between these exposures. Ignoring specific study specific matching criteria might have introduced some bias in the results.

## Oral Presentation

### Disease Surveillance

#### 0456 INITIAL RESULTS FROM A NEW CANADIAN OCCUPATIONAL DISEASE SURVEILLANCE SYSTEM

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Large scale occupational disease surveillance has been challenging in many countries, with a few notable exceptions, such as the Nordic countries with their substantial record linkage abilities. We present initial results for lung cancer from a new Canadian Occupational Disease Surveillance System.

The surveillance cohort was created using data from Ontario, Canada time-loss workers' compensation claims 1983–2016 (96% for injuries) linked to cancer registry records. Follow-up was from first claim date until diagnosis, death, loss-to-follow-up or 2016. Hazard ratios (HRs) were calculated for each industry/occupation using Cox Proportional Hazard models, adjusted for year of birth and stratified on gender.

The study population was 7 40 000 women and 1,430,000 men. Significant excess risks were observed in many of the a priori suspected occupations and industries, particularly in construction, mining, and transportation occupations. In addition, other relevant associations were observed among both women and men, such as for janitors and cleaners (men: HR=1.22, 95% CI=1.16–1.29, women: HR=1.22, 95% CI=1.13–1.32) and primary metals industry (men: HR=1.18, 95% CI=1.11–1.25, women: HR=1.20, 95% CI=0.89–1.60). Many sex-specific associations were also observed, particularly in women (such as printing and publishing industries: HR=1.42, 95% CI=1.23–1.65 and chemical, rubber and plastic processing occupations HR=1.31, 95% CI=1.15–1.51), which will need further investigation.

The excess risks observed in many a priori suspected groups provides a good confirmation that this study can produce valid results and identify new associations. Triage methods are being developed to target new associations in need of further investigation. Future analyses will use hospital discharge data and outpatient visits.