Figure 1

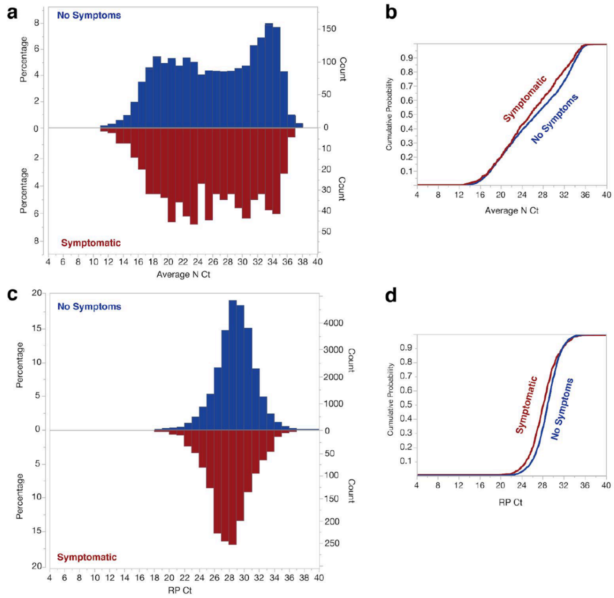


**Figure 1. SARS-CoV-2 viral load distributions are very similar independent of symptom status at the time of testing.** Ct distributions using probes targeting the SARS-CoV-2 N gene (a-b) or the control human RP gene (c-d) from patients without (blue) or with (red) symptoms at the time of testing are shown as binned histograms in (a) and (c) and cumulative distributions in (b) and (d).

***Conclusion.*** In a large cohort of individuals screened for SARS-CoV-2 by RT-qPCR, we found strikingly similar viral load distributions in patients with or without symptoms at the time of testing. The size of the study population, including both staff and residents spanning a wide range of ages, provides a comprehensive cross-sectional point prevalence measurement of viral burden. Because the distributions of viral loads are very similar regardless of symptoms, existing testing modalities validated for detection of SARS-CoV-2 RNA in symptomatic patients should perform similarly well in individuals without symptoms at the time of testing.

***Disclosures.*** **All Authors**: No reported disclosures

**LB-12. SARS-CoV-2 RNA and Antibodies among People Experiencing Homelessness and Staying in Shelters or Outdoor Encampments in Denver, Colorado, May-July 2020**


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***Background.*** The COVID-19 pandemic has disproportionately affected people experiencing homelessness (PEH) residing in shelters. Initial and regular testing of PEH in communities with moderate or substantial SARS-CoV-2 transmission may limit spread in shelters. We analyzed factors associated with positive SARS-CoV-2 RNA and antibody tests for PEH staying in shelters or encampments in Denver, Colorado.

***Methods.*** In May 2020, Denver Public Health collaborated with local leaders to identify 4 homeless shelters and 3 outdoor encampments for voluntary, universal SARS-CoV-2 testing. At each testing event, a short questionnaire including sociodemographic factors and symptoms was administered to PEH who consented to testing. SARS-CoV-2 RNA testing by reverse transcription polymerase chain reaction (RT-PCR) was performed on nasopharyngeal swabs; antibody testing was performed on venous blood samples. PEH reporting a prior positive RT-PCR test were not retested but were eligible for antibody testing. Statistical calculations were performed with an α of 0.05; all tests were two-sided.

***Results.*** From June 2–July 28, 2020, 931 PEH were approached. A total of 863 RT-PCR tests were performed at 14 testing events, and 334 antibody tests were performed at 5 testing events. Overall, 604 and 259 RT-PCR tests were conducted in 4 shelters and 3 encampments, respectively; 189 and 145 antibody tests were conducted in 3 shelters and 2 encampments, respectively. PEH tested in shelters were older, more often men, less often Native American, and less likely to report COVID-19 symptoms than those tested at encampments (Table 1). Overall, 9% of PEH tested in shelters tested positive for SARS-CoV-2 compared to 3% of PEH tested in encampments (p=0.002); 8% of men had positive RT-PCR results compared to 2% of women (p=0.03) (Table 2). PEH tested at shelters had a higher percentage of detectable SARS-CoV-2 antibodies than those tested in encampments (24% vs 8%, p=0.0002; Table 3). Neither RT-PCR nor antibody test results differed significantly by race or ethnicity.

Table 1. Demographics of participants residing in encampments compared with shelters in Denver, Colorado, May-July 2020 (n=931)

**Table 1.** Demographics of participants residing in encampments compared with shelters in Denver, Colorado, May-July 2020 (n=931).

| | Encampment (N = 281) | Shelter (N = 650) | *p*-value |
|---|---|---|---|
| **Age (median, IQR)** | 41, 31–51 | 48, 39–57 | <0.0001* |
| **Gender** | | | |
| Women (n, %) | 62, 22% | 84, 12% | 0.0006** |
| Men (n, %) | 219, 77% | 566, 87% | |
| **Race/Ethnicity** | | | |
| White, non-Hispanic (n, %) | 130, 48% | 275, 43% | 0.006** |
| Black, non-Hispanic (n, %) | 43, 15% | 149, 23% | |
| American Indian/Alaska Native, non-Hispanic (n, %) | 20, 7% | 20, 3% | |
| Hispanic | 63, 23% | 149, 25% | |
| Other (n, %)*** | 14, 5% | 40, 6% | |
| **Symptoms** | | | |
| Asymptomatic (n, %) | 198, 78% | 577, 89% | <0.0001** |
| Symptomatic (n, %) | 55, 21% | 65, 10% | |
| **SARS-CoV-2 Test Type** | | | |
| RNA/RT-PCR Test†† | 259 (92%) | 604 (92%) | NA |
| Antibody Test | 145 (51%) | 189 (29%) | |

IQR=Interquartile range; * Calculated using Mann-Whitney U test; ** Calculated using Chi-squared test; † Calculated using Fisher Exact Test as expected cell count <5. *** Includes Asian, Hawaiian/Other Pacific Islander, persons who identified as "Other", and persons who identified as non-Hispanic and did not respond when asked to self-identify race. †† RNA=Ribonucleic Acid; RT-PCR=Reverse Transcription-Polymerase Chain Reaction

Table 2. Comparison of participants testing positive or negative for SARS-CoV-2 RT-PCR* by location and demographics, in Denver, Colorado, May-July 2020

**Table 2.** Comparison of participants testing positive or negative for SARS-CoV-2 RT-PCR* by location and demographics, in Denver, Colorado, May-July 2020. Ten participants residing in shelters and five participants residing in encampments had equivocal RNA results; these were excluded from the analysis.

| | SARS-CoV-2 RNA Positive (N = 61) | SARS-CoV-2 RNA Negative (N = 787) | *p*-value |
|---|---|---|---|
| **Age (median, IQR)** | 47, 36–56 | 47, 40–55 | 0.83† |
| **Type** | | | |
| Shelter (n, %) | 54, 9% | 540, 91% | 0.002** |
| Encampment (n, %) | 7, 3% | 247, 97% | |
| **Gender** | | | |
| Women (n, %) | 2, 2% | 107, 98% | 0.03** |
| Men (n, %) | 59, 8% | 670, 92% | |
| **Race/Ethnicity** | | | |
| White, non-Hispanic (n, %) | 23, 6% | 345, 94% | 0.38** |
| Black, non-Hispanic (n, %) | 13, 8% | 157, 92% | |
| American Indian/Alaska Native, non-Hispanic (n, %) | 4, 11% | 32, 89% | |
| Hispanic (n, %) | 13, 7% | 181, 93% | |
| Other (n, %)†† | 6, 13% | 40, 87% | |
| **Symptoms** | | | |
| Asymptomatic (n, %) | 50, 7% | 647, 93% | 0.47** |
| Symptomatic (n, %) | 11, 10% | 104, 90% | |
| **SARS-CoV-2 Antibody Result** | | | |
| Positive (n, %) | 9, 24% | 28, 76% | <0.0001** |
| Negative (n, %) | 4, 2% | 197, 98% | |

* Reverse transcription polymerase chain reaction
** Calculated using Chi-squared test
†Calculated using Mann Whitney U test
†† Includes Asian, Hawaiian/Other Pacific Islander, persons who identified as "Other", and persons who identified as non-Hispanic and did not respond when asked to self-identify race.

Table 3. Comparison of participants testing positive or negative for antibodies against SARS-CoV-2 by location and demographics in Denver, Colorado, May-July 2020

**Table 3.** Comparison of participants testing positive or negative for antibodies against SARS-CoV-2 by location and demographics in Denver, Colorado, May-July 2020. Four participants residing in shelters and one participant residing in an encampment had equivocal antibody results; these were excluded from the analysis.

| | SARS-CoV-2 Antibody Positive (N = 55) | SARS-CoV-2 Antibody Negative (N = 274) | *p*-value |
|---|---|---|---|
| **Age (Median, IQR)** | 54, 47–59 | 43, 34–54 | <0.0001† |
| **Type** | | | |
| Shelter (n, %) | 44, 24% | 141, 76% | 0.0002* |
| Encampment (n, %) | 11, 8% | 133, 92% | |
| **Gender** | | | |
| Women (n, %) | 7, 10% | 66, 90% | 0.13* |
| Men (n, %) | 44, 18% | 201, 82% | |
| **Race/Ethnicity** | | | |
| White, non-Hispanic (n, %) | 15, 11% | 121, 89% | |
| Black, non-Hispanic (n, %) | 13, 22% | 45, 78% | |
| American Indian/Alaska Native, non-Hispanic (n, %) | 3, 14% | 18, 86% | 0.17** |
| Hispanic (n, %) | 16, 17% | 58, 78% | |
| Other (n, %)*** | 4, 21% | 19, 78% | |

* Calculated using Chi-squared Test
** Calculated using Fisher Exact Test as expected cell count <5
†Calculated using Mann Whitney U test
*** Includes Asian, Hawaiian/Other Pacific Islander, persons who identified as "Other", and persons who identified as non-Hispanic and did not respond when asked to self-identify race.

***Conclusion.*** A greater percentage of PEH tested positive for both SARS-CoV-2 RNA and antibodies at shelters than encampments, suggesting that continued assessment of mitigation strategies in shelters should be a priority.

***Disclosures.*** **All Authors**: No reported disclosures

## LB-13. Economic and workload impact of COVID-19 pandemic on physicians in the United States: results of a national survey


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***Background.*** The United States (US) healthcare system has experienced enormous economic impact due to the COVID-19 pandemic, driven by both loss of revenue related to shutdowns and increased strain on resources. These factors have impacted the workload and finances of physicians.

***Methods.*** A 31-item anonymous survey evaluating the psychological impact of the COVID-19 pandemic on physicians was developed at the University of Alabama at Birmingham using Qualtrics[XM] software and included questions on adverse economic impact (defined as selecting job loss, furlough or reduced income as a stressor), workload, and compensation. It was distributed via physician professional and social networks including email, Facebook groups, and #MedicalTwitter May 14-July 31, 2020.

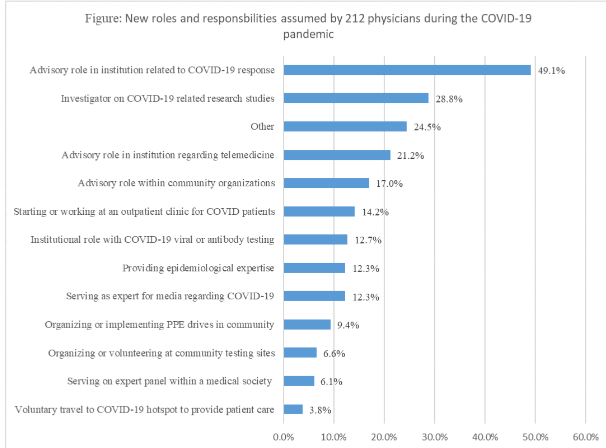
***Results.*** Among 597 respondents, 295 (49%) reported adverse economic impact, with the highest proportions among emergency medicine (71%), anesthesiologists (63%), and surgeons (60%) and lowest among infectious diseases (ID) (25%). In multivariable analysis (Table), physicians practicing in the Northeastern US saw the lowest economic impact versus the South (OR 3.44, 95% CI: 2.03–5.84), Midwest (2.62, 1.36–5.05) or West (1.98, 1.06–3.71). Physicians practicing in federal or academic settings experienced less economic impact than those in community settings (0.09, 0.03–0.30 and 0.61, 0.41–0.93 respectively). Increased work hours were identified by 185 (31%) of respondents as a stressor, with 169 (92%) reporting additional hours were partially or completely uncompensated. Among 584 respondents, 212 (36%) had new roles and responsibilities (Figure), with the highest proportion among ID physicians (75%).

Table 1: Characteristics and factors associated with reporting adverse economic impact of the COVID-19 pandemic among 597 physicians in the United States

| | **Overall population (N=597)** | **Economic impact[a] n=295 (49%)** | **No economic impact[a] n=302 (52%)** | **Unadjusted OR (95% CI)** | **Adjusted OR (95% CI)** |
|---|---|---|---|---|---|
| **Gender[b]** | | | | | |
| Male | 131 (21.9%) | 75 (57.3%) | 56 (52.8%) | Ref | Ref |
| Female | 466 (78.1%) | 220 (47.2%) | 246 (42.7%) | **0.67 (0.45, 0.99)** | 0.71 (0.46-1.11) |
| **Age, years** | | | | | |
| 40 and over | 311 (52.1%) | 147 (47.3%) | 164 (52.7%) | Ref | Ref |
| <40 | 205 (34.3%) | 104 (50.7%) | 101 (49.3%) | 1.15 (0.81, 1.63) | 1.15 (0.79-1.68) |
| Unspecified | 81 (13.6%) | 44 (54.3%) | 37 (45.7%) | 1.33 (0.81, 2.17) | 1.39 (0.82-2.36) |
| **Race/ethnicity** | | | | | |
| Non-Hispanic White | 428 (71.7%) | 213 (49.8%) | 215 (50.2%) | Ref | Ref |
| Black | 30 (5.0%) | 20 (66.7%) | 10 (33.3%) | 2.02 (0.92, 4.41) | 1.76 (0.77-4.03) |
| Hispanic/Latino | 38 (6.4%) | 15 (39.5%) | 23 (60.5%) | 0.66 (0.33, 1.30) | 0.66 (0.32-1.37) |
| Asian | 89 (14.9%) | 42 (47.2%) | 47 (52.8%) | 0.90 (0.57, 1.42) | 0.93 (0.57-1.52) |
| Other/unspecified | 12 (2.0%) | 5 (41.7%) | 7 (58.3%) | 0.72 (0.23, 2.31) | 0.77 (0.22-4.03) |
| **US Region** | | | | | |
| Northeast | 96 (16.1%) | 27 (28.1%) | 69 (71.9%) | Ref | Ref |
| South | 308 (51.6%) | 178 (57.8%) | 130 (42.2%) | **3.50 (2.12, 5.76)** | **3.44 (2.03-5.84)** |
| Midwest | 82 (13.7%) | 41 (50.0%) | 41 (50.0%) | **2.56 (1.37, 4.75)** | **2.62 (1.36-5.05)** |
| West | 111 (18.6%) | 49 (44.1%) | 62 (55.9%) | **2.02 (1.13, 3.61)** | **1.98 (1.06-3.71)** |
| **Area type** | | | | | |
| Urban | 323 (54.1%) | 146 (45.2%) | 177 (54.8%) | Ref | Ref |
| Suburban | 231 (38.7%) | 128 (55.4%) | 103 (44.6%) | 1.51 (1.07, 2.12) | 1.18 (0.79-1.77) |
| Rural | 43 (7.2%) | 21 (48.8%) | 22 (51.2%) | 1.16 (0.61, 2.19) | 0.94 (0.46-1.93) |
| **Practice setting** | | | | | |
| Community | 293 (49.1%) | 169 (57.7%) | 124 (42.3.%) | Ref | Ref |
| Academic | 264 (44.2%) | 119 (45.1%) | 145 (54.9%) | **0.60 (0.43, 0.84)** | **0.61 (0.41-0.93)** |
| Federal | 23 (3.8%) | 11 (47.8%) | 12 (52.2%) | **0.09 (0.05, 0.31)** | **0.09 (0.03-0.30)** |
| Other/unspecified | 13 (2.2%) | 4 (30.8%) | 9 (69.2%) | 0.33 (0.10, 1.08) | 0.53 (0.15-1.91) |
| **Practice location[c]** | | | | | |
| Outpatient | 188 (31.5%) | 100 (53.2%) | 88 (46.8%) | Ref | Ref |
| Hospital | 382 (64.0%) | 184 (48.2%) | 198 (51.8%) | 0.82 (0.58, 1.16) | 0.82 (0.55-1.22) |
| Other/unspecified | 27 (4.5%) | 11 (40.7%) | 16 (59.3%) | 0.61 (0.27, 1.37) | 0.66 (0.28-1.82) |
| **Direct contact with COVID patient(s) in last month** | | | | | |
| No | 253 (42.4%) | 118 (46.6%) | 135 (53.4%) | Ref | Ref |
| Yes | 344 (57.6%) | 177 (51.5%) | 167 (48.5%) | 1.21 (0.88, 1.68) | 1.25 (0.86-1.82) |

[a]Column percents
[b]One non-binary participant excluded as number too low to analyze
[c]Participants working in both hospital and outpatient or other locations were categorized in Hospital practice setting.
Analyses were performed using SAS v.9.4 (SAS Institute, Cary, NC).
Abbreviations: CI, confidence interval; OR, odds ratio

Figure: New roles and responsbilities assumed by 212 physicians during the COVID-19 pandemic




***Conclusion.*** The COVID-19 pandemic has increased physician workload, with approximately one-third of physicians taking on new responsibilities and a similar proportion reporting increased work hours. Much of this additional work is uncompensated due to the economic impact of the pandemic on the healthcare system. Simultaneously, many physicians across the US have suffered adverse economic consequences, especially in the South. ID physicians have experienced higher workload but less economic impact, related to increased need for their expertise and new roles and responsibilities.

***Disclosures.*** **Dustin Long, PhD**, Nothing to disclose

## LB-14. CovidIQ- a Text Message-Based Symptom Surveillance Tracker that Predicts New Areas of Increased Incidence of Covid-19 Disease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***Background.*** Testing for SARS-CoV-2 is limited, making it difficult to estimate the true prevalence of disease and control the spread of new cases. Therefore, finding other ways to diagnose new cases of Covid-19 early is essential for preventing further spread of SARS-CoV-2 to other people in the community and prevent further outbreaks from occurring.

***Methods.*** CovidIQ is a confidential and secure text messaging platform that works by collecting participants' self-reported symptoms. Upon agreeing to participate, users are asked some basic demographic questions including gender, age range, ethnic background, and zip code. Participants are then queried via text message on a weekly or biweekly basis as to what symptoms they are experiencing: none, temperature >99.6F, cough, shortness of breath, headache, fatigue, loss of appetite, loss of sense of smell or taste, diarrhea, body ache, sore throat, and/or chills. The symptoms are further broken down into major and minor criteria, allowing presumptive cases to be identified with more accuracy. The major criteria include elevated body temperature, cough, and shortness of breath. If a participant has any 2 major criteria, 1 major or 2 minor, or 3 minor criteria, they are considered a presumptive positive case.

While CovidIQ cannot be used to diagnose individuals, the combined results from many individuals show real-time changes in rates of infection for entire counties. Not all people who develop Covid-19 will need hospitalization. They may remain out in the community unaware of the risk they pose to others. And, because the official count of confirmed cases is delayed by 2–4 weeks from the time of actual infection, CovidIQ can sound the alarm much earlier when rates of infection begin to spike. Advanced warning can help communities and individuals make informed decisions about how they should conduct themselves.

***Results.*** CovidIQ identified the spike in COVID-19 cases in Jacksonville/Duval County, Florida a full two weeks before it was reported by the Florida Department of Health and Johns Hopkins University.

Prevalence of Suspected COVID-19 Cases Through the Use of the CovidIQ Platform in Relation to Dates of OfficiallyReported Cases, Duval County, FL