Background. Seroprevalence studies are important tools to estimate the prevalence of prior or recent SARS-CoV-2 infections. This information is critical for identifying hotspots and high-risk groups and informing public health responses to the COVID-19 pandemic. We conducted a city-level seroprevalence study in Holyoke, Massachusetts to estimate the seroprevalence of SARS-CoV-2 antibodies and risk factors for antibody positivity.

Methods. We invited inhabitants of 2,000 randomly sampled addresses to participate between November 5 and December 31, 2020. Participants completed questionnaires measuring sociodemographic and health characteristics, and COVID-19 exposure history, and provided dried blood spots for measurement of SARS-CoV-2 IgG and IgM antibodies. To calculate total and group seroprevalence estimates, inverse probability of response weights were constructed based on age, gender, race/ethnicity and census tract to ensure estimates represented the city's population.

Results. We enrolled 280 households including 472 individuals. 328 underwent antibody testing. The citywide weighted seroprevalence of SARS-CoV-2 IgG or IgM was 13.9% (95%CI 7.8 - 21.8) compared to 9.8% based on publicly reported case counts. Seroprevalence was 16.8% (95%CI 5.7 - 28.0) among individuals identifying as Hispanic compared to 8.9% (95%CI 3.0 - 14.7) among those identifying as White. Seroprevalence was 20.7% (95%CI 2.2 - 39.2) for ages 0-19; 13.8% (95%CI 6.8 - 20.5) for ages 45 - 59; 4.8% (95%CI 0 - 10.2) for ages 60 - 84; and 42.9% (95%CI 0 - 100) for ages >85.

Table 1. Seroprevalence by antibody positivity profile

| Characteristic | No. tested | No. Positive | Unweighted seroprevalence, % (95% CI) | Weighted seroprevalence, % (95% CI) |
|---------------|------------|-------------|--------------------------------------|--------------------------------------|
| IgG only      | 328        | 27          | 8.2 (5.0 - 12.5)                     | 13.9 (7.8 - 21.8)                    |
| IgG or IgM    | 328        | 18          | 5.5 (3.1 - 8.7)                      | 8.0 (3.8 - 14.4)                     |
| IgM only      | 328        | 7           | 2.1 (0.9 - 4.1)                      | 3.8 (1.5 - 7.5)                      |

Table 2. Unweighted and weighted seroprevalence by sociodemographic characteristics

| Characteristic (N=328) | N | Unweighted seroprevalence, % (95% CI) | Weighted seroprevalence, % (95% CI) |
|------------------------|---|---------------------------------------|--------------------------------------|
| Age groups (years)     |   |                                       |                                      |
| 0-19                   | 27 | 3.1 (1.0 - 6.7)                       | 4.4 (1.3 - 13.4)                     |
| 20-44                  | 71 | 15.0 (9.6 - 23.6)                     | 19.5 (12.5 - 30.0)                   |
| 45-59                  | 94 | 6.9 (4.7 - 10.2)                      | 9.0 (5.7 - 14.3)                     |
| 60 and above           | 137| 3.3 (1.6 - 6.5)                       | 4.2 (2.1 - 8.1)                      |
| Gender                 |   |                                       |                                      |
| Female                 | 180| 8.9 (4.6 - 15.6)                      | 12.5 (6.6 - 22.9)                    |
| Male                   | 139| 7.9 (4.3 - 13.9)                      | 10.8 (5.6 - 20.0)                    |
| Transgender, non-binary, prefer not to answer | 0 | -                                      | -                                    |
| Race/Ethnicity         |   |                                       |                                      |
| White, non-Hispanic    | 239| 7.1 (3.2 - 13.1)                      | 9.7 (5.3 - 16.4)                     |
| Hispanic or Latino     | 66 | 1.2 (0.2 - 5.9)                       | 0.1 (0.0 - 0.3)                      |
| Black or African American, non-Hispanic | 5 | 0 (0.0 - 0.0) | 0 (0.0 - 0.0) |
| Asian, non-Hispanic    | 5  | 0                                      | 0                                    |
| American Indian or Alaskan Native, non-Hispanic | 1 | 0                                      | 0                                    |
| Two or more races, non-Hispanic | 2 | 0                                      | 0                                    |
| Other race, non-Hispanic | 0 | -                                      | -                                    |
| Prefer not to answer   | 5  | 0                                      | 0                                    |
| Primary language spoken in the household (N=327) |   |                                       |                                      |
| English                | 275| 6.9 (4.3 - 10.5)                      | 9.5 (5.4 - 16.3)                     |
| Spanish                | 36 | 2.2 (0.8 - 5.8)                       | 3.5 (1.2 - 7.5)                      |
| Multilingual           | 13 | 0.0                                    | 0.0                                  |
| Other                  | 3  | 0                                      | 0                                    |
| Highest education level (N=298) |   |                                       |                                      |
| Some high school or less | 22 | 9.1 (3.2 - 21.7)                       | 11.0 (4.3 - 29.1)                    |
| High school/GED or some college | 95 | 8.4 (4.1 - 15.7)                       | 9.7 (4.3 - 21.0)                     |
| Associate or bachelor's degree | 101 | 8.3 (4.0 - 17.3)                     | 9.9 (4.3 - 24.3)                     |
| Master's doctorate or professional degree | 80 | 7.5 (3.8 - 14.3)                     | 10.9 (5.6 - 21.0)                    |
| Employment status on February 1st, 2020 (N=304) |   |                                       |                                      |
| Working Not Working |   |                                       |                                      |
| Not Working            | 181| 11.0 (5.7 - 20.5)                      | 14.3 (6.8 - 29.0)                    |
| Working                | 94 | 2.1 (0.4 - 10.2)                      | 3.0 (0.6 - 14.2)                     |
| Worked outside home during "stay at home" order (N=304) | 29 | 6.9 (2.6 - 16.2)                       | 7.7 (2.8 - 20.8)                     |
| No                     | 213| 6.2 (3.9 - 9.8)                       | 7.7 (4.8 - 13.4)                     |
| Yes                    | 93 | 11.0 (6.8 - 19.4)                     | 10.6 (5.6 - 19.9)                    |

Conclusion. The measured SARS-CoV-2 seroprevalence in Holyoke was only 13.9% during the second surge of SARS-CoV-2 in this region, far from accepted thresholds for "herd immunity" and highlighting the need for expanding vaccination. Individuals identifying as Hispanic were at high risk of prior infection. Subsequent community-level serosurveys are necessary to guide local responses to the SARS-CoV-2 pandemic.

Disclosures. All Authors: No reported disclosures

397. Impact of School Opening Model on Cases of SARS-CoV-2 in Surrounding Communities: A Nationwide, Retrospective Cohort Study
Westyn Branch-Elliman, MD, MMSc1; Zeynep Ertem, PhD2; Elissa Perkins, MD, MPH3; Polly van den Berg, MD4; Isabella Epshtein, MPP5; Nathorn Chaiyakunapruk, PhD6; Fernando Wilson, PhD7; Emily Oster, PhD7; Richard Nelson, PhD8; Veterans Affairs Boston Center for Healthcare Organization and Implementation Research, Boston, Massachusetts; SUNY Binghamton, Binghamton, New York; Boston University, Boston, Massachusetts; BIDMC, Boston, Massachusetts; VA Boston CHOIR, Boston, Massachusetts; University of Utah, Salt Lake City, Utah; Brown University, Providence, Puerto Rico; IDEAS Center, VA Salt Lake City Healthcare System, Division of Epidemiology, University of Utah School of Medicine, Salt Lake City, UT
Session: P-16. COVID-19 Epidemiology and Screening

Background. Early in the COVID-19 pandemic, elementary and secondary schools were closed. There was variation in school opening mode (traditional, hybrid, remote) in fall 2020. The aim of this national, retrospective cohort study is to evaluate the impact of in-person learning on community incidence of SARS-CoV-2 and COVID-19-related deaths.

Methods. Data were extracted from several data sources. School opening mode was collected from the Burbio school tracker, which tracks school openings in a sample of school districts across the US. Incidence of SARS-CoV-2 and COVID-19 related deaths were obtained from the CDC. Data on community-level SARS-CoV-2 mitigation measures were obtained from the Oxford University COVID-19 Government Response Tracker. The effect of school mode on SARS-CoV-2 cases and deaths/100,000 during the 12-weeks following the start of school was estimated using a log-linear model with state, week, and state-week fixed effects. Models were stratified by 9 US Census divisions and adjusted for variables determined a priori to be potentially associated with the outcome.

Results. 519 US counties were included (Figure 1); mean cases of COVID-19 were increasing across all regions during the weeks following the start of school, regardless of school opening mode. The impact of school opening mode on COVID-19 incidence varied by census division and was greatest in the South and West Census Divisions.
of school mode. Adjusted absolute differences in COVID-19 cases in counties with hybrid and traditional school opening modes relative to fully remote learning models are presented in Figure 2. In the Northeast and Midwest regions of the country, COVID-19 case rates were not statistically different between different school modes. However, in the South and West regions, there was a statistically significant increase in cases per week among counties that opened in an in-person relative to remote learning model, ranging from 17.1 (95% CI: 0.3-33.8) to 24.4 (95% CI: 7.3-41.5) in the South and from 19.0 (95% CI: 8.8-29.3) to 109.2 (95% CI: 50.4-168.0) in the West. There was no impact of school opening mode on COVID-19-related deaths.

**Results.** Overall, 42 (17.4%) and 199 (82.6%) of hospitals were classified as rural and urban, respectively. A total of 304,073 patients were admitted to a rural hospital with 12,644 (4.2%) SARS-CoV-2 positive. In comparison, a total of 2,844,100 patients were treated at an urban hospital with 132,678 (4.7%) SARS-CoV-2 positive. Patients admitted to rural hospitals were older compared to those treated at an urban hospital (65.2 ± 17.3 vs. 61.5 ± 18.7, P=0.001) (Table 1). Patients treated at an urban facility had significantly higher rates of ICU admission, severe sepsis, and mechanical ventilation. ICU length of stay was significantly longer for patients admitted to an urban hospital compared to a rural hospital (8.1 ± 9.9 vs. 6.1 ± 7.2 days, P=0.001) (Table 2). No difference in mortality was observed.

**Conclusion.** Impact of school mode on community case-rates of SARS-CoV-2 varied across the US. In some areas of the country, traditional school mode was associated with increases in case rates relative to virtual while there were no differences in other regions.

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

398. Multicenter Evaluation of Outcomes of SARS-CoV-2 Positive Patients Treated at Rural vs Urban Hospitals in the United States

Karri A. Bauer, PharmD; Calvin Yu, MD; Vikas Gupta, PharmD, BCPS; Laura A. Puzniak, PhD; Swanick; Michael Y. Lin, MD, MPH; Onofre T. Donceras, MS, RN, CIC; Huiyuan Zhang, MS; Marion Tseng, PhD, MPVM; Carlos Santos, MD, MPH; Violu Lu, MD, MPH; Cook County Health and Rush University Medical Center, Chicago, IL; Rush University Medical Center, Chicago, IL; Rush Presbyterian Hospital, Skokie, IL; John H. Stroger Hospital of Cook County, Chicago, IL; Cook County Health, Chicago, IL; KAIA, Chicago, IL

For the CDC Prevention Epicenters Program

**Conclusion.** In this large multicenter evaluation of hospitalized patients positive for SARS-CoV-2, there were significant differences in patient characteristics. There was no observed difference in mortality. These findings are important in evaluating the pandemic’s impact on patients in rural and urban healthcare settings.

**Disclosures.** Karri A. Bauer, PharmD, Merc & Co., Inc. (Employee, Shareholder); Kalvin Yu, MD, BD (Employee) Vikas Gupta, PharmD, BCPS, Becton, Dickinson and Company (Employee, Shareholder) Laura A. Puzniak, PhD, Merc & Co., Inc. (Employee)

399. Epidemiology of Laboratory-identified Late-onset SARS-CoV-2 Positivity in Two Large, Urban, Acute-Care Hospitals: Implications for Surveillance of Hospital-Acquired COVID-19

William Trick, MD; Michael Y. Lin, MD, MPH; Sharon F. Welbel, MD; Onofre T. Donceras, MS, RN, CIC; Huiyuan Zhang, MS; Marion Tseng, PhD, MPVM; Carlos Santos, MD, MPH; Violu Lu, MD, MPH; Cook County Health and Rush University Medical Center, Chicago, IL; Rush University Medical Center, Chicago, IL; Rush Presbyterian Hospital, Skokie, IL; John H. Stroger Hospital of Cook County, Chicago, IL; Cook County Health, Chicago, IL; KAIA, Chicago, IL

For the CDC Prevention Epicenters Program

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

**Background.** Laboratory identification (Lab-ID) of late-onset SARS-CoV-2 positive tests during a hospital stay is a potential public health surveillance approach for hospital-acquired COVID-19. However, prolonged RNA fragment shedding and intermittent detection of SARS-CoV-2 virus via PCR testing among infected patients may hamper interpretation of laboratory-identified events. We aimed to describe the epidemiology of late-onset SARS-CoV-2 laboratory events using clinical criteria, to evaluate the feasibility of a Lab-ID approach to detection of nosocomial SARS-COV-2 infection.

**Results.** Overall, 42 (17.4%) and 199 (82.6%) of hospitals were classified as rural and urban, respectively. A total of 304,073 patients were admitted to a rural hospital with 12,644 (4.2%) SARS-CoV-2 positive. In comparison, a total of 2,844,100 patients were treated at an urban hospital with 132,678 (4.7%) SARS-CoV-2 positive. Patients admitted to rural hospitals were older compared to those treated at an urban hospital (65.2 ± 17.3 vs. 61.5 ± 18.7, P=0.001) (Table 1). Patients treated at an urban facility had significantly higher rates of ICU admission, severe sepsis, and mechanical ventilation. ICU length of stay was significantly longer for patients admitted to an urban hospital compared to a rural hospital (8.1 ± 9.9 vs. 6.1 ± 7.2 days, P=0.001) (Table 2). No difference in mortality was observed.

**Conclusion.** Impact of school mode on community case-rates of SARS-CoV-2 varied across the US. In some areas of the country, traditional school mode was associated with increases in case rates relative to virtual while there were no differences in other regions.

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

398. Multicenter Evaluation of Outcomes of SARS-CoV-2 Positive Patients Treated at Rural vs Urban Hospitals in the United States

Karri A. Bauer, PharmD; Calvin Yu, MD; Vikas Gupta, PharmD, BCPS; Laura A. Puzniak, PhD; Swanick; Michael Y. Lin, MD, MPH; Onofre T. Donceras, MS, RN, CIC; Huiyuan Zhang, MS; Marion Tseng, PhD, MPVM; Carlos Santos, MD, MPH; Violu Lu, MD, MPH; Cook County Health and Rush University Medical Center, Chicago, IL; Rush University Medical Center, Chicago, IL; Rush Presbyterian Hospital, Skokie, IL; John H. Stroger Hospital of Cook County, Chicago, IL; Cook County Health, Chicago, IL; KAIA, Chicago, IL

For the CDC Prevention Epicenters Program

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

**Background.** Laboratory identification (Lab-ID) of late-onset SARS-CoV-2 positive tests during a hospital stay is a potential public health surveillance approach for hospital-acquired COVID-19. However, prolonged RNA fragment shedding and intermittent detection of SARS-CoV-2 virus via PCR testing among infected patients may hamper interpretation of laboratory-identified events. We aimed to describe the epidemiology of late-onset SARS-CoV-2 laboratory events using clinical criteria, to evaluate the feasibility of a Lab-ID approach to detection of nosocomial SARS-COV-2 infection.