from the electoral list for Montréal, and frequency-matched to cases using 5-year age groups. We elicited information on occupational history and potential risk factors. An occupational hygienist coded all jobs to the International Standard Classification of Occupations 1988 (ISCO88); these occupation codes were linked to an ELF-MF job exposure matrix (JEM) to obtain mean workday-average ELF-MF exposure. Logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CI) for incident breast cancer and past ELF-MF cumulative exposure (CE) and average exposure (AE), adjusting for individual-level and ecological covariates. Separate analyses were conducted restricting exposure before the first full-term pregnancy or age 35 for women who were never pregnant and for hormonal receptor phenotypes.

**Results** We recruited 592 controls and 663 cases. The fully adjusted ORs per increase in the interquartile range (IQR=2.12 μT-years) of CE was 0.99 (95% CI: 0.94–1.06) and for AE (IQR=1.54 μT) was 0.96 (95% CI: 0.90–1.02). The associations between breast cancer and ELF-MF CE and AE were consistent with linearity. Adjustments for various combinations of potential confounders did not change these patterns. We found no evidence of associations for different breast cancer subtypes or exposure before the first full-term pregnancy or the age of 35.

**Conclusions** Our findings suggest that occupational exposure to ELF-MF, assigned here using a JEM, may not be associated with the risk of incident postmenopausal breast cancer.

### Solvents

**THE ASSOCIATION BETWEEN THE INCIDENCE OF POSTMENOPAUSAL BREAST CANCER AND OCCUPATIONAL EXPOSURE TO SELECTED ORGANIC SOLVENTS IN MONTRÉAL**

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**Introduction** Breast cancer is the most diagnosed cancer among women and accepted risk factors only explain 25% to 47% of cases. Organic solvents are used widely in the workplace. According to a hypothesis postulated in the 1990s, exposure to organic solvents may increase the risk of developing breast cancer, yet there is insufficient data to confirm this hypothesis. We sought to determine whether past occupational exposures to organic solvents reported to exert mammary toxicity were associated with the incidence of invasive breast cancer in postmenopausal women in Montréal.

**Materials and Methods** From a population-based case-control study (2008 to 2011), using in-depth interviews, we elicited information on risk factors and lifetime occupational histories. A team of industrial hygienists and chemists translated each detailed job description into specific chemical and physical exposures. We selected six individual solvents and four solvent groups. Unconditional logistic regression was used to estimate adjusted odds ratios (OR) and 95% confidence intervals (CI) between indices of past exposures to the selected solvents and the risk of developing postmenopausal breast cancer. Indices of exposure included any previous exposure, frequency in hours per week, duration in years, and average cumulative concentration with concentration on a scale of 1 (‘low’), 2 (‘medium’), 3 (‘high’) weighted by hours per week exposed.

**Results** We enrolled 695 cases and 608 controls. We found increased ORs for average cumulative concentration of exposure to monoaromatic hydrocarbons (OR:1.52, 95%CI: 1.04, 2.28), chlorinated alkanes (OR: 2.42, 95%CI: 1.23, 5.68), toluene (OR: 1.59, 95%CI: 1.02, 2.59), and the group of organic solvents with reactive metabolites (OR: 1.53, 95%CI: 1.08, 2.24). Positive associations were found across all metrics of exposure and were higher among women who had estrogen positive/progesterone negative tumours.

**Conclusions** Our findings suggest that occupational exposure to certain organic solvents may increase the risk of incident postmenopausal breast cancer.

### Other disease

**0-184 OCCUPATIONAL INHALED AGENTS CONSTITUTE MAJOR RISK FACTORS FOR RHEUMATOID ARTHRITIS, PARTICULARLY IN THE CONTEXT OF GENETIC PREDISPOSITION AND SMOKING**

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**Introduction** The lung is recognized as a primary site in the induction of rheumatoid arthritis (RA). Our study aimed to assess the effect of common occupational inhalable exposures on risk of developing RA and their interactions with smoking and RA-risk genes.

**Material and Methods** From 1996 to 2017, 4,033 incident RA cases and 6,485 controls matched on age, sex, and residential area were recruited from central and southern Sweden, all answering a self-administered questionnaire. For each participant, occupational history was retrieved, which together with information from a Swedish national job-exposure matrix allowed us to estimate the cumulative exposure to 32 different inhalable agents, taking prevalence and concentration into account. Approximately 3,400 cases and 2,800 controls had concomitant genetic data (genome-wide genotypes). Two subtypes of RA were assessed based on the status of anti-citrullinated protein/peptide antibodies (ACPA), comprising 2,642 ACPA-positive cases and 1,391 ACPA-negative cases.
Results and Conclusions An increased risk of developing ACPA-positive RA was found for individuals ever exposed to any of the 32 occupational inhalable agents (OR=1.25, 95% CI=1.12–1.38). The risk increased in a dose-response manner according to number of agents (Ptrend< 0.001) and duration of exposure (Ptrend< 0.001).

Across 16 specific collections of agents, a very large risk of developing RA in the triple-exposed group (occupational exposure, smoking, and high genetic risk) was observed for the ACPA-positive subtype with odds ratios (ORs) ranging from 18.0 to 45.1, while the estimates for ACPA-negative subtype were much weaker with ORs ranging from 0.85 to 2.64.

Occupational inhaling agents could act as important environmental triggers in RA development and interact with smoking and RA-risk genes leading to an excessive disease risk. These effects are specific to ACPA-positive RA. Preventive strategies aimed at reducing occupational hazards and smoking are warranted for reduction of the burden of RA, especially for those who are genetically vulnerable.

Injuries

FATAL OCCUPATIONAL INJURIES IN FARMING, FISHING AND FORESTRY OCCUPATIONS IN SOUTHEAST ASIA, AUSTRALIA, AND SELECTED EUROPEAN COASTAL COUNTRIES, 2010–2015

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Introduction According to ILO estimates, about 2.3 million men and women worldwide die from work-related illnesses or accidents each year. The category of fishing, farming and forestry industry is among the riskiest and most hazardous occupations. Agriculture employs more than one billion workers and 70 percent of child labor worldwide. Fishermen suffer from wide range of injuries and Forest workers can still be found not wearing the compulsory safety equipment and ignoring safety rules.

Materials and Methods

This study aimed at describing national statistics on fatal occupational accidents from ILO (International labor organization) on occupational injuries in farming, fishing and forestry occupations in southeast Asia (Malaysia and Philippines), Australia and selected European coastal countries (France, Spain, United Kingdom and Norway). The data of this study was obtained from ILOSTAT database. The following data was obtained:

-Number of cases of fatal occupational injuries per 100,000 workers by economic activity
-Number of cases of non-fatal occupational injuries per 100,000 workers by economic activity

For both, I obtained aggregated total data for agriculture, forestry, and fishing, except Malaysia which had only data for fishing.

Results Occupational injuries were described for the period 2010–2015 and obtained research results show that Australia and Europe had lower rates of occupational injuries than Asian countries. For example, mean rate of injuries in Australia was 15.6 per 100,000, for Spain was 6.2 per 100,000, while the mean rate of Malaysia was 35.5 per 100,000 workers between 2010 and 2015. The data was missing for several years for all countries.

Conclusion The injury rates vary between the different countries. As the data was insufficient, it was difficult to use for preventive measures.