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SARS-COV-2 ANTIBODY PREVALENCE AMONG HEALTHCARE WORKERS AND FIRST RESPONDERS, FLORIDA, MAY-JUNE 2020

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Abstract

Background: The SARS-CoV-2 virus responsible for severe respiratory infection associated with coronavirus disease 2019 (COVID-19) was first confirmed in Florida on March 1, 2020. Responding to the pandemic, multi-agency collaborative partnerships put in place actions integrating point-of-care antibody testing at established large-scale COVID-19 testing sites where

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the baseline seropositivity of COVID-19 in health care workers and first responders in Florida at the start of the pandemic was established.

Purpose: Determine the seropositivity of healthcare workers and first responders at five drive thru testing sites using a rapid SARS-CoV-2 antibody test in Florida from May 6 through June 3, 2020.

Methods: The first drive-thru SARS-CoV-2 antibody test site was opened at Miami Hard Rock Stadium, May 6, 2020. Testing expanded to three additional sites on May 9, 2020: Jacksonville, Orlando, and Palm Beach. The fifth and final site, Miami Beach, began testing on May 21, 2020. Healthcare workers and first responder's self-seeking SARS-CoV-2 testing were designated for antibody testing and completed a laboratory collection form onsite for the point-of-care test. All testing was performed on whole blood specimens (obtained by venipuncture) using the Cellex Inc. qSARS-CoV-2 IgG/IgM Rapid Test. Seropositivity was assessed by univariate analysis and by logistic regression including the covariates age, sex, race/ethnicity, and testing location.

Results and Discussion: As of June 3, 2020, of 5,779 healthcare workers and first responders tested, 4.1% were seropositive (range 2.6–8.2%). SARS-COV-2 antibody tests had higher odds of being positive for persons testing at the Miami Hard Rock Stadium (aOR 2.24 [95% C.I. 1.48–3.39]), persons of Haitian/Creole ethnicity (aOR 3.28 [95% C.I. 1.23–8.72]), Hispanic/Latino(a) ethnicity (aOR 2.17 [95% C.I. 1.50–3.13], and Black non-Hispanic persons (aOR 1.63 [95% C.I. 1.08–2.46]). SARS-COV-2 antibody prevalence among first responders and healthcare workers in five sites in Florida varied by race and ethnicity and by testing location.

Introduction |

The SARS-CoV-2 virus responsible for severe respiratory infection associated with coronavirus infectious disease 2019 (COVID-19) was first identified and confirmed in Florida on March 1, 2020. Between March 1, 2020 and June 4, 2020, 60,183 persons in Florida were diagnosed with COVID-19 and 2,607 had COVID-19-associated mortality.[1] Large-scale testing is one of the major pillars in Florida's response efforts to detect and contain the transmission of COVID-19. As of June 4, 2020, over 1,107,000 persons in Florida had been tested at public health, commercial and hospital laboratories; results indicated a state positivity rate of 5.3 percent by RT-PCR and 3.6% positivity for initially tested persons with SARS-CoV-2, as some persons were retested to determine if virus was still present.

Following the first persons diagnosed with SARS-CoV-2 in Florida, State Surgeon General Scott Rivkees declared a Public Health Emergency on March 1st. This was closely followed by a State of Emergency declared by Governor Ron DeSantis who issued statewide stay at home orders with guidance to practice social distancing and other prevention measures in accordance with national guidelines.[2–4] As of June 4, 2020, all 67 of Florida's counties had confirmed cases, with Miami-Dade County having the highest test positivity rate (10%) and 32 percent of total cases statewide.[1] Other top metropolitan counties with substantial disease burden included Broward (6% positivity, 12% of total cases), Palm Beach (8% positivity, 11% of total cases), Hillsborough (4% positivity, 4% of total cases), Orange (3% positivity, 4% of total cases), and Duval counties (3% positivity, 3% of total cases).

As the incidence of COVID-19 increased across Florida, demand for SARS-CoV-2 virus testing also grew exponentially, leading to the establishment of state-wide drive-thru testing operations via partnerships between the Department of Health, Division of Emergency Management, and the National Guard. These testing strategies improved and provided direct and easy access to diagnostic testing to reach the broader population. Drive-through testing formats had previously been touted as a safe and effective method for large volume testing initiatives that directly detect the pathogen during pandemic situations and have the benefit of reducing the number of infectious persons entering and contaminating healthcare establishments as well as promoting social distancing.[5,6]

Approximately two months after the initial cases were identified in Florida, point-of-care (POC) SARS-CoV-2 antibody testing was offered to healthcare workers and first responders at five drive-through COVID-19 testing locations to assess the seroprevalence of antibodies against the SARS-CoV-2 circulating in the Florida population. Antibody testing has been used in many diseases previously to track and understand seroprevalence of disease including Zika virus and dengue.[7–9] For COVID-19, antibody testing can also be used to identify asymptomatic individuals or individuals who may have developed mild illness that didn't lead to testing, and identify potential donors of convalescent plasma that could be used to treat critically ill patients, as the plasma contains antibodies to COVID-19.[10–12] Several SARS-CoV-2 antibody seroprevalence studies were conducted previously in the United States, and only one so far has focused on healthcare workers.[13–18] These previous studies indicated that rates of infection were higher than rates of reported persons with SARS-CoV-2, likely due to mild disease and asymptomatic infections that were undetected, including one study identifying an antibody seropositivity of nearly 2% in South Florida in April 2020.[14–16]

The purpose of this study was to determine the seroprevalence of COVID-19 in healthcare workers and first responders at five drive-thru testing sites in Florida from May 6 through June 3, 2020, using a POC SARS-CoV-2 antibody test. This report describes the multi-agency collaborative partnerships and actions taken to integrate POC antibody testing at established large-scale COVID-19 testing sites. Further, this study provided an opportunity to establish a baseline seroprevalence amongst high-risk, front-line workers during the COVID-19 emergency response in Florida and describes racial/ethnic disparities within and amongst those tested across the five locations in the state.

Methods |

On May 6, 2020, the Florida Department of Health in conjunction with community partners, the Florida National Guard, nurses, paramedics, and emergency medical technicians, set-up POC antibody testing at Miami Hard Rock Stadium as part of an ongoing SARS-CoV-2 drive-thru testing mission, that previously focused on virologic testing only. Antibody testing was expanded to three additional drive-thru sites (Jacksonville, Orlando, and Palm Beach) on May 9, 2020 and one final site, Miami Beach Convention Center, on May 21, 2020. At each of these five sites, persons arriving at these testing locations were pre-screened and occupation-verified to determine if they were healthcare workers or first responders. Triaged healthcare workers and first responders were given the option to be

tested for SARS-CoV-2 antibody, along with SARS-CoV-2 viral testing via real time, reverse-transcription-polymerase chain reaction (rRT-PCR). All participants tested provided verbal consent. From May 6, 2020 through June 3, 2020 these testing sites provided SARS-CoV-2 antibody testing solely to healthcare workers and first responders. On June 4, 2020, these testing locations expanded antibody testing to all persons.

All healthcare workers and first responders tested for SARS-CoV-2 antibodies completed a laboratory specimen collection form for the POC serologic test prior to testing. Data captured on the form included demographic information such as sex at birth, race, ethnicity, date of birth, and test result. Healthcare workers and first responders had whole blood specimens drawn via venipuncture while they remained in their vehicles. Specimens were processed according to manufacturer's specifications using the Cellex Inc. qSARS-CoV-2 IgG/IgM Rapid Test.[19] The tests uses SARS-CoV-2 recombinant antigens (S and N proteins). The Cellex Inc. qSARS-CoV-2 IgG/IgM Rapid Test reports a percent positive agreement to RT-PCR SARS-CoV-2 samples of 93.8% (95% C.I. 88.2–96.8%) and negative percent agreement of 96.0% (95% C.I. 92.8–97.8%). Specimen processing was done onsite and results were returned to participants in less than one half hour. Test results were subsequently entered into the Florida Department of Health's Counseling Testing and Linkage System (CTLS).

SARS-CoV-2 antibody testing data from these five drive-thru sites from May 6, 2020 through June 3, 2020 were extracted on June 7, 2020 from CTLS. Test results were recorded as IgM+, IgM+ and IgG+, IgG+, positive, negative, or three different results that were combined as "unknown" in CTLS (invalid, indeterminate, missing/result in progress). When analyzing by individual rather than by site we combined all possible positive (IgM+, IgM+ and IgG+, IgG+, and positive) results into one positive category. Age groups started with 17–29, followed by 10-year age groups up to 69 years of age, and one collapsed age group of 70–89 years because there were no positive antibody tests in the 80–89 (n=8) age group. Race and ethnicity were combined. Ethnicity took prioritization as persons with Haitian/Creole or Hispanic/Latino(a) ethnicity were categorized as such regardless of selection on the race variable (i.e. White non-Hispanic was categorized as Hispanic/Latino(a)). Persons selecting White for "race" and "non-Hispanic" or "missing" for ethnicity were classified as White non-Hispanic. Likewise, persons selecting Black for "race" and "non-Hispanic" or "missing" for ethnicity were classified as Black non-Hispanic. Persons selecting any other race/ethnicity beyond these categories listed were classified as "Other", while those selecting none were listed as missing/unknown.

SARS-CoV-2 antibody test results were stratified by test site and specimen collection date. Antibody seropositivity was determined by taking the sum of all positive test results (IgM+, IgM+ and IgG+, IgG+, and positive) and dividing by total number of test results. We determined seropositivity for healthcare workers and first responders. Odds ratios for the seropositivity for healthcare workers and first responders were estimated for sex, race/ethnicity, age group, and testing location. These odds ratios were adjusted for testing location (table 2) as well as other demographics (supplemental table 1) using logistic regression with Wald's 95% confidence intervals. All analyses were performed using SAS Studio v. 3.6 (Cary, N.C.). The project was reviewed by the Florida Department of Health

Institutional Review Board Office and was conducted consistent with applicable federal law and institutional policies.[20]

Results |

Testing began at Miami Hard Rock Stadium on May 6, 2020 with 47 tests including 5 that were reactive (1 IgM+ and 4 IgG+) (Figure 1). Testing seropositivity peaked the next day on May 7, 2020 at 11.1% (8 of 72). When testing capacity expanded to three additional sites on May 9, 2020: Jacksonville, Orlando, and Palm Beach, testing peaked on May 12, 2020 with 358 healthcare workers and first responders tested. The fifth and final site, the Miami Beach Convention Center, began testing healthcare workers and first responders on May 21, 2020. On June 4, 2020, these sites stopped limiting testing to healthcare workers and first responders and were opened to others.

In total, 5,779 SARS-CoV-2 POC antibody tests were performed among healthcare workers and first responders in Florida at five drive-thru testing sites from May 6, 2020 through June 3, 2020. Of the 5,686 (98.4%) who had a reported result, 5,452 (95.9%) were negative and 234 (4.1%) were positive for SARS-CoV-2 antibodies. The highest SARS-CoV-2 antibody positivity rate, 8.2%, was at the Miami Hard Rock Stadium. The remaining test sites had a seropositivity for SARS-CoV-2 ranging between 2.6% and 3.5%. Although more women than men were tested for SARS-CoV-2 antibodies, seropositivity (4.1% vs. 4.0%) did not differ by sex (Table 2). Test positivity ranged from 3.3% to 4.8% for persons aged 17–69 years but for those aged 70–89 years it was 7.6% (9 of 118) (95% C.I. 3.9–14.0%). Seropositivity was higher for persons with Haitian/Creole ethnicity (9.3% 95% C.I. 3.6–20.3%), Hispanic/Latino ethnicity (6.6% 95% C.I. 5.4–8.1%), and Black non-Hispanic persons (4.4% 95% C.I. 3.2–5.9%) than for white non-Hispanic persons (2.3% 95% C.I. 1.8–3.0%).

Even after accounting for the testing location, healthcare workers and first responders of Haitian/Creole ethnicity (aOR 3.28 95% C.I. 1.23–8.72), Hispanic/Latino(a) ethnicity (aOR 2.17 95% C.I. 1.50–3.13), and Black non-Hispanic persons (aOR 1.63 95% C.I. 1.08–2.46) had higher odds of testing positive for SARS-CoV-2 antibodies compared to white non-Hispanic persons (Table 2). Persons testing at the Miami Hard Rock Stadium had 2.2 (95% C.I. 1.48–3.39) times higher odds of testing positive for SARS-CoV-2 antibodies than persons at other sites, after adjusting for age, race/ethnicity, and sex (supplemental table 1).

Discussion |

Seropositivity among healthcare workers and first responders was generally low in Florida in May 2020, averaging 4%; but at one site, the Miami Hard Rock Stadium, positivity was nearly 8%. This suggests disease transmission was widespread in Florida at that time but focally clustered in some geographic areas. However, this local variation in seropositivity did not differ greatly from the reported epidemiological burden of COVID-19 in Florida through June 3, 2020 although somewhat surprisingly, because the RT-PCR positivity was higher in the Counties at the same time, the Miami Beach and Palm Beach locations had seropositivity no different from those of Orlando and Jacksonville.[1] When compared to a

previous antibody study among South Floridians in April, the antibody test positivity from this study in May and June among healthcare workers in South Florida, particularly at the Hard Rock testing site, was higher than in previous study.[16] Moreover, the seropositivity observed among healthcare workers and first responders in this study was similar to that of healthcare workers at locations across the country tested in a similar timeframe.[18] After accounting for testing location, race/ethnicity disparities in seropositivity for SARS-CoV2 antibodies were observed among healthcare workers and first responders in this study similar to the disparities observed among healthcare workers and nationally.[5,17]

One of the strengths of this evaluation was its scope and breadth in comparison to other antibody studies in the United States and around the world as it included more geographically diverse testing sites and more persons tested.[13–18] Although healthcare workers and first responders are at potentially increased risk for SARS-CoV-2 infection, in Florida, their seropositivity for SARS-CoV-2 antibodies did not reach the levels observed in a small study in Boston (31.5%) or a study involving the crew of one aircraft carrier (59.7%).[15,17] The seropositivity rates in this study were closer to those observed in the general population in two California seroprevalence studies from April, with the exception of the Miami Hard Rock Stadium site which was nearly double at 8.2% of 1,395 tests.[13–14]

One of the main limitations of this study was the reported performance characteristics of the rapid POC antibody test to determine the presence of SARS-CoV-2 antibodies. The Cellex Inc. qSARS-CoV-2 IgG/IgM rapid test used was approved under the United States Food and Drug Administration's (FDA) Emergency Use Authorization (EUA); the test's performance specifications had a reported positive agreement with clinical specimens of 93.8% and negative agreement of 96.0%.[19] The negative agreement is of concern for areas with a low prevalence because false positive results could account for a large proportion of the positive test results. However, for higher prevalence sites the even lower positive agreement may mean that more true positives were missed (underestimating the burden of disease), especially if the real-world use of these tests had lower sensitivity than during validation.[21] Additional guidance after the initiation of this project was developed and advised using an orthogonal testing algorithm for persons testing positive by antibody tests, which could lead to improved positive predictive value of this test.[22] It should be noted, few antibody tests are POC, available at-scale, and have an FDA EUA, making them not feasible for this testing mission, nor possible for an orthogonal antibody testing algorithm.

One remaining limitation of this study is its lack of generalizability as it focused entirely on healthcare workers and first responders in Florida, which limits the ability to extrapolate our data, as the risk of infection in this cohort is not likely the same as in the general population .[13–14] However, with the expansion of these same testing sites to the general public on June 4, 2020, future analyses may allow for generalizability and comparison between the general public and this occupational group.

As part of this evaluation, we were able to show that POC SARS-CoV-2 antibody testing was feasible at-scale, sustainable, and replicable. It is worth noting that the resources needed, including labor (most sites needed multiple personnel for phlebotomy, data entry, testing, etc.) and materials (test kits, personal protective equipment, venipuncture supplies,

and more) each and every day, are not trivial. One big benefit of these tests is that they can be performed outside of clinical laboratories. If the test could be shown to achieve similar results using fingerstick instead of venipuncture, it would dramatically reduce the skilled resources needed to conduct widespread screening. This use of drive-thru testing sites and rapid antibody tests may be one potential way for agencies to meet some of the demands for SARS-CoV-2 serological testing.[23–26]

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References |

1. Coronavirus: summary of person being monitored, persons under investigation, and cases. Florida Department of Health; 2020. Updated June 4, 2020. Accessed June 19, 2020. https://www.floridadisaster.org/globalassets/covid19/dailies/state_reports_20200604.pdf
2. Executive Order Number 20–51. Office of the Governor. State of Florida.; 2020. Update March 1, 2020. Accessed June 19, 2020. https://www.flgov.com/wp-content/uploads/orders/2020/EO_20-51.pdf
3. Executive Order Number 20–52. Office of the Governor. State of Florida.; 2020. Update March 9, 2020. Accessed June 19, 2020. https://www.flgov.com/wp-content/uploads/2020/03/EO-20-52.pdf
4. Executive Order Number 20–91. Office of the Governor. State of Florida.; 2020. Update March 30, 2020. Accessed June 19, 2020. https://www.flgov.com/wp-content/uploads/orders/2020/EO_20-91-compressed.pdf
5. Weiss EA, Ngo J, Gilbert GH, Quinn JV. Drive-through medicine: a novel proposal for rapid evaluation of patients during an influenza pandemic. Ann Emerg Med. 2010;55(3):268–273. doi:10.1016/j.annemergmed.2009.11.025 [PubMed: 20079956]
6. Flynn EF, Kuhn E, Shaik M, Tarr E, Scattolini N, Ballantine A. Drive-Through COVID-19 Testing During the 2020 Pandemic: a safe, efficient, and scalable model for pediatric patients and healthcare workers. Acad Pediatr. Published online May 29, 2020. doi:10.1016/j.acap.2020.05.018
7. Eick SM, Dale AP, McKay B, et al. Seroprevalence of Dengue and Zika virus in blood donations: a systematic review. Transfusion Medicine Reviews. 2019;33(1):35–42. doi: 10.1016/j.tmrv.2018.10.001 [PubMed: 30471867]
8. Simo FBN, Bigna JJ, Kenmoe S, et al. Dengue virus infection in people residing in Africa: a systematic review and meta-analysis of prevalence studies. Sci Rep. 2019;9(1): 1–9. doi:10.1038/s41598-019-50135-x [PubMed: 30626917]
9. Radke EG, Gregory CJ, Kintzinger KW, et al. Dengue outbreak in Key West, Florida, USA, 2009. Emerg Infect Dis. 2012;18(1):135–137. doi:10.3201/eid1801.110130 [PubMed: 22257471]
10. CDC. Large-scale geographic seroprevalence surveys. Coronavirus disease 2019 (COVID-19). Updated May 31, 2020. Accessed June 15, 2020. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/geographic-seroprevalence-surveys.html

11. Bloch EM, Shoham S, Casadevall A, et al. Deployment of convalescent plasma for the prevention and treatment of COVID-19. J Clin Invest. 2020;130(6):2757–2765. doi:10.1172/JCI138745 [PubMed: 32254064]
12. Chen L, Xiong J, Bao L, Shi Y. Convalescent plasma as a potential therapy for COVID-19. Lancet Infect Dis. 2020;20(4):398–400. doi:10.1016/S1473-3099(20)30141-9 [PubMed: 32113510]
13. Sood N, Simon P, Ebner P, et al. Seroprevalence of SARS-CoV-2-Specific antibodies among adults in Los Angeles County, California, on April 10–11, 2020. JAMA. 2020;323(23):2425–2427. doi:10.1001/jama.2020.8279 [PubMed: 32421144]
14. Bendavid E, Mulvaney B, Sood N, et al. COVID-19 Antibody seropravlence in Santa Clara County, California. medRxiv. Preprint posted online April 27, 2020. doi:10.1101/2020.04.14.20062463
15. Vogel G First antibody surveys draw fire for quality, bias. Science. 2020;368(6489):350–351. doi:10.1126/science.368.6489.350 [PubMed: 32327574]
16. Havers FP, Reed C, Lim T. Seroprevalence of antibodies to SARS-CoV-2 in 10 sites in the United States, March 23-May 12, 2020. JAMA Intern Med. 2020 doi:10.1001/jamainternmed.2020.4130
17. Payne DC, Smith-Jeffcoat SE, Nowak G, et al. SARS-CoV-2 infections and serologic responses from a sample of U.S. navy service members — USS Theodore Roosevelt, April 2020. MMWR Morb Mortal Wkly Rep. 2020;69:714–721. doi:10.15585/mmwr.mm6923e4 [PubMed: 32525850]
18. Self WH, Tenforde MW, Stubblefield WB, et al. Seroprevalence of SARS-CoV-2 among frontline health care personnel in a multistate hospital network — 13 academic medical centers, April-June 2020. MMWR Morb Mortal Wkly Rep. 2020;69(35):1221–1226. [PubMed: 32881855]
19. Cellex qSARS-CoV-2 IgG/IgM Rapid Test. Cellex, Inc.; 2020. Accessed June 5, 2020. https://cellexcovid.com/wp-content/uploads/2020/05/EUA-Cellex-rapid-ifu.pdf
20. HHS. Protection of Human Subjects, 45 C.F.R. 46 (2018).
21. Döhla M, Boesecke C, Schulte B, et al. Rapid point-of-care testing for SARS-CoV-2 in a community screening setting shows low sensitivity. Public Health. 2020;182:170–172. doi:10.1016/j.puhe.2020.04.009 [PubMed: 32334183]
22. CDC. Serology testing for COVID-19 at CDC. Coronavirus disease 2019 (COVID-19). Updated May 23, 2020. Accessed June 5, 2020. https://www.cdc.gov/coronavirus/2019-ncov/lab/serology-testing.html
23. Abbasi J The promise and peril of antibody testing for COVID-19. JAMA. 2020; 323(19):1881–1883. doi:10.1001/jama.2020.6170 [PubMed: 32301958]
24. De Walque D, Friedman J, Gatti R, Mattoo A. How two tests can help contain COVID-19 and revive the economy. Research & Policy Brief No. 29, World Bank. Updated April 2020. Accessed June 19, 2020. https://elibrary.worldbank.org/doi/abs/10.1596/33583
25. Krsak M, Johnson SC, Poeschla EM. COVID-19 serosurveillance may facilitate return-to-work decisions. Am J Trop Med Hyg 2020;102(6):1189–1190. doi:10.4269/ajtmh.20-0302 [PubMed: 32329432]
26. German R, Djanatliev A, Maile L, Bazan P, Hackstein H. Modeling exit strategies from COVID-19 lockdown with a focus on antibody tests. medRxiv. Preprint posted online April 18, 2020. doi: 10.1101/2020.04.14.20063750

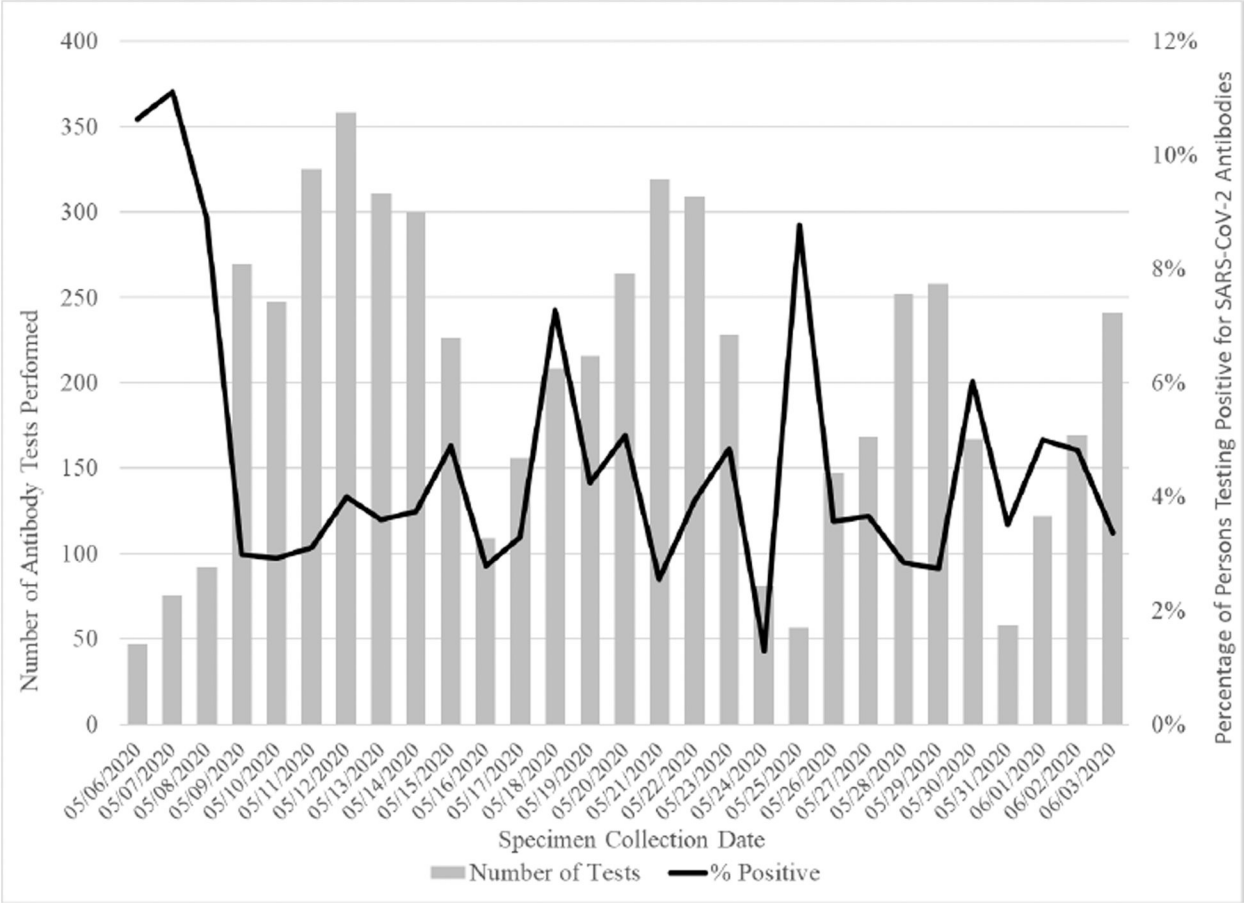

Figure 1.

Cumulative point-of-care (POC) antibody tests performed across all sites by day and corresponding daily seropositivity, Florida, May-June 2020.

Table 1.

Summary of point-of-care (POC) antibody test results stratified by testing site, Florida, May-June 2020

	Antibody Test Result							
Testing Site	**IgM+**	**IgM & IgG+**	**IgG+**	**Positive**	**Negative**	**Non-resulted**	**Total**	**% Positive (95% CI)***
Miami-Hard Rock Stadium	3	5	100	7	1295	18	1428	8.2% (6.7–9.6)
Orlando-Orange County C.C.	5	4	41	0	1734	13	1797	2.8% (2.0–3.6)
Jacksonville-TIAA Bank Field	3	4	36	4	1703	28	1778	2.7% (1.9–3.4)
Palm Beach-FITTEAM Ballpark	0	0	9	3	448	31	491	2.6% (1.2–4.1)
Miami Beach Convention Center	1	0	9	0	272	3	285	3.5% (1.4–5.7)
All Sites	12	13	195	14	5452	93	5779	4.1% (3.6–4.6)

* The sum of all positive results (IgM+, IgM & IgG+, IgG+, and positive) divided by the sum of that number and the negative results.

Table 2.

Point-of-care (POC) antibody test results by persons stratified by demographics and adjusted for testing location, Florida, May-June 2020

Demographics	Positive	Negative	% Positive (95% CI)*	Odds Ratio (95% CI)	adj Odds Ratio (95% CI)†
Sex at Birth					
Female	134	3169	4.1% (3.4–4.8)	1.00 (0.76, 1.32)	1.09 (0.83–1.44)
Male	90	2134	4.0% (3.3–5.0)	Ref	Ref
Missing‡	10	149	6.3% (3.3–11.3)	N/A	N/A
Race/Ethnicity					
White non-Hispanic	63	2626	2.3% (1.8–3.0)	Ref	Ref
Black non-Hispanic	40	877	4.4% (3.2–5.9)	1.90 (1.27–2.85)	1.63 (1.08–2.46)
Hispanic/Latino(a)	87	1230	6.6% (5.4–8.1)	2.95 (2.12–4.11)	2.17 (1.50–3.13)
Haitian/Creole	5	49	9.3% (3.6–20.3)	4.25 (1.64–11.04)	3.28 (1.23–8.72)
Other¶	11	316	3.4% (1.8–6.0)	1.45 (0.76–2.78)	1.53 (0.80–2.95)
Missing‡	16	365	4.2% (2.6–6.8)	N/A	N/A
Age group (years)					
17–29	34	674	4.8% (3.4–6.7)	Ref	Ref
30–39	48	1412	3.3% (2.5–4.3)	0.67 (0.43–1.06)	0.67 (0.43–1.05)
40–49	46	1298	3.4% (2.6–4.5)	0.70 (0.44–1.11)	0.69 (0.44–1.09)
50–59	65	1282	4.8% (3.8–6.1)	1.00 (0.66–1.55)	0.96 (0.62–1.47)
60–69	31	633	4.7% (3.3–6.6)	0.97 (0.59–1.60)	0.94 (0.57–1.56)
70–89	9	109	7.6% (3.9–14.0)	1.64 (0.76–3.51)	1.67 (0.77–3.63)
Missing‡	1	44	2.2% (0.0–12.6)	N/A	N/A
Total‡	234	5452	4.1% (3.6–4.7)	N/A	N/A

*The sum of all positive results (IgM+, IgM & IgG+, IgG+, and positive) divided by the sum of that number and the negative results.

†Odds ratio adjusted for testing site.

‡Odds ratio and adjusted odds ratios not calculated for totals and missing demographic values. Non-resulted tests were excluded.

¶Persons of other race/ethnicity were individuals who identified as either “other” as a race or identified as a different race/ethnicity not listed above.