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and why will allow us to develop outreach strategies and ensure that those in need of rapid assessment and treatment will continue to seek it, preventing downstream morbidity and mortality.

5 Burden of Out of Hospital Cardiac Arrest in New York City during the COVID-19 Pandemic

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Study Objectives: As of June 10, 2020, there have been 17,300 confirmed and an additional 4,693 suspected COVID related-deaths in New York City (NYC). While much attention was given to the overwhelming burden on hospitals and skilled nursing facilities during the pandemic, it is less well known how the pandemic impacted EMS and why will allow us to develop outreach strategies and ensure that those in need of rapid assessment and treatment will continue to seek it, preventing downstream morbidity and mortality.

Results: In NYC during the COVID-19 pandemic, EMS experienced a 220% increase in cardiac arrest call responses in February - April, 2020, and for the same time period in the final year. Descriptive statistics were used to describe and compare the daily counts of cardiac arrests and the proportion of patients pronounced in the field between the current year during the pandemic time period and the corresponding time period in 2019. This study was determined to be exempt by the Mount Sinai Institutional Review Board.

Conclusions: There was exponential growth of the rate of OOHCA during the initial phase of the pandemic in NYC and there was a sustained increase through the month of April 2020. With a 220% increase in cases over the course of three months and over a 780% (42 to 330 cases) increase on the highest day of OOHCA, and in light of a concurrent burden on NYC hospitals, our EMS system experienced an unprecedented demand for critical care and resuscitation. Further studies are needed to better understand to what degree the increased in OOHCA was attributed to the disease itself, or due to delaying needed care for other conditions. In planning for future pandemics, strategic planning should include consideration of impacts on operations and capacity of the regional EMS system.

6 Lung Ultrasound versus Chest X-ray for the Diagnosis of COVID-19 Pneumonia

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Study Objectives: The virulent illness severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), more commonly known as coronavirus 2019 (COVID-19), has become a global pandemic infecting over 2 million individuals worldwide. Symptoms are often vague and physical exam findings have proven unreliable as indicators of infection. Therefore, diagnosis typically relies on imaging or nasopharyngeal swabs.

Results: 143 consecutive patients with signs and symptoms of COVID-19 were approached and enrolled. 27 patients were considered low risk by the attending ED physician and 6 patients were admitted for alternate diagnoses without advanced imaging. 110 patients underwent LUS, CXR, and NCCT. 99 LUS and 73 CXRs were interpreted as positive. 81 NCCT were interpreted as positive providing a prevalence of COVID-19 pneumonia of 75% (95% CI 60.0-83.2) in our study population. Sensitivity of LUS was 97.6% (95% CI 91.6-99.7) vs 69.9% (95% CI 58.8-79.5) for CXR. Specificity was 33.3% (95% CI 16.5-54.0) for LUS and 44.4% (95% CI 25.5-64.7) for CXR. LUS positive and negative likelihood ratios were 1.46 (95% CI 1.12-1.92) and 0.0723 (95% CI 0.01-0.31), respectively vs 1.26 (95% CI 0.87-1.81) and 0.67 (95% CI 0.39-1.16) for CXR. PPV and NPV for LUS were 81.8% (95% CI 72.8-88.9) and 81.8% (95% CI 48.2-97.7) compared to 79.5% (95% CI 68.4-88.0) and 32.4% (95% CI 18.0-49.8) for CXR.

Conclusions: LUS was more sensitive than CXR at identifying COVID-19 pneumonia. LUS using a portable, handheld ultrasound and a portable AP CXR after the LUS was completed. High-risk patients or those with an abnormal imaging finding underwent a non-contrast-enhanced computed tomography (NCCT) as the diagnostic standard. The primary outcome was the sensitivity of LUS and of CXR at identifying COVID-19 pneumonia against NCCT as the reference standard. Using a power analysis of 80%, our sample size calculation of 98 patients was based on previous data demonstrating a 20% difference in sensitivities between LUS and CXR at diagnosing pneumonia.

7 Failure Rates during Reuse of Disposable N95 Masks in Clinical Practice in the Emergency Department

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Study Objectives: The COVID-19 pandemic caused a worldwide shortage of personal protective equipment, specifically disposable N95 respirators, prompting health care entities to extend the use of these masks beyond their intended single-use manufacturer recommendation with a paucity of supporting research. We sought to explore the failure rate when reusing single-use N95 respirators through repeated fit testing in an emergency department (ED).

Methods: We performed a prospective cohort study of ED personnel (“subjects”) required to use respirators at an academic, level one trauma center. All investigators performing fit testing reviewed OSHA qualitative fit test guidelines and training and were familiar with the testing protocol. All subjects had been previously fit tested and assigned an appropriately sized N95 mask by employee health per hospital protocol. Subjects who failed initial fit testing and those who declined to participate were excluded. Per study protocol, subjects were fit tested periodically throughout their
shifts and on multiple shifts over the 8-week study period. Data points collected included the age of the mask, subjective assessment of mask seal quality, and fit test results. The data was analyzed using Fisher’s exact test, and odds ratios were calculated to determine the failure rate of disposable N95 masks following reuse. The study was approved by the Institutional Review Board.

Results: One hundred thirteen disposable N95 masks were evaluated. Twenty-eight masks were in their first day of use (3 failures), 29 were in their 2nd day of use (2 failures), 26 were in their 3rd day of use (9 failures), 11 were in their 4th day of use (5 failures) and 21 were in their 5th or greater day of use (10 failures). Categorizing the failures), 26 were in their 3rd day of use (9 failures), 11 were in their 4th day of use (5 failures), and 13 were in their 5th or greater day of use (8 failures). Younger masks failing 9% of the time and older masks failing 41% of the time. Conclusion: Disposable N95 masks have significant failure rates following reuse in clinical practice.

Emergency Physician COVID-19 Readiness and Practices
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Study Objectives: The purpose of this survey study was to assess the working environment of emergency physicians (EPs) early in the Corona Virus Disease 2019 (COVID-19) pandemic. Areas of interest included access to appropriate personal protective equipment (PPE), hospital policy, personal effects of the pandemic on EPs, and how the pandemic has changed their individual practices.

Methods: An anonymous Survey Monkey survey for all practicing EPs was released on an EPs’ social media group in mid-April 2020. The survey consisted of 15 questions covering demographics, hospital policies and work environment, individual physician concerns and changes in practice and habits.

Results: 220 emergency physicians responded to the survey with 209 complete submissions.

Demographics: 41 of 50 states, Puerto Rico, and Canada had at least one response. Most had at least one response. At least one-third have been in practice for either 5-9 years and 10-19 years post-residency each. More than half work in a community hospital (58%) and approximately one-third work at a tertiary or regional medical center. There was a wide spread in the number of ICU beds at their facility on a scale of 0-50 in increments of 10.

Hospital Policy: Although the vast majority reported isolation COVID-19 areas and limited visitors, nearly 15% reported that their site did not have any current plans to create an isolated area. About half reported a hospital policy requiring N95 respirators in COVID-19 positive or suspected areas although a quarter of those also included wearing N95 respirators in all patient rooms (N95). Other common policies included universal masking and N95s for high risk or aerosolizing procedures only.

PPE: N95s and surgical masks were the most commonly provided PPE. 86% were concerned about short term shortages or were already facing shortages. More than half reported access to a powered air-purifying respirator (PAPR). N95s were the most likely to run out (82%) followed by gowns (60%) and surgical masks (42%). Most purchased at least one item of PPE (86%).

Individual Practices: Three-quarters report not self-quarantining at home, although almost all (98%) have added steps to reduce risk of bringing contaminants home. Removing shoes and work clothes prior to entering the home (86%) and immediately showering upon arriving home (88%) were the most common practices followed by showering and/or changing at the hospital (45%). Other responses included cleaning or separating personal work items, temporarily living in a separate location, or limiting contact with others in the household. The majority were concerned about transmitting COVID-19 to low and/or high-risk friends or family members (74% and 72%, respectively). Almost one-quarter were high risk and were concerned about becoming ill. More than half were concerned about the personal financial impact of the pandemic.

Conclusion: First month after COVID-19 was declared a pandemic by the World Health Organization and a national emergency by the United States we surveyed emergency physicians, COVID-related policy changes, supply chains, and personal effects. At that time most hospitals had enacted policies regarding PPE use, created isolated COVID areas, and limited visitors. Most EPs had concerns regarding immediate and short-term inadequate PPE supplies and have bought at least one PPE item to use at work. Very few emergency physicians reported no concerns regarding personal risks of contracting or transmitting COVID.