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Session: P-16. COVID-19 Epidemiology and Screening

Background. Prior to SARS-CoV-2 vaccination availability, medical centers workers were at significant COVID-19 (COVID) infection risk. As part of a program offering free SARS-CoV-2 serology tests to medical center employees, we examined risk factors for prior COVID infection.

Methods. From Sept. to Dec. 2020, we advertised free IgG antibody testing to all Los Angeles County-Univ. of Southern California Medical Center (LAC+USC) workforce members (clinical and non-clinical) via repeated email blasts. Antibody was determined using the Abbott SARS-Cov-2 IgG test against SARS-CoV-2 nucleocapsid protein. Program participants were asked to fill out a detailed epidemiologic questionnaire about work and non-work COVID risks on their cell phone or on paper at the time of phlebotomy. All testing was done prior to COVID vaccine availability.

Results. Among approximately 10,500 workforce members, 1327 had serologies done. Among those 1273 (96%) completed the questionnaire and were included in the analysis. SARS-CoV-2 IgG antibodies were found in 60 (4.7%). In bivariate analysis, we found associations between SARS-CoV-2 seropositivity and persons who previously tested positive for COVID (OR 175.8 [95% CI 77.6 – 398.6]), persons who thought they had prior COVID but tested negative (OR 3.9 [95% CI 1.3 – 11.4]), and persons who thought they had prior COVID but did not get a COVID test (OR 4.2 [95% CI 1.4 – 12.5]). In a multivariate model of SARS-CoV-2 seropositivity examining work- and non-work-related COVID exposures (Table), seropositivity was associated with work-related COVID exposure without adequate personal protective equipment (PPE) (OR 5.1 [95% CI 2.1 – 12.2]), work-related COVID exposure with adequate PPE (OR 3.5 [95% CI 1.5 – 8.0]), never wearing a mask outside of work (OR 7.1 [95% CI 1.3 – 38.4]), and Native Hawaiian/Pacific Islander race (OR 6.6 [95% CI 1.7 – 23.4]). Seropositivity was inversely associated with living at home with multiple age groups (OR 0.4 [95% CI 0.2 – 0.8]). Multivariate Model of Exposures Associated with Positive COVID Serology Among LAC+USC Workforce Members

	Multivariate OR	95% CI	*P*
COVID exposure at work			
No Covid Exposure	REF	—	—
Covid Exposure w/out PPE	5.053	2.101 to 12.157	0.0003
Covid Exposure w/PPE	3.487	1.514 to 8.030	0.003
Frequency of Physical Contact with Patients			
Never	REF	—	—
Rarely/Occasionally	1.194	0.344 to 4.144	0.78
Frequently/Very frequently	1.223	0.313 to 4.783	0.77
Frequency of Physical Contact with COVID Patients			
Never	REF	—	—
Rarely/Occasionally	1.040	0.407 to 2.658	0.93
Frequently/Very frequently	1.378	0.384 to 4.948	0.62
Frequency of working in an Area in Proximity of Patients			
Never	REF	—	—
Rarely/Occasionally	1.817	0.352 to 9.368	0.48
Frequently/Very frequently	1.743	0.311 to 9.778	0.53
Age group in home			
Live Alone	REF	—	—
Live with child Age 0-5	1.200	0.313 to 4.596	0.79
Live with child Age 6-12	0.406	0.023 to 7.301	0.54
Live with child Age 13-17	0.449	0.021 to 9.544	0.61
Live with Adult	0.967	0.455 to 2.057	0.93
Live with Multi-age group in house	0.357	0.152 to 0.839	0.02
Age	0.986	0.971 to 1.001	0.06
Frequency of working in an Area in Proximity of COVID Patients			
Never	REF	—	—
Rarely/Occasionally	0.974	0.369 to 2.572	0.96
Frequently/Always	1.023	0.316 to 3.311	0.97
Frequency of Mask Use in Proximity of Coworkers			
Never	REF	—	—
Rarely/Occasionally	0.075	0.003 to 2.000	0.12
Frequently/Always	0.445	0.042 to 4.668	0.50
Frequency of Public Mask Use Outside of Work			
Never	7.128	1.325 to 38.354	0.02
Rarely/Occasionally	2.107	0.762 to 5.827	0.15
Frequently/Always	REF	—	—
Race/Ethnicity			
Asian or Asian American	REF	—	—
Black or African American	1.755	0.529 to 5.822	0.36
White or Caucasian	1.060	0.463 to 2.429	0.89
Hispanic or Latino	1.842	0.934 to 3.631	0.08
Native Hawaiian or other Pacific Islander	6.559	1.695 to 25.375	0.006
Other, Decline to state, American Indian or Alaska Native, Mixed Race	0.673	0.126 to 3.582	0.64

Conclusion. Among workers in a large urban medical center prior to COVID vaccine availability, SARS-CoV-2 seropositivity was associated with work-related COVID exposures and low mask use outside of work, suggesting that COVID transmission in workforce members occurs both via occupational and non-occupational routes.

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388. Epidemiologic and Microbiologic Characteristics of Hospital-acquired Infections in Patients with COVID-19 at Intensive Care Unit, Mexico City

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Background. Patients with severe SARS-CoV-2 infection are at high risk of complications due to the intensive care unit stay. Hospital-acquired infections (HAI) are one of the most common complication and cause of death in this group of patients, it is important to know the epidemiology and microbiology of this hospital-acquired infections in order to begin to the patients a proper empirical treatment. We describe the epidemiologic and microbiologic characteristics of HAI in patients with COVID-19 hospitalized at intensive care unit (ICU) in a tertiary level private hospital in Mexico City.

Methods. From April to December 2020, data from all HAIs in patients with severe pneumonia due to SARS-CoV-2 infection with mechanical ventilation at ICU were obtained. The type of infection, microorganisms and antimicrobial susceptibility patterns were determined.

Results. A total of 61 episodes of HAIs were obtained, the most common was ventilator associated pneumonia (VAP) in 52.4% (n=32) followed by urinary tract infection (UTI) 34.4%(n=21) and bloodstream infection (BSI) 9.84% (n=6). Only two episodes corresponded to *C. difficile* associated diarrhea. We identified 82 different microorganisms, the most frequent cause of VAP was *P. aeruginosa* 22% (10/45) followed by *K. pneumoniae* 20% (9/45); for UTI, *E. coli* 28.5% (6/21), and *S. marcescens* 19% (4/21); for BSI the most frequent microorganism was *S. aureus* 28.5 (2/7). Regarding the antimicrobial susceptibility patters the most common were Extended Spectrum Beta-Lactamase (ESBL) Gram-negative rods followed by Methicillin-resistant *Staphylococcus aureus*.

Conclusion. In patients with severe COVID-19 hospitalized in the ICU the most frequent HAIs were VAP and UTI caused by P. aeruginosa and E. coli respectively. ESBL enterobacteriaceae was the most common resistant pattern identifed in the bacterial isolations in our series.

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389. Demographic and Clinical Characteristics of Suspect SARS-CoV-2 Reinfection Cases in Los Angeles County from March 10 to June 1, 2021: A Cross-sectional Study of Case Interview Data

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Session: P-16. COVID-19 Epidemiology and Screening

Background. Probable and suspect SARS-CoV-2 reinfection has been reported globally, with implications for risk assessment and pandemic control. Genomic sequencing and supporting data are frequently unavailable to confirm SARS-CoV-2 reinfection.

Methods. In March 2021, Los Angeles County Department of Public Health began interviewing suspect reinfection cases, defined as individuals with SARS-CoV-2 RNA detected ≥ 90 days after the first detection of SARS-CoV-2 RNA via molecular testing. We conducted a cross-sectional study of case interview data from March 10 to June 1, 2021 to estimate the prevalence of suspect reinfection cases; describe the interval between repeat positives ≥ 90 days; and, estimate bivariate prevalence odds ratios (OR) with 95% confidence intervals (95% CI) for suspect reinfections and age, sex, race/ethnicity, reason for testing, symptomology, and comorbidities.

Results. From March 10 to June 1, 2021, we attempted 29,983 case interviews, including 1,901 (6.3%) suspect reinfection cases and 28,082 (93.7%) initial cases. Among suspect reinfection cases, the median interval between repeat positive tests was 117 days (interquartile range: 102, 141). Suspect reinfection cases had decreased odds of completing case interviews (n=738; 38.8%) compared to initial cases (n=13,263; 47.2%) (OR: 0.71; 95% CI: 0.65, 0.78). Among completed case interviews, suspect reinfection cases had increased odds of being older (50-64 years OR: 1.63 [95% CI: 1.32, 2.01]; ≥ 65 years OR: 3.77 [95% CI: 3.00, 4.74]; ref. 30-49 years); Hispanic/Latino (OR: 2.64 [95% CI: 2.10, 3.33]; ref. White); female (OR: 1.21 [95% CI: 1.04, 1.41]); reporting screening as their testing reason (OR: 10.39; [95% CI: 7.45, 14.48]; ref. known exposure); and reporting underlying health conditions (OR: 2.64; 95%CI: 2.24, 3.10). Suspect reinfection cases had decreased odds of being symptomatic (OR 0.15; 95% CI: 0.13, 0.18).

Conclusion. This analysis of case interview data indicates individuals who are older, Hispanic, female, and have underlying health conditions may be vulnerable populations for suspect reinfection. Limitations include unconfirmed reinfection and alternative explanations such as persistent positivity with decreased symptoms and infectivity over time.

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