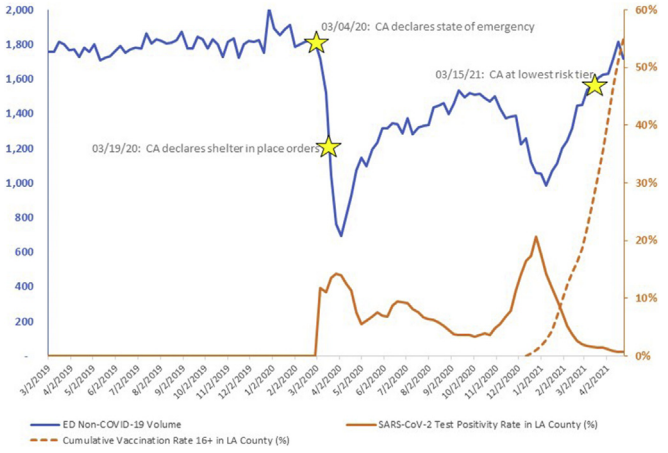
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Conclusions: The higher the prevalence of COVID-19 in the community, the more hesitant patients behaved in seeking ED care for non-COVID-19 reasons. Lower disease prevalence and increasing vaccination rates correlate with a return of NC volumes back to pre-pandemic levels.

Figure 1: ED Non-COVID-19 Volume and County COVID-19 Prevalance Over Time



26 Implementation of a COVID-19 Vaccine Emergency Department Education Program for Underserved Communities: A Pilot Quality Improvement Project

Bischof JJ, Schoeffler A, Bashian E, Callender N, Fuentes A, Geyer E, More A, Webb T, Kman K/The Ohio State Wexner Medical Center, Columbus, Ohio, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University College of Medicine, The Ohio State University Wexner Medical Center

Background: The COVID-19 pandemic has been one of the greatest modern health challenges to date. The administration of COVID-19 vaccines, rapidly and widely across all communities, is key to halting the spread of the virus. One significant challenge in promoting a large-scale immunization program is the threat of vaccine hesitancy, particularly in underrepresented minority communities (URM).

Study Objective: This project aimed to assess reasons for local vaccine hesitancy in an urban emergency department (ED) and to provide targeted education on the safety and efficacy of the COVID-19 vaccines to patients.

Methods: An interprofessional team was formed of medical students, physicians, social works, and community outreach coordinators to develop an educational intervention addressing COVID-19 vaccine safety for eligible patients receiving treatment in the ED at a urban academic affiliated community hospital with over 70% of patients coming from underserved URM backgrounds. A survey was conducted to elucidate their concerns surrounding the COVID-19 vaccine. Upon completion of the survey, up-to-date safety information was provided by trained medical students and a follow up survey was conducted to assess for impact of the education. Surveys were developed using standardized scoring systems from the Oxford OCEANS II study and the Kaiser Foundation COVID-19 Vaccine Monitor. Hesitancy scores before and after education delivery were tabulated to assess the impact of the quality improvement education intervention.

Results: A convenience sample of 58 subjects (76% URM) cited a variety of concerns surrounding the COVID-19 vaccine. The three most common reasons for declining vaccines were potential side effects (67.3% of respondents said they were concerned to extremely concerned), the concept that COVID-19 vaccines are neither effective nor safe (64.5% said they were concerned to extremely concerned), and the risk of developing COVID-19 infection from vaccine (38.8% said they were concerned to extremely concerned). While this project remains ongoing, this information was used to address these concerns directly with patients, answer questions, clarify information, and encourage patients to get their vaccines. Through the education program, vaccine hesitancy scores improved by an average of 29% indicating an increased likelihood they will get vaccinated in the future. 38% of patients receiving education agreed to sign up for a vaccine appointment during survey interview.

Conclusion: The ED often serves vulnerable patient populations. As such, its role in public health in these communities cannot be underestimated. This pilot quality improvement project is a novel method that hospital systems can use to develop and implement public health education programs to address specific community needs through the ED. These results show that ED health care providers have the ability to provide measurable change in attitudes about vaccine safety.

EMF 27 Social Determinants of Health and COVID-19 Infection in North Carolina: A Geospatial Analysis

Purakal JD, Silva L, Tupetz A, Seidenfeld J, Limkakeng A, Staton C, Vissoci J/Duke University School of Medicine, Durham, North Carolina, State University of Maringá, Duke University School of Medicine, Duke University School of Medicine, Duke University School of Medicine, Duke University School of Medicine, Duke University School of Medicine

Study Objectives: The COVID-19 pandemic has demonstrated that social determinants of health (SDOH) are profoundly linked to the spread and outcomes of COVID-19. However, the relationships between these SDOH and COVID-19 spatial outbreaks have yet to be determined. We conducted spatial analyses with geographic information systems (GIS) mapping of county-level SDOH and regional COVID-19 infection outbreaks to demonstrate the most impactful SDOH and to provide a pragmatic visual guide to prevent future outbreaks.

Methods: We analyzed the geospatial associations of COVID-19 infections and SDOH to identify areas of overlap. Our sample comprised all patients in a North Carolina health care system's registry who tested positive for COVID-19 from March 2020-February 2021. Patients' addresses were geo-referenced and analyzed by Kernel Density Estimation (KDE) to identify population-dense outbreaks of COVID-19 (hotspots). A set of 12 SDOH variables for each county were collected from the American Community Survey (ACS-5) and the Economic Research Service. Principal Component Analysis was applied to SDOH variables in order to reduce dimensions down to 3 geographical SDOH categories: Protective SDOH, High-Risk SDOH and Increased Vulnerability for Infection (Table 1). Using Multivariate Clustering Analysis (MCA), three clusters of census tracts were categorized according to SDOH indicators: decreased social disparities (DSD), equivocal social disparities (ESD) and increased social disparities (ISD) (Image A). Kruskal-Wallis and Dunn's Post-Hoc adjusted with Bonferroni were utilized to verify any difference in the proportion of patients residing in the different clusters (significance $p<0.05$).

Results: A total of 13,733 patients were included in the study. The patients predominantly reside in Durham County (55.4%), are women (56.96%), and between 40 and 69 years old (41.9%). Further, patients are predominantly white (38.7%), non-Hispanic (79.63%), and single (49.6%). The concomitant analysis of KDE and MCA showed an overlap of COVID-19 hotspots with areas of ISD (Image B). The MCA revealed that there are 308 census tracts constituted by six counties, in which 40 form ISD clusters (vs. 109 ESD; vs. 159 DSD). In addition, ISD clusters have the highest rates of infection, with 179.8 patients per 10,000 (vs. 81.7 ESD; vs. 60.1 DSD). The ISD cluster was the most densely populated and was significantly more densely populated from the ESD and DSD clusters ($p=0.01$).

Conclusion: In this sampling of COVID-19 patients, a disproportionate amount of patients come from areas with increased social disparities, suggesting further research and health policy will need to be directed towards addressing negative and vulnerability SDOH to curtail pandemic-related outbreaks.

Image A: Multivariate Clustering Analysis of Social Disparities; **Image B**: Geospatial Map Overlay of Kernel Density Estimation of Hotspots with Multivariate Clustering Analyses of Social Disparities

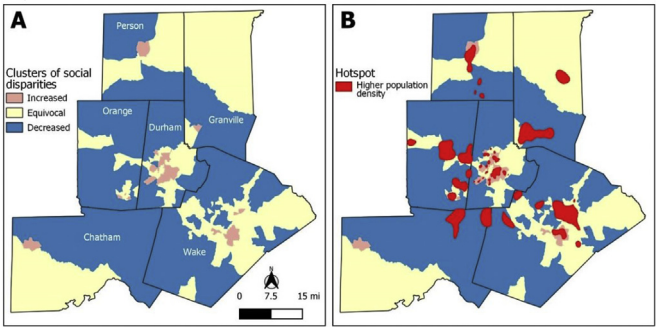


Table 1: Social Determinants of Health Census-Tract Groupings

Protective SDOH	High-Risk SDOH	Increased Vulnerability for Infection
Percentage Insured	Below Poverty Line	Limited Access to Healthy Food
Number of People with High School Degree	Unemployment	Percentage of Limited English per Household
Median Income	No Vehicle	Percentage of Health Professionals
Percentage ≥ 1 Vehicle per Household	Household Size	Food Desert Areas
Percentage of Employment	Uninsured	

EMF 28

The Opioid Epidemic Meets the Coronavirus Pandemic: Rates and Patient Characteristics of Emergency Department Visits for Opiate Use Disorder During the COVID-19 Pandemic in the Los Angeles County Public Hospital System

Johnson E, Lam C, Axeen S, Vosooghi A, Schneberk T/Los Angeles County + University of Southern California Los Angeles, California, University of Southern California, Los Angeles University of Southern California, Los Angeles, California, University of Southern California, Keck School of Medicine, University of Southern California, Keck School of Medicine, Los Angeles, California

Study Objective: The COVID-19 pandemic led to profound challenges for health systems and disruptions in care for society's most vulnerable patients, in particular people with opiate use disorders (OUD). The closure of outpatient addiction clinics, cessation of harm-reduction services, and lack of access to support groups have all been attributed to worsening outcomes for patients with OUD during the COVID-19 pandemic. Most concerningly, emerging evidence points to accelerated rates of overdose deaths. In Los Angeles, a city disproportionately affected by high rates of COVID-19, chronic housing insecurity, and substance use disorder, the Department of Public Health reported a 48% increase in accidental drug overdose deaths during the first five months of the pandemic. In March of 2020, a state of emergency was declared for COVID-19 and stay-at-home orders were issued. These events were associated with a sharp reduction in total ED visits. However, with the profound disruption in usual sources of care and support for people with substance use disorders, emergency departments (EDs) remained a critical access point for these patients.

Methods: We examined all visits to public safety-net hospital EDs in Los Angeles County. We considered OUD-related ED visits as those which included any of the following: visits with a discharge diagnosis related to OUD, patients who received buprenorphine or naloxone while in the ED, and visits where a prescription for buprenorphine or naloxone was given on discharge. We performed a logistic regression to examine patient characteristics of opiate use disorder-related visits from April 2019-Feb 2020 compared with April 2020-Feb 2021.

Results: Overall, there was a 22% increased odds of an ED visit being related to OUD when we compared pre- and post- COVID shutdown periods in Los Angeles. Visit acuity levels increased across all ESI scores. There was a statistically significant increase in the predicted probability of OUD visits for black and Hispanic patients of 17% and 25% respectively compared to pre-COVID levels. Patients were more likely to present for OUD-related encounters if they were publicly insured, uninsured, or brought in by ambulance. Admitted patients were four times more likely to have an OUD-related ED visit on presentation.

Conclusions: Rates of OUD-related ED visits increased during COVID-related shutdowns. These increases were most pronounced among black and Hispanic patients and those with no insurance or publicly funded insurance plans. Patients admitted to the hospital had higher odds of OUD-related complaints. This reinforces the importance of the emergency department as a safety net resource for the most vulnerable patients suffering from OUD during the pandemic and highlights the opportunity to address these disparities with ED-based interventions.

EMF 29

Interpreter Variability Of Lung Point-of-Care Ultrasound Rubric in a Population of Non-Critically Ill COVID Patients

Theodoro D, Coneybeare D, Lema P, Gerhart C, Binkley M, Chamarti S, Hafez Z, Ablordeppey E, Wallace L, Stickles S, Adhikari S/Washington University School of Medicine, St. Louis, Missouri, Columbia University Vagelos College of Physicians and Surgeons, Columbia University Vagelos College of Physicians and Surgeons, Washignton University School of Medicine, Washington University School of Medicine, Columbia University Vagelos College of Physicians and Surgeons, Washington University School of Medicine, Washington University School of Medicine, Washington University School of Medicine, Washington University School of Medicine, The University of Arizona

Study Objectives: Lung point-of-care ultrasound (L-POCUS), a novel and radiation-free diagnostic tool, could aid in COVID-19 prognosis. Early studies have yielded scoring rubrics focused heavily on hospitalized populations including the critically ill. Operator characteristics of this novel technology in non-critically ill, ambulatory COVID patients has not been described and is an important consideration for dissemination. The purpose of our study was to determine to the inter-rater reliability of an L-POCUS scoring rubric in a population of non-oxygen dependent patients.

Methods: This was a cross sectional study design of patients at three academic institutions in the Northeast, Midwest, and West. We included subjects with respiratory complaints who tested positive for COVID-19 and maintained oxygen saturation $\geq$92% for two hours after presentation to the emergency department as part of a larger project focused on describing L-POCUS prognostic characteristics in a non-critically ill COVID pneumonia population. L-POCUS was performed on seven lung windows on each side of the chest: two anterior, two lateral, and three posterior. All clips were obtained with a curvilinear probe or a linear probe using machine settings to enhance lung findings ("nerve" or "lung"). The scoring rubric ranged from 0 to 6 for each lung field with 0 being normal lung and 6 indicating severe lung pathology from COVID. We divided lung findings into pleural and parenchymal with the score per lung field representing the sum of the two parts. Pleural findings included normal (0 points), blurring, indenting, or thickening (1 point), and discontinuity (2 points). Parenchymal findings included normal (0 points), B lines (1-3 B lines equaled 1 point, >3 B lines equaled 2 points, coalescing or "waterfall" B lines equaled 3 points), and subpleural consolidation (4 points). As discontinuous pleura necessarily accompanies subpleural consolidations per definition, lung fields with subpleural consolidations automatically scored 6 points. Clips, collected and scored at bedside by an expert sonologist, were randomly selected for scoring by other operators of differing experiences: a resident, a faculty member without ultrasound fellowship training, an ultrasound fellow, and a second expert. Scores were then analyzed using the intraclass correlation coefficient (ICC) using the R package "ICC" to determine inter-rater reliability between the initial expert rater and all other raters.

Results: A total of 50 clips lasting 6 seconds each were chosen for scoring, 49 with the culvilinear probe and 1 with the linear probe. The calculated Intraclass Correlation Coefficient (ICC) for expert raters was 0.71 (0.55, 0.83, $p<0.0001$) 0.83). Moderate agreement between all raters was found with an ICC of 0.72 (0.62, 0.81). The faculty member without ultrasound fellowship training and the fellow disagreed the most from the group and resulted in the highest variability. A Loess graph demonstrates less variability at low scores than high scores.

Conclusion: The L-POCUS rubric for scoring lungs infected with COVID in an ambulatory population revealed moderate to good agreement among a diverse group of operators. Greater variation at higher scores reveals ambiguity in definitions of lung pathology in COVID. This warrants future studies refining criteria for lung findings and correlating to clinical implications.