Objective To map the risk of work-related SARS-CoV-2 across occupations and pandemic waves and investigate its impact on morbidity and partner-risk.

Methods The cohort includes 2,4 million employees aged 20–69 with follow-up from 2020 to 2021. During this period, 261,203 employees had a positive SARS-CoV-2 test and 4416 were admitted to hospital with Covid-19 (HA). At-risk occupations defined at the 4-digit DISCO-08 level were identified using a reference population of mainly office-workers defined by a priory by a job-exposure matrix (JEM). Incidence rate ratios (IRR) and effect modification by pandemic waves were computed by Poisson regression. We adjusted for demographic, social and health characteristics including household size, completed Covid-19 vaccination and occupation-specific frequency of testing.

Results In addition to eight specific occupations in the healthcare sector, we found increased risk of Covid-19 related HA in bus drivers, kindergarten teachers, domestic helpers, and operators in food production (IRR from 1.5 to 1.3). In addition to eight specific occupations, we found increased risk of Covid-19 related HA in bus drivers, kindergarten teachers, domestic helpers, and operators in food production (IRR from 1.5 to 1.3). Surface exposures were 1.4 times higher than underground exposures. Exposures significantly decreased (p < 0.05) over time, GM1970–1980=0.06 vs. GM1990–2000=0.04 mg/m3. Next steps are to complete standardization of job coding and incorporation of aggregate samples using Monte Carlo Simulation. The JEM will be applied to estimate exposures in a mining cohort to investigate silica related lung disease among Ontario miners. Further, our JEM estimates will be compared with US Mining Safety Health Administration (MSHA) data to investigate the potential development of a larger JEM that may have a wider generalizability to other geographical areas and made available to researchers on request.

Conclusions SARS-CoV2 transmission at the workplace was common during the Covid-pandemic in spite of temporary lock-downs which emphasizes the need for improved safety measures during future epidemics.

Exposure assessment

Introduction Investigating exposure-disease relationships (e.g., silica exposure/lung disease) requires effective exposure assessment tools. A job-exposure-matrix (JEM) is a useful method that can be used to reconstruct historical exposure estimates. This study aims to develop an industry-specific silica JEM for mining as an exposure assessment tool for epidemiological research.

Material and Methods Respirable crystalline silica (RCS) measurements were obtained from the Ontario Mining Exposure Database (OMED). OMED measurements were extracted from historical exposure exposure documents/reports/surveys from mining companies, research organizations, health and safety associations, and the Ontario Ministry of Labor between 1960 and 1995. For flexibility, multiple exposure metrics describing the exposure distribution for each JEM cell and JEM axes are available depending on need. Possible JEM axes include period, commodity/mining type, underground/surface work, geographical area, sample type (area/personal), and job.

Results and Conclusions Based on preliminary analysis, a total of 11,017 individual RCS measurements ranging from <0.01 to 10.99 mg/m3 (GM=0.06, GSD=3.77 mg/m3) were obtained from 148 Ontario mine sites. Exposures differed by commodity (n=20); clay mining had the highest versus salt mining with the lowest exposures (GM=0.23 vs. 0.007 mg/m3 respectively). Surface exposure were 1.4 times higher than underground exposures. Exposures significantly decreased (p < 0.05) over time, GM1970–1980=0.06 vs. GM1990–2000=0.04 mg/m3. Next steps are to complete standardization of job coding and incorporation of aggregate samples using Monte Carlo Simulation. The JEM will be applied to estimate exposures in a mining cohort to investigate silica related lung disease among Ontario miners. Further, our JEM estimates will be compared with US Mining Safety Health Administration (MSHA) data to investigate the potential development of a larger JEM that may have a wider generalizability to other geographical areas and made available to researcher on request.

Abstracts

COVID 19

O-172 WORK-RELATED SARS-COV2 AND COVID19

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Conclusions SARS-CoV2 transmission at the workplace was common during the Covid-pandemic in spite of temporary lock-downs which emphasizes the need for improved safety measures during future epidemics.

Exposure assessment

O-176 DEVELOPMENT OF A SILICA JOB-EXPOSURE-MATRIX FOR MINING USING HISTORICAL EXPOSURE MEASUREMENTS IN ONTARIO, CANADA

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Introduction Investigating exposure-disease relationships (e.g., silica exposure/lung disease) requires effective exposure assessment tools. A job-exposure-matrix (JEM) is a useful method that can be used to reconstruct historical exposure estimates. This study aims to develop an industry-specific silica JEM for mining as an exposure assessment tool for epidemiological research.

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Results and Conclusions Based on preliminary analysis, a total of 11,017 individual RCS measurements ranging from <0.01 to 10.99 mg/m3 (GM=0.06, GSD=3.77 mg/m3) were obtained from 148 Ontario mine sites. Exposures differed by commodity (n=20); clay mining had the highest versus salt mining with the lowest exposures (GM=0.23 vs. 0.007 mg/m3 respectively). Surface exposure were 1.4 times higher than underground exposures. Exposures significantly decreased (p < 0.05) over time, GM1970–1980=0.06 vs. GM1990–2000=0.04 mg/m3. Next steps are to complete standardization of job coding and incorporation of aggregate samples using Monte Carlo Simulation. The JEM will be applied to estimate exposures in a mining cohort to investigate silica related lung disease among Ontario miners. Further, our JEM estimates will be compared with US Mining Safety Health Administration (MSHA) data to investigate the potential development of a larger JEM that may have a wider generalizability to other geographical areas and made available to researcher on request.