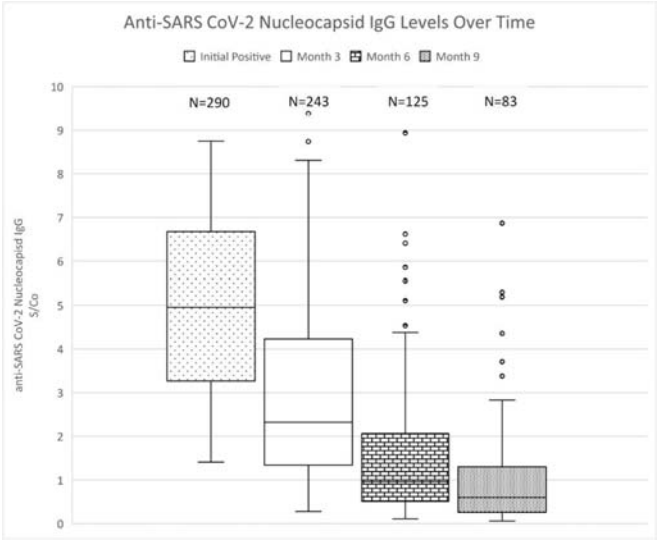
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

nucleocapsid (N) proteins of the SARS-CoV-2 virus are of particular interest as easily measurable potential indirect markers of both previous infection and resistance to reinfection. Previous studies in hospitalized patients have found that anti-N IgG levels decline over time. We undertook this study to characterize the kinetics of anti-N IgG in a longitudinal cohort of health care workers in an acute hospital setting.

Methods: All HCWs who were either employed or part of the medical staff at six acute-care hospitals in Phoenix, AZ in June 2019 were invited to participate in a long-term study of the impact of the COVID-19 pandemic on HCWs. A cohort of 1358 HCWs provided informed consent, filled out a questionnaire regarding their health care role and potential COVID-19 symptoms, and had blood drawn between June 15 th and August 15 th, 2020 (Draw 1). The questionnaire and blood draws were repeated in October 2020 (Draw 2), January 2021 (Draw 3), and April 2021. SARS-CoV-2 anti-N IgG was measured using the Abbott Architect platform, using a signal to cutoff ratio (S/Co) greater than 1.4 as a positive result. A participant's first positive result was treated as Time 0. Anti-N IgG S/Co values at each time point were summarized as mean, median, and inter-quartile range, and differences over time were tested using the Friedman's test.

Results: 290 participants (21.4%) had at least one positive IgG, with a median S/Co of 4.96, IQR 2.37-6.67. The Month 3 median S/Co was 2.32, IQR 1.34-4.22, Month 6 median was 0.96, IQR 0.51-2.05, and Month 9 median was 0.60, IQR 0.26-1.29 (See Figure). Freidman's test for differences was significant at $p<0.0001$ at all time points. No participant was hospitalized for their acute COVID-19 illness. 68/244 participants (27.4%) were seronegative at 3 months, 81/126 (64.3%) at six months, and 65/84 (77.4%) at nine months.

Conclusion: In a cohort of health care workers with mild to moderate COVID-19, anti-N IgG levels steadily decreased over 9 months from the initial positive IgG. The high rates of conversion to seronegative over a relatively short time frame illustrate why antibody-based testing must be interpreted cautiously when used as a definitive marker of prior COVID infection.



33 Withdrawn

34 Polk COVID-19 and Flu Response Clinical Trial

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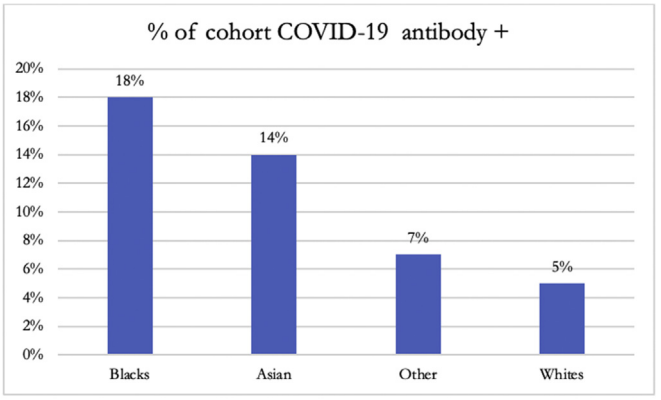
Study Objective: To report on the preliminary results of the Polk COVID-19 and Flu Response clinical trial (NCT04682132).

Methods: This clinical trial was conducted at Polk County Fire Rescue (PCFR), one of the largest EMS systems in the state of Florida. PCFR responds to over 115,000 calls per year and covers a geographic area of over 2000 square miles. The study assessed COVID-19 antibody status in PCFR medics and correlated antibody status to 1) symptomatology, 2) amount of patient contact and 3) individual co-morbidities. For symptoms survey, medics were given a QR code to a survey prior to antibody testing.

Results: The median age was 43 years (IQR 33-52). 41% were female. 83% were White, 9% were Black, 1% were Asian, and 6% were other. 12% were Hispanic. 33% had the following co-morbidities: 5% diabetes, 6% asthma or chronic obstructive pulmonary disease. 17% had hypertension. Forty five percent had received their influenza vaccine. The median BMI was 19.8 (IQR 25.9-34.8). 19% were symptomatic. The most common symptoms were cough, fatigue and headache. Almost 40% had direct patient contact. 15% had less than 5 hours per week; 27% had 5-20 hours per week, and 57% had more than 20 hours per week of direct patient contact. A total of 7% had a positive COVID-19 antibody test. The only univariate analysis that was statistically significant for antibody status was race. Blacks had 3.94 times the odds of having a positive COVID-19 antibody compared to Whites. (P=0.0012 Pearson correlation, 95% CI 0.0560 – 0.2248). Black race remained a statistically significant predictor in a multivariate model that included the age, sex, BMI, number of hours of direct patient contact, whether the medic was symptomatic, presence of co-morbidities and whether or not the medic had received a flu shot prior was symptomatic (P=0.0008, 95% CI 0.0621-0.2354).

Conclusion: In a cohort of paramedics actively managing patients, the COVID-19 positivity rate was significantly higher in Blacks compared to Whites. Symptomatology did not correlate with the presence of antibodies.



	COVID-19 AB +	N	%
Blacks	8	44	18%
Asian	1	7	14%
Other	2	28	7%
Whites	19	390	5%

35 Prevalence and Predictors of Post-Traumatic Stress Disorder Symptoms Among Emergency Physicians in the United States During the COVID-19 Pandemic

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Study Objectives: Our study aims to identify the prevalence of post-traumatic stress disorder (PTSD) symptoms among emergency physicians in the United States following the COVID-19 pandemic, and explore related factors and predictors of PTSD symptoms.

Methods: Study participants included board-certified & board-eligible emergency physicians' residents, and non-emergency physicians working in an EM setting, who were practicing in the US. Convenience sampling recruitment via multiple national EM listservs was used to complete an anonymous, online self-report survey from September 2020 to April 2021. Research data was stored on Qualtrics, a secure, password-protected multi-user database with access granted to the study team only. Surveys included demographics, a binary PTSD experience question and a PSS-I-5 scale pre-piloted for ease of use and comprehension. Based on Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5) criteria, we asked participants to dichotomously self-report trauma. We used the American Psychological Association-approved PTSD Symptom Scale (PSS-I-5), a validated, reliable tool, to assess the severity of the PTSD symptoms in frontline health care workers during the COVID-19 pandemic categorized into minimal 0-8, mild 9-18, moderate 19-30, severe 31-45, and very severe 46-80. Descriptive analyses were reported with percentages, means, and medians using RStudio. Figures were used to visualize variations in reported PSS-I-5 scores through the course of the pandemic.

Results: Our sample included 315 total complete surveys of the 362 initiated surveys. PSS-I-5 scores ranged from 0-67 (IQR 4-27, median=13, mean=17.2). The majority of participants are age 35-50 (45.7%), EM board-certified (69.5%), white (86.4%), practice at urban level 1 trauma centers (44.8%), and do not have previous PTSD (91.8%) or other mental health diagnoses (73.3%). More than half (55.9%) of the respondents self-identified as having experienced trauma based on the DSM-5 criteria. PSS-I-5 scores were higher from those completing the survey in March-April 2021 (median=13, mean=17.3) compared to those sent in September-October 2020 (median=11, mean=16.5). Most participants had PTSD symptoms (92.1%); 40.7% with minimal (129), 22.1% mild (70), followed by moderate (57, 18.0%), severe (39, 12.3%), and very severe (23, 7.3%). A higher proportion of those reporting severe and very severe PTSD symptoms are female and practice at level 3/4 trauma centers. Of non-emergency physicians who participated in the study, a majority reported severe symptoms (median=31, mean=25.4). Major perceived causes of stress included shift acuity, crowding, fear of self/family/friends getting sick, lack of personal protective equipment, and dissatisfaction with hospital administration.

Conclusion: The prevalence of PTSD symptoms among our sample following the COVID-19 pandemic is 92.1%, with higher PSS-I-5 scores generally reported later in the pandemic. Race, age, and practice setting all appear to be associated with more severe PTSD symptoms. More research is needed to describe and reduce the burden of PTSD among those on the COVID front lines in the ED.

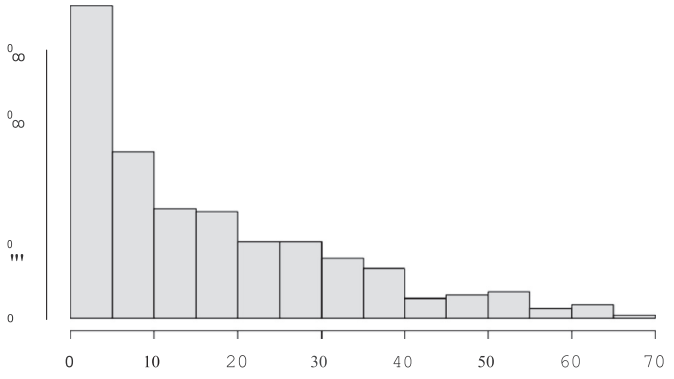

Figure 1. Frequency histogram of PSS scores

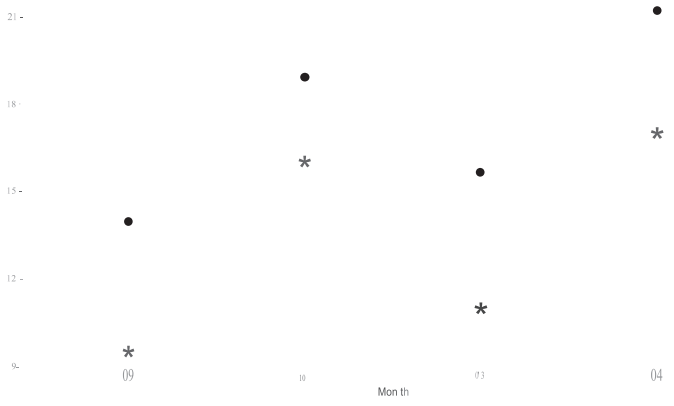

Figure 2. PSS mean (circle) and median (star) scores per month of survey end date