Objective The aim of study is to investigate the temporal trend and spatial pattern of mortality for malignant pleural mesothelioma in Taiwan during recent decades.

Method The standardized rates of mortality for MPM (ICD-9: 163, ICD-10: C45.0 & C45.9) in Taiwan were computed at national and regional levels during 1975–2019; the sex ratios of male to female deaths for MPM were also computed at regional level.

Result The trend of national mortality for MPM in Taiwan is still increasing in twenty to thirty years after the asbestos control, especially among male population; the pattern of regional mortality for MPM reflects the distribution of the asbestos-related industrial settlements in the country.

Conclusion In adequate response to the epidemic of asbestos-related diseases, it is necessary to implement a national comprehensive program for the surveillance, diagnosis, and treatment healthcare to protect workers and community people.

0-284 ENHANCING OCCUPATIONAL DISEASE SURVEILLANCE USING A JOB EXPOSURE MATRIX

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10.1136/OEM-2021-EPI.42

Introduction Surveillance is useful for identifying occupations and industries at high risk of disease. However, less is known about workers' risks from exposure to specific occupational hazards.

Objectives Apply a job-exposure matrix to occupational disease risk estimates to enhance surveillance efforts.

Methods The Occupational Disease Surveillance System (ODSS) uses Cox proportional hazards models to derive health risks for 30+ health outcomes. The Canadian job-exposure matrix (CANJEM) is a general population JEM that provides exposure data on over 250 hazards by occupation and industry. Exposure data for prevalence, intensity (non-exposed, low, medium, high), and duration of exposure (proportion of workweek exposed) were extracted. Hazard ratios (HRs) for silicosis and lung cancer from the ODSS were linked to silica exposure metrics from CANJEM by occupation (4-digit Canadian Classification and Dictionary of Occupations) and industry (3-digit 1970 Standard Industrial Classification).

Results There were 163 occupations and 141 industries exposed to silica according to CANJEM. Among occupations with >5 cases and ≥50% prevalence, the mean HRs were 18.33 (range: 16.5–19.7) and 1.25 (0.77–1.87) for silicosis and lung cancer respectively. Similar results were seen with occupations with ≥ medium intensity, and ≥25% duration of exposure. Occupations with both ≥50% prevalence and ≥ medium intensity had mean HRs 18.33 (16.5–19.7) and 1.44 (1.16–1.87) for silicosis and lung cancer respectively. Industry results had similar distributions for lung cancer HRs, and lower mean HRs for silicosis (at ≥50% prevalence HR: 8.57, range: 1.48–19.3).

Conclusion Using silica, we demonstrated that incorporating exposure information can help to identify and quantify workers' exposure risk. Incorporating multiple exposure metrics improved detection of high-risk groups although is less sensitive. Understanding the role of exposure on health risk may allow prevention strategies to be implemented more pragmatically.

Exposure Assessment

0-94 DEVELOPMENT OF TASK-SPECIFIC ENDOTOXIN CONCENTRATIONS FOR AGRICULTURAL ACTIVITIES USING META-REGRESSION OF PUBLISHED DATA

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10.1136/OEM-2021-EPI.43

Introduction Endotoxin has been hypothesized to partly account for the observed deficit of lung cancer in farmers; however, most epidemiologic studies have relied on surrogate metrics, such as number of animals.

Objective To obtain task-specific estimates of endotoxin exposure for agricultural tasks using meta-regression models of published data.

Methods We extracted the geometric means (GM, in EU/m³) and geometric standard deviations (GSD) of endotoxin measures for various farming activities from 43 published studies (1989–2018). We linked each measure to an activity within the questionnaire used in the Biomarkers of Exposure and Effect in Agriculture Study. When necessary, we calculated the GM and GSD from other available measures. We used mixed-effects meta-regression models with the weighted log-transformed GM as the dependent measure, task as the independent measure, and summary statistic identifier as a random effect to account for between-study heterogeneity. We grouped the tasks into three categories (crop, animal, stored seed/grain), and analyzed each category separately. We conducted sensitivity analyses by restricting data to only North America, only task-based, and only inhalable fraction.

Results We extracted 30 crop, 90 livestock, and 10 seed/grain-related summary statistics. Among animal tasks, most had predicted GMs above 1000 EU/m³, including work in poultry confinement (GM=1470 EU/m³), cleaning poultry confinements (1470), grinding feed (1410), work in swine confinement (1310), cleaning swine confinement (1270), feeding swine (1070), and veterinarian services (1030). Among crop tasks, predicted GMs were below 100 EU/m³, including harvesting corn/grains (30), hauling grain (60), and mowing (80). For stored seed/grain tasks, the predicted GM of cleaning grain bins was 1130 EU/m³ and other work with stored grains/seeds was 230 EU/m³.

Conclusion Our characterization of task-specific endotoxin concentrations can be used in conjunction with questionnaire responses on agricultural activities, including task duration, to improve future endotoxin assessments in epidemiologic studies.

0-122 DETERMINANTS OF TASK-BASED EXPOSURES TO ALPHA-DIKETONES IN COFFEE ROASTING AND PACKAGING FACILITIES

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10.1136/OEM-2021-EPI.44

Introduction Coffee production is a global industry and is estimated to increase by 15.4 million lbs in 2021. Coffee