



Factors Associated with SARS-CoV-2 Infection in Physician Trainees in New York City During the First COVID-19 Wave

PUBLISHED ABSTRACT

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ABSTRACT

Background: Occupational and non-occupational risk factors for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection have been reported in healthcare workers (HCWs), but studies evaluating risk factors for infection among physician trainees are lacking. We aimed to identify sociodemographic, occupational, and community risk factors among physician trainees during the first wave of coronavirus disease 2019 (COVID-19) in New York City.

Methods: In this retrospective study of 328 trainees at the Mount Sinai Health System (MSHS) in New York City, we administered a survey to assess risk factors for SARS-CoV-2 infection between February 1 and June 30, 2020. SARS-CoV-2 infection was determined by self-reported and laboratory-confirmed IgG antibody and reverse transcriptase-polymerase chain reaction test results. We used Bayesian generalized linear mixed effect regression to examine associations between hypothesized risk factors and infection odds.

Results: The cumulative incidence of infection was 20.1%. Assignment to medical-surgical units (OR, 2.51; 95% CI, 1.18–5.34), and training in emergency medicine, critical care, and anesthesiology (OR, 2.93; 95% CI, 1.24–6.92) were independently associated with infection (**Table**). Caring for unfamiliar patient populations was protective (OR, 0.16; 95% CI, 0.03–0.73); deployment of trainees to non-routine hospital sites during COVID-19 patient surges was not significantly associated with infection. Community factors were not significantly associated with infection after adjustment for occupational factors.

Conclusions: Our findings may inform tailored infection prevention strategies for physician trainees responding to the COVID-19 pandemic. Deployment of trainees in MSHS was a safe strategy to respond to surging patient volumes during the initial phases of the COVID-19 pandemic and may be safe during current international surges.

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Table Adjusted effect estimates for associations of sociodemographic, occupational and community factors with SARS-CoV-2 infection.

VARIABLE	MODEL 1: SOCIODEMOGRAPHIC FACTORS		MODEL 2: OCCUPATIONAL FACTORS		MODEL 3: COMMUNITY FACTORS		MODEL 4: FINAL ADJUSTED MODEL	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Race								
White (ref)	1.00	-					1.00	-
Asian	0.53	0.23, 1.24					0.53	0.24, 1.15
Black	1.34	0.45, 3.98					1.42	0.50, 4.01
Other	0.43	0.08, 2.47					0.64	0.14, 2.92
Hispanic/Latinx								
No (ref)	1.00	-					1.00	-
Yes	2.18	0.73, 6.47					1.98	0.72, 5.46
Change in usual patient population								
No (ref)			1.00	-			1.00	-
Yes			0.09	0.01, 0.67			0.16	0.03, 0.73
Medical/surgical unit								
No (ref)			1.00	-			1.00	-
Yes			2.96	1.27, 6.91			2.51	1.18, 5.34
Ambulatory clinic								
No (ref)			1.00	-			1.00	-
Yes			0.53	0.24, 1.17			0.61	0.29, 1.30
Contact >10 mins <i>without N95</i> with confirmed COVID-19 case								
Never (ref)			1.00	-			1.00	-
Once			1.47	0.62, 3.48			1.24	0.55, 2.75
Twice or more			1.72	0.75, 3.94			1.59	0.74, 3.43
Training specialty								
Hospital-based, primarily non-procedural (ref)			1.00	-			1.00	-
High-risk procedural			4.29	1.62, 11.33			2.93	1.24, 6.92
Surgical			1.98	0.81, 4.89			1.51	0.65, 3.50
Number of children in household								
0 (ref)					1.00	-	1.00	-
≥1					0.52	0.20, 1.38	0.59	0.23, 1.48
Contact >10 mins with individual confirmed or suspected COVID-19 outside of work								
No (ref)					1.00	-	1.00	-
Yes					2.38	1.14, 4.98	1.58	0.78, 3.17
Primary mode of transportation to location other than work: <i>public transit (subway or bus)</i>								
No (ref)					1.00	-	1.00	-
Yes					2.25	1.01, 5.01	1.85	0.85, 3.99
Primary mode of transportation to location other than work: <i>private vehicle, bicycle, walking</i>								
No (ref)					1.00	-	1.00	-
Yes					0.44	0.14, 1.40	0.42	0.14, 1.27

(Contd.)

VARIABLE	MODEL 1: SOCIODEMOGRAPHIC FACTORS		MODEL 2: OCCUPATIONAL FACTORS		MODEL 3: COMMUNITY FACTORS		MODEL 4: FINAL ADJUSTED MODEL	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Primary residence (zip code)								
Manhattan (ref)					1.00	–	1.00	–
Queens					0.24	0.06, 0.94	0.34	0.10, 1.20
Brooklyn					0.21	0.03, 1.64	0.30	0.06, 1.62
Bronx					0.40	0.04, 3.98	0.48	0.08, 3.08
Outside of NYC					1.48	0.40, 5.49	1.51	0.44, 5.20

COMPETING INTERESTS

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