understanding seroprevalence within an occupational cohort by detecting past immune response.

**Objectives** We conducted serological SARS-CoV-2 antibody testing from October-November 2020 to estimate the SARS-CoV-2 seroprevalence among firefighters/paramedics in Orange County.

**Methods** OC firefighters employed at the time of the surveillance activity were invited to participate in a voluntary survey that collected demographic, occupational, and previous COVID-19 testing data, and a SARS-CoV-2 immunoglobulin (IgG) antibody blood test. We collected venous blood samples using mobile phlebotomy teams that traveled to individual fire stations, in coordination with an annual tuberculosis testing campaign for firefighters employed by OC Fire Authority (OCFA), and independently for firefighters employed by cities. We estimated seroprevalence and assessed several potential predictors of seropositivity.

**Results** The seroprevalence was 5.3% among 923 OCFA personnel tested, with 92.2% participating. Among firefighters self-reporting a previous positive COVID-19 test result, twenty-one (37%) were no longer positive. There were no statistically significant differences in demographic characteristics between cases and non-cases. Work city was a significant predictor of case status (p=0.015). Seroprevalence (4.8%) was similar when aggregated across seven city fire departments (42–65% participation). In total, 1,486 OC fire personnel were tested.

**Conclusion** Using a strong serosurvey design and large firefighter cohort, we observed a SARS-CoV-2 IgG seroprevalence of 5.3%. The seroprevalence among OC firefighters in October 2020 was lower than the general county population estimated seroprevalence (11.5%) in August. The difference may be due in part to safety measures taken by OC fire departments at the start of the pandemic, as well as differences in antibody test methods and/or duration of antibody response.

**Disease Surveillance**

**O-24** LUNG AND BLADDER CANCER SURVEILLANCE AMONG CONSTRUCTION WORKERS IN DIESEL ENGINE EXHAUST EXPOSED OCCUPATIONS IN ONTARIO, CANADA

1Stephanie Ziembicki, Victoria H Arrandale, Nathan DeBono, Mamadou Dakouo, Tracy Kirkham, Paul Demers. Ontario Health, Canada

**Introduction** Diesel engine exhaust (DEE) is a lung and bladder carcinogen and one of the most common carcinogenic exposures in Canada with over 900,000 Canadians exposed at work, according to CAREX Canada. Construction workers are an understudied group despite suspected high DEE exposure; most research on DEE has been conducted in transportation and mining industries.

**Objectives** This study estimates incidence rates for lung and bladder cancer in construction occupations with probable DEE exposure using the Occupational Disease Surveillance System (ODSS).

**Methods** The ODSS includes ~2.2 million Ontario workers identified through workers’ compensation claims (1983–2014). Workers were followed for cancer diagnoses through linkage with the Ontario Cancer Registry (1964–2016). DEE-exposed construction occupations were identified using Canadian Classification Dictionary of Occupation code descriptions. Cox-proportional hazards models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI), adjusted for age, birth year, and sex.

**Results** We identified 3980 lung and 1566 bladder cases among construction trades occupations. Compared to all other ODSS workers, construction trades occupations had small elevations in lung (HR=1.08, 95% CI 1.05–1.12) and bladder cancer rates (HR=1.08, 1.03–1.14). For workers in excavating, grading, paving, and related occupations, a group expected to have high DEE exposure, positive lung cancer
rates were observed overall (HR=1.37, 1.25–1.49), among foremen/forewomen (HR=1.35, 1.04–1.77), excavating and grading occupations (HR=1.37, 1.18–1.58), labourers (HR=1.55, 1.29–1.86), and non-specified excavating/grading/paving occupations (HR=1.35, 1.15–1.59). Non-significant positive rates of bladder cancer were also observed overall (HR=1.08, 0.93–1.26), among excavating and grading workers (HR=1.13, 0.88–1.45), and non-specified excavating/grading/paving occupations (HR=1.29, 1.00–1.68).

Conclusion These results identify construction groups with high cancer risk, including excavating and grading occupations, potentially due to DEE exposure, though co-exposure to other carcinogens (e.g. silica) is possible. Targeted prevention resources could reduce exposure and subsequently occupational cancer risk, but would benefit from more detailed DEE exposure information.

**O-032** THE VALUE OF PLAIN CHEST RADIOGRAPH AS A DIAGNOSTIC TOOL FOR TB RELATIVE TO GENEXPERT AMONG EX-GOLD MINERS IN LESOTHO

1Botembetume Maboso, Rodney Ehlich. 1University of Cape Town, South Africa

10.1136/OEM-2021-EPI.39

Background The World Health Organisation and many national guidelines for TB management recommend treatment initiation in the presence of symptoms such as cough, weight loss, night sweats and or fever, and radiological changes suggestive of TB with or without bacteriological confirmation. However, none of the studies that investigated the value of plain chest radiograph (CXR) has been done in the Southern African ex-gold miner population. Given the characteristics of this population - a high prevalence of silicosis, past TB and recurrent TB and post-TB lung destruction -application of the above recommendation may lead to unnecessary TB treatment.

Objectives To assess the performance of the screening CXR in the diagnosis of active TB disease among former gold miners from the South African mines using GeneXpert as the reference standard.

Methods We analysed the medical history information, CXR, and GeneXpert test results in a group of ex-miners examined by characteristic variables, age (<50 or ≥50 years) and BMI (<30 or ≥30 kg/m²).

Results Employing the MAP index1 for OSA, the sensitivity obtained was 63.3% and specificity was 41.2%. The PPV was 58.3% and the NPV was 46.7%. The AUC was 0.524 (95% CI 0.339–0.709). The accuracy was higher in younger versus older drivers (AUC 0.701 versus 0.620). Sensitivity for Map index2 was 59.1% and specificity was 52.9%. The PPV was 61.9% and the NPV was 50.0%. The AUC was 0.560 (95% CI 0.376–0.744).

Conclusions The MAP 2 was had lower sensitivity but higher specificity. It cannot be considered as a better tool to predict obstructive sleep apnoea.

**O-254** TEMPORAL TREND AND SPATIAL PATTERN OF MORTALITY FOR MALIGNANT PLEURAL MESOTHELIOMA IN TAIWAN DURING 1975–2019

1Jing-Yi Wu, Tsung-Hsueh Lu, Lukas Jyuhn-Hsiarn Lee. 1National Cheng Kung University, Taiwan

10.1136/OEM-2021-EPI.41

Introduction Malignant pleural mesothelioma (MPM) is a rare but aggressive malignancy associated with asbestos exposure for more than 80% of cases. The average latency of MPM is twenty to forty years. The history of asbestos use in Taiwan showed the massive importation during 1960–1980, but was under control by legislation since 1989, and was totally banned by legislation since 2018.