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 (Ig)G 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.

0-481

COVID-19 INFECTION AMONG HEALTHCARE WORKERS AT MALAYSIA HOSPITALS

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Introduction Healthcare workers are at a substantially increased risk of being infected by COVID-19 patients. However, risk of being infected is depending on the critical phase of the pandemic, patients with COVID-19 might not be the absolute source of infection. Health workers could also be exposed to infected colleagues, infected family members, lives in communities of active transmission, or infected contacts during crowded events such as wedding reception and religious gathering.

Objectives To explore the epidemiology data of COVID-19 infection among health care workers at Malaysia Hospitals especially on patterns of transmission and characteristics.

Methods A cross-sectional surveillance study among infected COVID-19 healthcare workers working at Malaysia government hospitals.

Results 1608 healthcare staffs at hospitals have been notified with COVID-19 infection in year 2020. By proportion,

nursing occupation contribute up to 40.5%, followed by medical doctor (20.8%), healthcare assistant (9.7%), medical doctor assistant (9.1%), medical specialist (3.2%) and hospital administrative assistant (2.8%). Most of cases were reported from Sabah (39.8%), Selangor (27.5%), Wilayah Persekutuan Kuala Lumpur & Putrajaya (6.7%), Sarawak (6.0%), Perak (5.6%) and Johor (4.7%). By gender, seven out of ten infected healthcare staffs were female and majority of them have no comorbidity (87%). In addition, rate of COVID-19 infection among healthcare workers was proportionately increased with rate of COVID-19 infection among community. Investigation by health authorities found 43.2% of COVID-19 infection cause by community, 36.3% occurred between staff to staff and 17% occurred between patients to staff.

Conclusion Preponderance of infection has occurred within hospital environment. Occupational Safety and Health Unit should set up a good engagement with healthcare staff and effective strategies to protect and support the health, safety and wellbeing of staff through deep-rooted assessment of standard practice procedure especially in nursing and care activities. Digital contact tracing could improve contact tracing within hospital setting.

Disease Surveillance

0-24

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

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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