

S-107 **UNION BURYING GROUND: MORTALITY, MORTALITY INEQUITIES, AND SINKING LABOR-UNION MEMBERSHIP IN THE UNITED STATES**

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Introduction Over the last several decades in the U.S., socio-economic life-expectancy inequities have increased 1–2 years. Declining labor-union density has fueled growing income inequities across classes and exacerbated racial income inequities. However, the relationship between declining labor-union density and mortality inequities remains understudied.

Objectives Using Panel Study of Income Dynamics (PSID) data, we examined the longitudinal union-mortality relationship and estimated whether declining union density has exacerbated racial and educational mortality inequities.

Methods Our sample included respondents ages 25–66 to the 1979–2015 PSID with mortality follow-up through age 68 and year 2017. To address healthy-worker bias, we used the parametric g-formula. First, we estimated how a scenario setting all (versus none) of respondents' employed-person-years to union-member employed-person-years would have affected mortality incidence. Next, we examined gender, racial, and educational effect modification. Finally, we estimated how racial and educational mortality inequities would have changed if union-membership prevalence had remained at 1979 (versus 2015) levels throughout follow-up.

Results In the full sample (respondents=23,022, observations=146,681), the union scenario was associated with lower mortality incidence than the non-union scenario (RR: 0.90, 95% CI: 0.80, 0.99; RD per 1,000: -18.7, 95% CI: -36.5, -0.9). This protective association generally held across subgroups, although it was stronger among the more-educated. However, we found little evidence mortality inequities would have lessened if union membership had remained at 1979 levels.

Conclusion To our knowledge, this is the first individual-level U.S.-based study with repeated union-membership measurements to analyze the union-mortality relationship. We estimated a protective union-mortality association, but found little evidence declining union density has exacerbated mortality inequities, although we did not incorporate contextual-level effects.

S-109 **IDENTIFICATION OF CHEMICAL AND DISINFECTANTS PRODUCTS FOR EXPOSURE AND EPIDEMIOLOGICAL STUDIES**

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Objective There is a large number of household cleaning chemical products available in the market for consumers and domestic cleaners. Online catalogs of major US retailers showed that there are over 450 different household cleaning products for sale. The objective of this study was to identify the household chemical products available for domestic cleaners and consumers as part of a study aimed at studying exposure to cleaning chemicals in Latinx domestic cleaners in New York City.

Methods We organized focus groups and interviews to develop a survey for Latinx cleaners in NYC. The survey was used to collect detailed information about the most common household cleaning tasks and cleaning product use in 400 Latinx domestic cleaners. In addition, we visited 95 retail stores in Latinx dense neighborhood in NYC to identify the types of household cleaning products available for sale. Finally, we created an inventory of household cleaning products available in the market for consumers and domestic cleaners and reviewed Safety Data Sheets to identify common chemical ingredients reported by manufacturers.

Results Despite a large number of cleaning chemicals available in the US market, Latinx domestic cleaners use less than 50 products for household cleaning during their jobs. In visits to retail stores we found that over 25% of the household cleaning products available for sale contain disinfectants such as Quaternary Ammonium Compounds and that over 80% of the products contain a scent.

Conclusion A combination of quantitative and qualitative methods allowed us to determine the most common products domestic Latinx cleaners use and can be exposed while at work. This information will be used in a study to measure inhalation and dermal exposures in domestic cleaning.

S-135 **APPLYING THE EXPOSOME CONCEPT TO WORKING-LIFE HEALTH: THE EU EPHOR PROJECT**

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Introduction Exposures at work have a major impact on non-communicable diseases (NCDs). Current risk reduction policies and strategies are informed by existing scientific evidence, which is limited due to the challenges of studying the complex relationship between exposure in the work place and outside work, and health. We define the working-life exposome as all occupational and related non-occupational (i.e. urban, lifestyle, behavioural and socio economic status) exposures.

Objective By taking an exposome approach, the Exposome Project for Health and Occupational Research (2020–2024) aims to advance knowledge on the complex working life exposures in relation to disease beyond the single high exposure-single health outcome paradigm, mapping and relating interrelated exposures to inherent biological pathways, key body functions and health.

Methods This will be achieved by combining 1) large-scale harmonisation and pooling of existing cohorts systematically looking at multiple exposures and diseases, with 2) the collection of new high-resolution (in time or agents/markers) external and internal exposure data in two case studies. Methods and tools to characterize the working-life exposome will be developed and applied, including sensors, wearables, a harmonised job exposure matrix (EuroJEM), non-invasive bio-monitoring, omics, data mining, and (bio)statistics.

Results&Conclusion

The toolbox of developed methods and knowledge will be made available to policy makers, occupational health practitioners and scientists. Advanced knowledge on working life exposures in relation to NCDs will serve as a basis for

evidence-based and cost-effective preventive policies and actions, ultimately contributing to reducing the burden of NCDs. This presentation will present the EPHOR design and approach as well as some developments so far.

S-136 OMEGA-NET INVENTORY OF OCCUPATIONAL COHORTS

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Introduction Existing cohort studies in Europe capturing some type of occupational information enrol tens of millions of persons. There are few large-scale analyses systematically combining cohorts from this extraordinary resource, and a systematic approach to facilitate the use of cohorts across research groups and countries is needed.

Objectives As part of the ongoing OMEGA-NET COST Action, we created an online inventory of cohorts (<https://occupationalcohorts.net/>) with occupational information in Europe and worldwide and implemented an interactive search tool with detailed information on these cohorts. The inventory aims to collect information that facilitates collaboration across cohorts to explore occupation, work related exposures and health relationships.

Methods The inventory includes prospective or retrospective cohorts, case-control studies nested within cohorts and intervention studies that: (i) are active or can substantiate that their data are potentially accessible; (ii) collect data on occupation and/or industry or at least one occupational exposure; and (iii) have at least one follow-up either already conducted or planned. The inventory only incorporates cohort meta-data. Researchers enter information regarding their cohort using a web-based OMEGA-NET inventory questionnaire. The published version of the inventory is stored in a searchable web database.

Results To-date the inventory includes information on > 130 cohorts in more than 20 countries. Information is collected on: (i) Identification and basic description; (ii) Follow-up; (iii) Occupational exposures (dusts and fibres, solvents, pesticides, metals and metal oxides, other chemicals, engineered nanoparticles, biological factors, physical agents, ergonomics, physical workload and injury, psychosocial domains, organisation of work and working time); (iv) Outcomes evaluated; (v) Biological samples and analysis; (vi) Other information e.g. sociodemographic.

Conclusion The OMEGA-NET inventory will continue to identify and invite cohorts and seeks to capture the majority of available active cohorts with information on occupational exposures, many of them being non-occupational in their primary aim.

S-141 OCCUPATION AND COVID-19 MORTALITY IN ENGLAND: A NATIONAL LINKED DATA STUDY OF 14.3 MILLION ADULTS

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Introduction The coronavirus pandemic has been particularly severe in the UK, with high infection and death rates, including among working age population.

Objective To estimate occupational differences in COVID-19 mortality, taking into account confounding factors, such as regional differences, ethnicity, education, deprivation and pre-pandemic health.

Methods We used data on 14,295,900 individuals who completed the UK Census in 2011, who were alive on 24 January 2020, were employed and aged 31–55 years in 2011. Data were linked to death and other health records. We examined differences between occupational groups in the risk of COVID-19 death from 24 January to 28 December 2020. We estimated age-standardised mortality rates per 100,000 person-years at risk stratified by sex and occupations. To estimate the effect of occupation due to work-related exposures, we used Cox proportional hazard models to adjust for confounding factors.

Results There is wide variation between occupations in COVID-19 mortality. Several occupations, particularly those involving contact with patients or the public, show three- or four-fold risks. These elevated risks were greatly attenuated after adjustment for confounding and mediating factors. For example, the hazard ratio (HR) for men working as taxi and cab drivers or chauffeurs changed from 4.60 [95%CI 3.62–5.84] to 1.47 [1.14–1.89] after adjustment. The overall HR for men working in essential occupations compared with men in non-essential occupations changed from 1.45 [1.34 - 1.56] to 1.22 [1.13 - 1.32] after adjustment. For most occupations, confounding and other mediating factors explained about 70% to 80% of the age-adjusted hazard ratios.

Conclusions Working conditions are likely to play a role in COVID-19 mortality, particularly in occupations involving contact with COVID-19 patients or the public. However, there is also a substantial contribution from non-workplace factors, including regional factors, socio-demographic factors, and pre-pandemic health.

S-143 RISK OF ASTHMA AMONG PROFESSIONAL CLEANERS IN DENMARK – RESULTS FROM A MATCHED REGISTER-BASED COHORT STUDY

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Introduction Epidemiological studies indicate an increased asthma prevalence among cleaning professionals compared to other jobs.

Objectives In a multi-disciplinary project in Denmark on spray cleaning products we investigated the risk of asthma among professional cleaners in a nationwide population-based register study.

Methods In a register-based matched cohort study, 16–50 year-old professional cleaners were identified according to yearly assigned job and industrial codes for cleaning. The references was workers with other manual jobs/service workers. Asthma was defined from national registers on hospitalisation and prescribed asthma medication (person years: cleaners = 1,014,893; references = 2,777,052). The associations between recent (previous year) and preceding cumulated