



Snapshot of Emergency Department Volumes in the 'Epicenter of the Epicenter' of the COVID-19 Pandemic

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PUBLISHED ABSTRACT



ABSTRACT

Background: NYC Health + Hospitals/Elmhurst (Elmhurst) was one of the first hard-hit hospitals in the COVID-19 pandemic. Understanding trends in the emergency department (ED) of this "epicenter of the epicenter" may allow other locations to prepare as the pandemic spreads.

Hypothesis/Research Question: We hypothesize that the daily volumes of patients who registered to be seen for any reason at the Elmhurst ED surged in March 2020 as the COVID-19 pandemic arrived, then dropped in April and May to levels lower than those seen during the same time period in 2019. In addition, we hypothesize that during this period of the pandemic, a higher proportion of patients presenting to the ED required admission to the hospital for any reason as compared to 2019.

Methods: Number of daily ED visits and admissions were obtained from the electronic medical record EPIC for the 12 weeks beginning the first Sunday of March 2020 and the corresponding 12 weeks of 2019.

Results: A sharply increasing trend in ED volumes began around March 9, 2020 and peaked on March 18. During the time period of the peak, between March 9 and March 24, the mean daily visit volume was 285.6, compared to 228.1 during the corresponding timeframe in 2019 ($p < 0.0001$, unpaired two-tailed t-test). ED volumes then fell rapidly to well below pre-pandemic levels. Between April 12 and May 23, the mean daily volume was 78.6, whereas in 2019 the corresponding mean was 225.3 ($p < 0.0001$, unpaired two-tailed t-test). Additionally, the daily percentage of ED visits admitted to the hospital began to rise in late March 2020. Between March 23 and May 23, the mean daily admission rate was 30.1%, compared to 14.1% during the corresponding period in 2019 ($p < 0.0001$, unpaired two-tailed t-test).

Conclusions: Although in some areas ED volumes were decreased throughout the entire early COVID-19 pandemic, the epicenter of the crisis demonstrated a two-stage response beginning with a rapid surge in volumes. Similar patterns might be observed as COVID-19 spreads to new areas or reappears as a second wave. Moreover, the decreased volumes and elevated admission rates during April and May 2020, suggesting that fewer patients sought care and those who did had more severe symptoms, raise concern about reduced and delayed care seeking by the public.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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