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thromboembolic disease, we hypothesized that the number of ED patients with CVTs increased after the arrival of COVID-19 in the New York City area in early March 2020.

Methods: Retrospective cohort design. EDs of 28 hospitals within 150 miles of New York City. Hospitals were teaching or non-teaching and rural, suburban or urban. Annual ED volumes were from 12,000 to 122,000. The database we had available included consecutive patients seen by ED physicians from March through November in 2019 and 2020. We tallied the number of patients diagnosed with CVTs using International Classification of Disease (version 10) codes.

Results: The database contained a total of 1,975,332 visits, 1,161,080 in 2019 and 814,252 in 2020 (a 30% decrease from 2019 to 2020). In 2019 six patients were diagnosed with COVID and in 2020, three patients. For these CVT patients, the median age [interquartile range] was 44 [36-50] and 78% were female.

Conclusion: Contrary to our hypothesis, we found that the arrival of COVID-19 in our area, visits for CVTs did not increase. We speculate that total ED visits decreased in 2020 because of public health mandates and fear of contracting COVID-19. The decrease in visits for CVTs that we found may have been due to the overall decrease in ED visits. Another factor may have been that ED testing was COVID-19. The study objectives were to determine if COVID-19 was associated with increased comorbid conditions contributing to poor outcome. CHF showed the strongest relationship to fatality rate, which was nearly three times higher than those without CHF. Males and Black patients showed higher fatality rates than those with COVID-19. The database contained a total of 1,975,332 visits, 1,161,080 in 2019 and 814,252 in 2020 (a 30% decrease from 2019 to 2020). In 2019 six patients were diagnosed with CVT and in 2020, three patients. For these CVT patients, the median age [interquartile range] was 44 [36-50] and 78% were female.

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Methods: A retrospective, multi-center cohort study of adult patients who required hospitalization between March 01, 2020 and July 01, 2020 due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection was conducted. All data was abstracted from two rural and one urban ED in Arizona. Research assistants who were blinded to the study hypothesis were trained on proper data abstraction prior to collection. With adherence to a quality-controlled protocol and structured abstraction tool, research assistants manually collected patient demographics, intake laboratory values, initial vital signs, ICU admissions, and mortality. Data was collected using a one-to-one allocation ratio based upon ethnicity for each site. Comparisons between rural and urban populations were completed using chi-square, Mann-Whitney U, and independent samples T-tests.

Results: A total of 304 patients (175 urban and 129 rural) with confirmed SARS-CoV-2 infection were admitted to the hospital during the study period. Patients presenting to a rural ED were more likely to be admitted to the ICU (24 urban vs 39 rural; OR = 2.1; p = 0.01). Of those hospitalized, a total of 137 (43.9%) were female (87 [47.5%] urban and 50 [38.8%] rural). The median age of patients hospitalized in the rural cohort was 67 years old (IQR=25) and from the rural cohort was 63 years (IQR=28). Of those studied, 43 (14.1%) patients expired from COVID-19 with 24 (13.1%) patients in the urban cohort and 19 (14.7%) in the rural cohort (p=0.06). Those in the rural population presented to the ED 7.0 (IQR 7) days from initial symptoms onset and those in the urban population 5 (IQR 4) days (p=0.005). Patients treated at urban EDs had a higher systolic blood pressure (138.6 mmHg vs 130.3 mmHg; p = 0.04) than those treated at a rural ED. When intake laboratory values were considered, patients treated in an urban ED had a statistically significant lower white blood cell count and ferritin level as compared to those at a rural ED but a higher hemoglobin, hematocrit, and calcium level (Table).

Conclusion: Rural patients with COVID-19 exhibit a delay in presentation to their local ED, producing atypical prognostic laboratory measures when compared to urban centers. This delay may contribute to symptom exacerbation and a higher rate of critical care admissions among rural patients.

| Diagnostic Test          | Urban ED Mean (95% CI) | Rural ED Mean (95% CI) | P-Value |
|--------------------------|------------------------|------------------------|--------|
| White Blood Cell         | 7.5 (6.8-8.2)          | 9.3 (8.0-10.5)         | 0.02   |
| Hemoglobin               | 13.6 (13.3-14.0)       | 13.0 (12.6-13.5)       | 0.03   |
| Hematocrit               | 41.0 (40.4-41.9)       | 39.3 (37.8-40.3)       | 0.03   |
| Sodium                   | 135.4 (134.7-136.1)    | 134.9 (134.0-135.8)    | 0.46   |
| Potassium                | 4.0 (3.9-4.1)          | 3.9 (3.8-4.0)          | 0.11   |
| Chloride                 | 101.1 (99.6-102.6)     | 101.7 (100.7-102.7)    | 0.46   |
| Bicarbonate              | 24.1 (23.2-24.8)       | 24.1 (23.2-25.0)       | 0.98   |
| BUN                      | 22.4 (19.8-24.9)       | 23.7 (19.4-28.0)       | 0.59   |
| Creatinine               | 1.17 (1.0-1.3)         | 1.55 (1.2-1.9)         | 0.06   |
| Glucose                  | 161.7 (138.7-184.4)    | 142.8 (127.7-158.1)    | 0.16   |
| Calcium                  | 8.7 (8.6-8.8)          | 8.5 (8.4-8.6)          | 0.006  |
| AST                      | 63.1 (49.7-76.4)       | 52.0 (43.1-61.0)       | 0.13   |
| ALT                      | 41.7 (34.9-49.4)       | 41.0 (35.1-47.0)       | 0.898  |
| LDH                      | 446.5 (394.8-505.4)    | 446.6 (397.0-556.8)    | 0.75   |
| Procalcitonin            | 1.04 (0.0-2.2)         | 0.37 [0.1-0.6]         | 0.61   |
| Ferritin                 | 409.1 (323.2-495.0)    | 831.6 (594.3-1069.0)   | <0.001 |
| C-Reactive Protein       | 8.7 (6.7-10.6)         | 10.4 (8.4-12.5)        | 0.32   |

Table: Emergency Department Laboratory Values Collected at the Time of Patient Presentation.

Impact of Virtual Simulation to Teach Paramedics Respiratory Failure Management During the COVID-19 Pandemic

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Study Objectives: Continuing education for EMS personnel is often limited to online lectures and self-study, as educational resources vary from department to department. Moreover, social distancing measures during the current COVID-19 pandemic further limit the ability for in-person training experiences. Simulation, unlike traditional forms of online learning, allows educators to create specific learning objectives and reinforce clinical concepts through a scenario and debrief, in an environment that does not compromise patient safety. Traditionally simulation is performed in-person, however given the need to socially distance, virtual simulation has been proposed in various forms as an educational tool. The aim of our study was to determine the impact of virtual simulation to teach EMS personnel respiratory failure management. We also explored their perceptions of this learning experience in comparison to other training modalities. This study presents a unique way to provide education to paramedics during the Coronavirus pandemic, without some of the logistical concerns that accompany traditional in-person simulation.

Methods: In total 90 Kissimmee Fire Department (KFD) personnel underwent a virtual simulation on respiratory failure. The participants were divided in groups of 3-6 with a designated team leader. Each session was virtually conducted by a physician. The physician facilitator was remotely broadcasted to the EMS team, performing tasks on a mannequin in the physician’sbroadcasted room as dictated by the EMS team and providing vital signs. Each session was approximately 25 minutes with 15 minutes of case progression and 10 minutes of debrief. 42 EMS personnel then participated in a 13 question survey to determine how the simulation affected their comfort level with respiratory failure in both COVID-19 patients and non-COVID-19 patients. They also recorded feedback on the virtual simulation and any issues they might have had during the sessions.

Results: The 42 EMS personnel responding to the survey felt an increased comfort level in managing respiratory failure in a suspected or known COVID-19 patient after the virtual simulation. There was an increase in "extremely comfortable" responses from 24% to 43% before and after the simulation, and a decrease in "somewhat uncomfortable" responses from 10% to 0%. There was a slight increase in the comfortability of managing respiratory non-COVID-19 patients as well, with an increase in "extremely comfortable" responses from 40% to 48%, and a decrease of "somewhat uncomfortable" responses from 2% to 0%. Only 12% of the responders stated they underwent simulation training once a month or more. In general 86% of the responders felt the video platform was easy to use, and the most common technical difficulty involved audio issues.

Conclusions: EMS personnel undergoing a virtual simulation and debrief in the management of respiratory failure in the setting of the COVID-19 pandemic felt more comfortable in their management of these patients after their sessions. The majority recommended continuing this type of training in the future in survey responses. Our cohort had extensive EMS experience, but did not frequently undergo simulation training, which highlights a potential area of improvement for EMS education. First responders continue to be essential in the safe and effective management of COVID-19 patients, and virtual simulation is a viable option to facilitate EMS training.

Social Stressors and Isolation Have Biggest Effect on Resident Wellness During a Pandemic

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Background: Emergency physicians are already known to be high-risk for depression and burnout. In all likelihood the COVID-19 pandemic has added to this risk.

Study Objectives: We sought to identify the primary stressors for EM residents during this pandemic and determine which factors and interventions have helped most to improve their wellness.

Methods: The setting was an EM residency program in the state with the highest per-capita deaths from COVID-19. All EM residents were surveyed eight months into...