Introduction Succinate dehydrogenase inhibitors (SDHIs) and strobilurins are two groups of fungicides introduced in the 1990s and 2000s to the agricultural market, including overall around 24 molecules. A deficiency in the subunit of a SDHI-blocked enzyme has been observed in cases of kidney Cancer (KC). We aimed at assessing the incidence of KC in individuals exposed to these fungicides within the AGRICAN cohort (N=181 842 participants).

Material and Methods Incident KCs were identified from enrolment (2005-2007) to December 2017. Pesticide exposures of interest were identified by cross-referencing the PESTIMAT tables with the AGRICAN enrollment questionnaire (exact years of start and end of pesticide use (in the field or on seeds) on 10 different crops). Cox models with age as a time scale were used.

Results Five SDHIs and 3 strobilurins had been used, on crops (vineyard, potato, fruit, corn, peas and wheat/barley), for at least 5 years prior to enrolment, with respectively 114 and 89 exposed KC in males. Analyzing the specific use of SDHIs and strobilurins on crops, we reported positive associations: (i) for SDHIs: Fenfuram (HR 1.50 (1.04-2.16)), Oxyacarboxin (HR 1.49 (1.10-2.00)) and Carboxin (HR 1.44 (1.06-1.96)). (ii) for strobilurins: Fampoxadone (HR 3.5 (2.4-5.06)), Azoxy-strobin (HR 3.20 (2.30-4.50)) and Kresoxim-Methyl (HR 2.6 (1.89-3.48)). Duration effect was positive for Fenfuram and Mepronil and all 3 strobilurins.

Conclusion We observed positive associations between KCs and some SDHIs and strobilurin use in male farmers. We had too few females directly exposed to these fungicides. Next steps should include a cluster analysis and score considering the frequency, intensity and probability of using the pesticides under study.

Shift work

**0-75** NIGHT AND SHIFT WORK AND INCIDENT TYPE 2 DIABETES AND HYPERTENSION – PRELIMINARY FINDINGS FROM A COHORT STUDY OF HEALTHCARE EMPLOYEES IN STOCKHOLM

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Introduction Night and shift work have been suggested to increase the risk of chronic health issues like hypertension and metabolic disorders. The aim was to evaluate the effects of various aspects of night and shift work on the risk of incident type 2 diabetes (T2D) and hypertension, using detailed and registry-based data on working hours.

Material and Methods The cohort comprised about 28 000 nurses and nursing assistants (88% women, 12% men) employed for one year or more 2008-2016 in Stockholm, Sweden. Information on daily working hours was obtained from employee registers and information on diagnoses from national and regional registers. Prescribed medication was not used as an outcome. Hazard ratios (HRs) were estimated by discrete-time proportional hazard models, as functions of working hour characteristics the preceding year, adjusted for sex, age, country of birth, and profession.

Results We observed 232 cases of T2D and 875 cases of hypertension during follow-up 2013-2017. The risk of T2D was increased among employees who the preceding year had permanent night shifts compared to those with permanent day work (HR=1.59, 95% confidence interval 1.02-2.43). The risk was non-significantly increased among employees with day and afternoon shifts only (HR=1.34, 95% confidence interval 0.97-1.88). No significantly elevated risks were found related to frequency of night shifts, frequent spells of ≥3 consecutive night shifts or frequent quick returns (<28 hours) from night shifts, compared to those who never worked night. There was no trend in risk with number of years of night work. No increased risks were observed for hypertension.

Conclusions Working permanent night shifts is associated with an increased risk of T2D but not hypertension. The frequency of night shifts or quick returns from night shifts did not significantly affect the results. Organizing work schedules to minimize permanent night work may reduce the risk of T2D.

**0-77** IMPLEMENTATION OF THE WORKERS’ EXPOSURE SURVEY TO ASSESS WORKPLACE EXPOSURES TO CANCER RISK FACTORS IN EUROPE: PILOT STUDY

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Introduction The European Agency for Safety and Health at Work (EU-OSHA) started in 2020 the preparation of a new European exposure survey to cancer risks factors across occupations, based on the adaptation of the Australian Workplace Exposures Study (AWES). The survey will provide semi-quantitative information on current exposure and co-exposures of workers to known risk factors, for example asbestos, benzene, chromium, diesel exhaust, nickel, silica dust, UV radiation or wood dust; as well as characteristics of the workers exposed and self-reported information on prevalence of use of workplace protective measures.

Material and Methods We conducted a pilot study between March and May 2022 to test all aspects of the survey including exposure assessment and questionnaire performance (particularly of newly developed modules for Europe), the technical setup, interviewer performance, sampling and contacting procedure, data quality and the coding of occupation (ISCO) and activity sector (NACE). Trained interviewers conducted 213 telephone interviews on average per country (Finland, France, Germany, Hungary, Ireland and Spain) in their national languages (half on mobile Random Digit Dialling, and half via a targeted sample).

Results In total, 49 out of the 51 job modules of the survey were tested. Survey duration was on average 16 minutes, with screening time (obtention of consent, demographics, and correct job module allocation) lasting around 3.5 minutes, which was deemed rather long. The generic job module was attributed to 9% of the respondents, a proportion to be decreased for the main fieldwork. A few changes were made to the questionnaire script during the pilot, to improve performance.
Preliminary exposure assessment data showed consistent job exposure patterns.

Conclusion Results of the pilot study provided useful information to streamline the workers’ exposure survey, which is currently being implemented with 24,000 workers. First results are expected by end 2023.

Noise

EFFECTIVENESS OF EARMUFFS IN REDUCING DEVELOPMENT OF STANDARD THRESHOLD SHIFT AMONG STEEL REBARS MANUFACTURING WORKERS: AN INTERVENTION STUDY

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Introduction Manufacturing factory workers in developing countries are at an increased risk of developing hearing loss from continuous exposure to high noise levels without hearing protection. However, use of hearing protection such as earmuffs has been an intervention of choice in many workplaces due to impracticability of engineering and administrative controls. This study aimed to determine the effectiveness of earmuffs by measuring standard threshold shift (STS) of hearing among steel bars manufacturing workers.

Materials and Methods An interventional study was conducted among male workers in steel manufacturing factory exposed to noise level above 85 dBA in Tanzania. The factory had 200 workers each of whom was provided with earmuffs to use (full-shift). Workers were trained on use, benefit and care for earmuffs. A sub-group of 55 workers was established, followed-up and studied for noise exposure and change in hearing threshold from pre-intervention to post-intervention at 2000, 3000, and 4000 Hz in either ear. This study was ethically approved both in Norway and Tanzania ethical committees.

Results All workers reported using earmuffs.

However, 17% (N=104) of workers had STS in the better ear. There was a significant increase in the mean hearing threshold shifts (measured by pure tone audiometry) from pre-intervention to post-intervention at 2000, 3000 and 4000 Hz (paired samples t-tests, two-tailed; P<0.001).

Conclusions Use of earmuffs among noise exposed workers showed protective effect to 83% of workers. However, explanations for the observed STS warrants further investigations.

Respiratory effects/Diseases

O-85 SEX DIFFERENCES IN WORK-RELATED CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction The role of occupation in the burden of chronic obstructive pulmonary disease (COPD) has become increasingly apparent. However, there is a lack of evidence regarding risk of COPD in female workers. This study aims to investigate the sex differences in the occupational risk of COPD among workers in Ontario, Canada.

Materials and Methods COPD cases were identified in the Occupational Disease Surveillance System (ODSS). The ODSS was established through the linkage of former compensation claimants (1983–2020), ambulatory care data (2006–2020), and hospital inpatient data (2006–2020) in Ontario. Cox proportional hazard models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI) by occupation. Risk estimates for broad industry groups were adjusted for cigarette smoking prevalence based on self-reported smoking history from the Canadian Community Health Survey (CCHS).

Results A total of 30,249 male and 15,665 female incident cases of COPD were identified in the ODSS cohort (Nmale=1,321,752; Nfemale=653,215). Increased risks were observed in both sexes for construction (HRmale=1.15, 1.12–1.19; HRfemale=1.54, 1.29–1.83), transport/equipment operating (HRmale=1.32, 1.28–1.37; HRfemale=1.53, 1.40–1.68), farming (HRmale=1.23, 1.15–1.32; HRfemale=1.19, 1.04–1.37) and janitors/cleaners (HRmale=1.31, 1.24–1.37; HRfemale=1.40, 1.31–1.49). Increased risks were also observed in forestry/logging (HRmale=1.29, 1.14–1.47) and mining/quarrying (HRmale=1.23, 1.10–1.37) for males only. Increased risks were observed for females in service occupations, including chefs and cooks (HRfemale=1.44, 1.31–1.58), bartenders (HRfemale=1.38, 1.05–1.81), waitresses/hostesses/stewardesses (HRfemale=1.48, 1.35–1.61), food/beverage preparation (HRfemale=1.34, 1.24–1.45), accommodation supervisors (HRfemale=1.36, 1.04–1.77) and accommodation managers (HRfemale=2.02, 1.30–3.14). Similar findings were observed for industry groups and remained consistent with adjustment for cigarette smoking.

Conclusions Study findings support existing evidence for risk of COPD among men and women in primarily dusty trades. However, results also provide evidence of increased risk among female workers in service occupations where exposures, such as second-hand smoke, may be overlooked.