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17 Telemedicine For Veterans in the Setting of the COVID-19 Pandemic: Lessons Learned From VISN 8’s Clinical Contact Center (A Virtual Urgent Care) in Avoiding Emergency Department Visits

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Study Objective: The onset of the COVID-19 pandemic forced the health care industry to consider telemedicine as the primary modality for health care with focus on value and ease for providers and patients alike to achieve outcomes similar to face-to-face primary care (PC), urgent care (UC), and emergency department (ED) visits. It remained unclear if telemedicine visits actually achieved first contact resolution (FCR), fully meeting the patients’ needs through their virtual care experience. At a time when Florida ranked #3 in its COVID-19 census, Veterans needed access to timely care to answer their concerns and questions. This is even more important as Veterans tend to have multiple comorbidities, translating into increased risk of morbidity and mortality with COVID-19. VISN 8, a region of the U.S. Department of Veteran Affairs (VA) that covers most of Florida, South Georgia, Puerto Rico, and the U.S. Virgin Islands, established a Clinical Contact Center (CCC) in July 2019. The CCC is a 24/7 virtual urgent care organization providing episodic care via telephone and video with physicians and nurse practitioners who work 7 days a week from 7A to 11:30P. A physician was available overnight for COVID-19-related concerns. This study examined the change in CCC workload as a result of the COVID-19 pandemic and assessed first contact resolution (FCR) for patients with COVID-19 related chief complaints.

Methods: This was a retrospective study centered around March 11, 2020, when the World Health Organization (WHO) declared a pandemic. This analysis included a sample size of 6,660 patient episodes between March - August 2020. Our outcome variable of interest was FCR. We constructed a binary disposition variable of “stay at home” or “other” which included presentation to the ED or PC. Data collected included patient age, sex, race/ethnicity, COVID-19-related chief complaints, and visit modality (phone versus video). We used a logistic regression to examine factors affecting the probability that patients remained at home. A VA IRB determined that the study was exempt from review.

Results: Figure 1 displays the increase in CCC workload during the pandemic starting in March 2020 with a sustained ability to achieve FCR. During the pandemic, patients with suspected COVID-19 were 2.75 times more likely to stay at home than patients calling with non-COVID-19 related chief complaints. This suggests that telemedicine offers significant public health value to patients who are not presenting to the ED or for PC visits potentially exposing themselves and others to the spread of the virus. The control variables of sex and visit modality were found to not be statistically significant.

Conclusion: This study established the value of telemedicine in a pandemic with FCR and avoidance of public spaces that could potentially lead to a COVID-19 infection. The service provided by the CCC was invaluable to Veterans as they sought timely care.

Figure 1: CCC Provider Workload Prior and During the COVID-19 Pandemic (November 2019 – August 2020; n= 10,865)

18 The Impact And Efficiency Of Medical Screening Exams In Forward Treatment Areas At NYC Public Hospitals During The Initial COVID-19 Surge

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Background: New York City (NYC) experienced a dramatic surge of infections with the novel SARS-CoV-2 virus in March 2020. The rapid increase in patients presenting to emergency departments (EDs) necessitated a change in intake processes in contrast to prior emergency response protocols outfitted for single day or short-term disasters. To adapt to the increased demands on patient flow, NYC Health and Hospitals (NYC H+H) established a rapid medical screening evaluation (MSE) process in each of its eleven-member public hospitals. Each hospital created its own treatment areas to perform their MSE. Some hospitals created a Forward Treatment Area (FTA) external to the ED to evaluate and disposition patients prior to entering the ED.

Methods: Five of the eleven hospitals created external FTAs to perform rapid MSEs in accordance with EMTALA and make disposition decisions before patients physically entered the ED. Patients 18 years and older were screened in the FTA and either sent into the main ED for further evaluation or discharged home. Some sites directed patients to an alternate care site where they could receive COVID-19 testing (very limited availability) and/or receive further information about COVID-19. Three hospitals utilized paper-based MSE, and two used an Electronic Medical Record (EMR)-based approach. Paper logs and EMR charts were reviewed using a standardized data extraction template. In addition, patients discharged from the FTA were contacted by a follow-up phone call, and a structured interview was used to capture additional data regarding their subsequent clinical course. Chi-square and Fischer’s exact test were used to compare paper- and EMR-based MSE.

Results: Across the five EDs, a total of 3,335 patients were evaluated in their respective FTAs. Of these patients, 970 (29.1%) were referred for further evaluation into the ED, of which 203 (20.9% of the subset) were hospitalized and nineteen (2.0%) died. Of 2,902 patients discharged directly from the FTA, 182 (7.9% of the subset) returned to the ED within seven days, resulting in 42 (1.8%) hospitalizations and seven (0.3%) deaths. The facilities using an EMR-based approach discharged proportionally more patients from their FTA (81.9% vs 65.3%, p < 0.001), had similar seven-day return visit rates (9.3% vs 7.1%, p = 0.055) and similar mortality rates (0.49% vs 0.20%, p = 0.251).

Conclusion: An MSE in an FTA is a highly effective process to disposition patients safely in a high patient volume situation. Differences exist in paper-based vs EMR-based approaches, suggesting EMR-based MSEs provide better data and greater effectiveness. This would suggest that prioritizing a standardized EMR-based MSE should be considered in future circumstances.

19 Automated Quantification Of B-Lines In Lung Ultrasound On COVID-19 Patients

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Study Objectives: Point-of-care ultrasound (POCUS) has become an important tool in the global response to COVID-19, supporting screening, diagnosis and management. Lung features described in COVID-19 include B-lines (ring-down artifacts appearing in the presence of interstitial lung fluid), thickened and irregular pleural line, subpleural consolidations and effusions. Computer-aided interpretation can be incorporated into POCUS platforms to provide objective data and improve interpretations by novices. We sought to test a commercially available B-Lines counting feature previously developed using non-COVID data, on patients suspected of COVID-19. This first step would allow expansion to automated B-line scoring and further lung feature detection, to create an intelligent POCUS system with comprehensive set of lung ultrasound features for COVID-19 pneumonia.

Methods: This was a prospective observational study at a single academic medical center. Subjects presenting to the emergency department with shortness of breath and suspected COVID-19 were enrolled. The Philips Lumify TM ultrasound system with sector or linear transducer was used to obtain 6-second clips of 14 lung zones (upper and lower, right and left anterior, lateral and posterior). Right and left anterior upper zone clips were also obtained with a second probe type. Repeat examinations with data...
collection were performed on days 3, 5, 7, or 12 +/- 1 day for admitted patients. All clips with 2 or more B-lines were included (N=80), as well as a random selection of 70 clips with 1 or fewer B-lines. B-line count for inclusion was based on visual rating by two researchers with POCUS training. A POCUS fellowship trained emergency physician visually assessed each clip frame and counted the maximum number of B-lines per clip. This was compared to automatic counts by the commercially available Lumify TM Lung B-lines Quantification software by intraclass correlation coefficient (ICC) and Cohen’s weighted kappa.

Results: Of the 899 total clips, 150 clips from 30 unique subjects and 44 overall exams were used for analysis, with 100 clips from patients with confirmed COVID by PCR. The average maximum B-line count by algorithm was 1.52 +/- 1.24, and that by expert was 1.60 +/- 1.35 (ns). The ICC between algorithm and expert was 0.87 (95% CI 0.83-0.91), with a weighted kappa of 0.64 (95% CI 0.48-0.81), indicating substantial agreement. Average of maximum B-line counts, ICC and weighted kappa between algorithm and expert were comparable for COVID+ and COVID- subgroups as well as between transducer types. For COVID+ subgroup, the average of maximum B-line counts was 1.73 +/- 1.28 for algorithm and 1.78 +/- 1.57 for expert, with weighted kappa 0.67 (95% CI 0.50-0.84), and ICC 0.87 (95% CI 0.83 to 0.91).

Conclusion: An automated algorithm developed on non-COVID patients can accurately distinguish and quantify B-lines in clips from patients with COVID-19, with substantial agreement to expert visual rating.