



Clinical Outcomes in Patients Presenting to the Emergency Department for Opioid Overdose and Concurrent COVID-19 Infection

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INTRODUCTION

- ❖ Each year, nearly 3 million US adults visit an emergency department (ED) for treatment related to opioid use, of whom >25% require admission to the hospital.
- ❖ The onset of the COVID-19 pandemic in 2020 coincided with an increase in ED visits due to opioid overdose, as well as an increase in deaths due to opioid overdose.
- ❖ Opioids may cause respiratory depression through activation of μ -opioid receptors, and also alter the infiltration and cytotoxicity of immune cells, leading to higher incidence of infection and increased severity of the disease state.
- ❖ Objective: Research on opioid overdose during the COVID-19 pandemic has focused on the increase in rates of ED visits related to opioids, opioid overdose and death, but has not considered how concurrent Covid-19 infection influenced clinical outcomes.

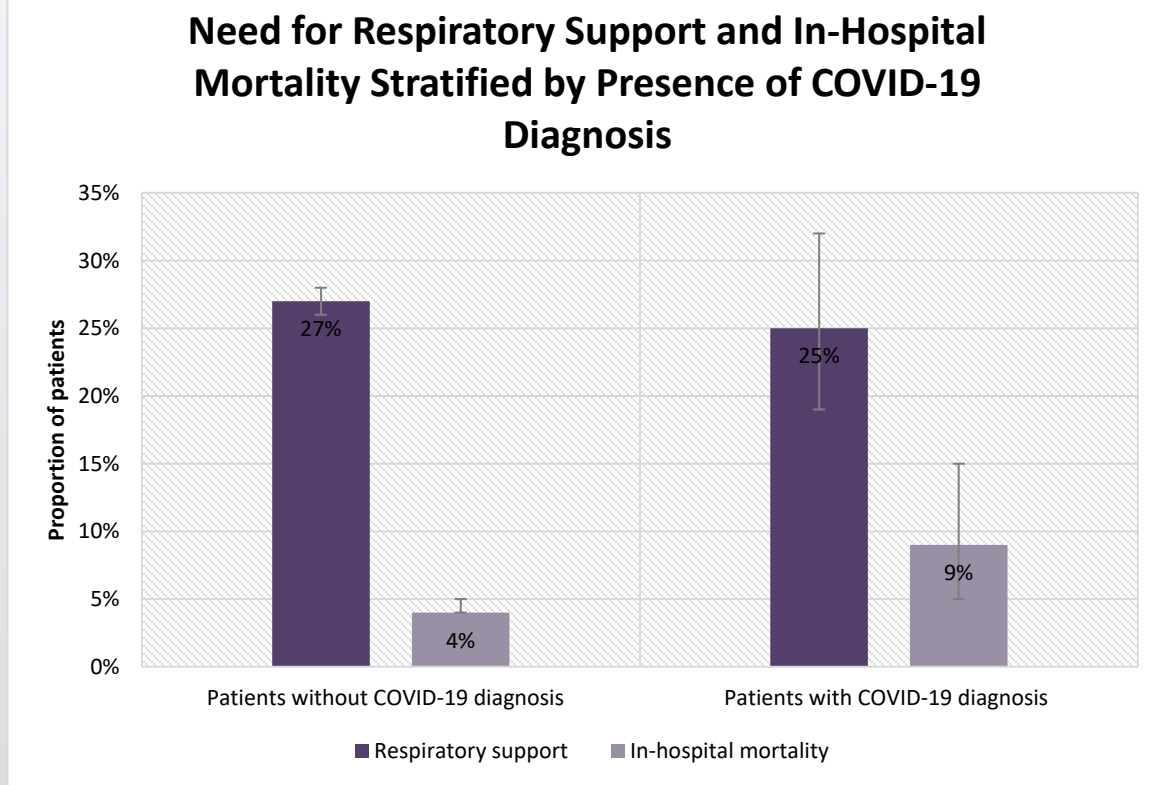
HYPOTHESIS

COVID-19 infection increased the need for respiratory support, prolonged hospital stays, and increased mortality among patients admitted to the hospital after presenting to the ED due to opioid overdose.

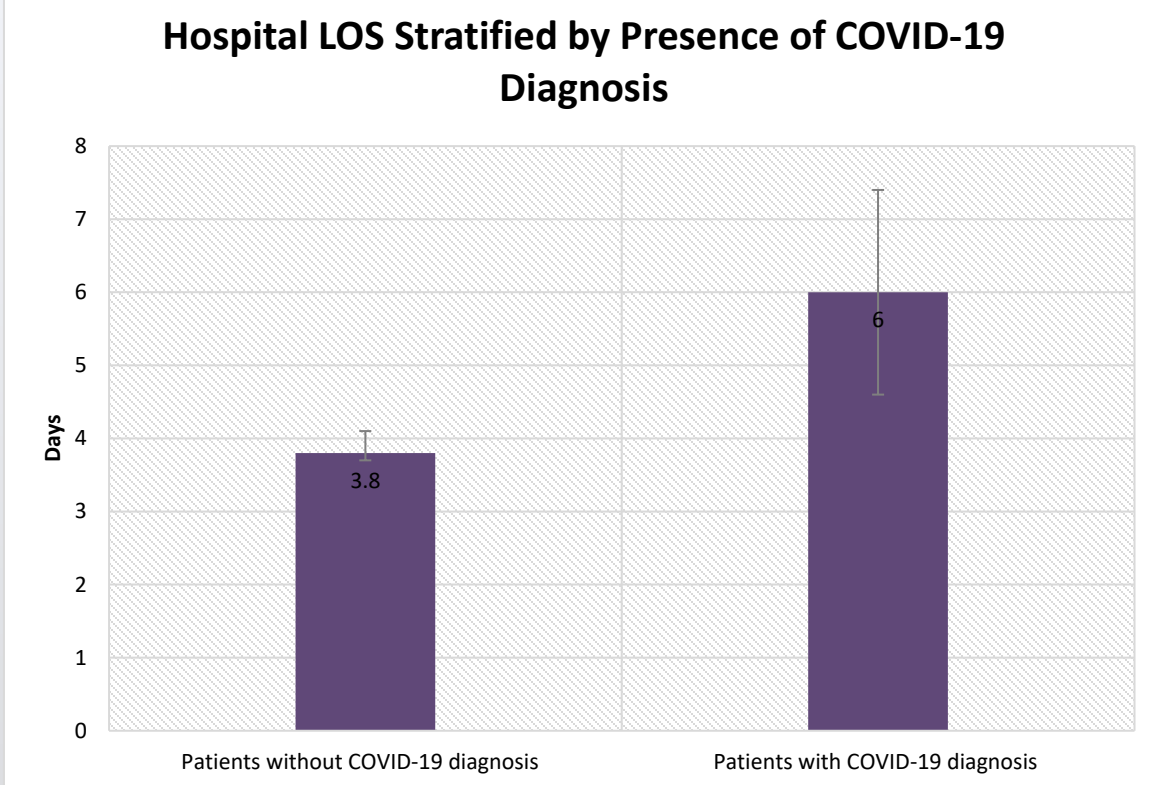
MATERIALS & METHODS

- ❖ The 2020 National Emergency Department Sample (NEDS), was used to identify patients admitted to the hospital after presenting to the ED with a primary diagnosis of opioid abuse, and whose COVID-19 infection status could be determined.
- ❖ Three outcomes were assessed:
 - Primary outcome of interest was the need for any respiratory support.
 - Secondary outcomes were hospital length of stay (LOS) and death before discharge from the hospital.
- ❖ Bivariate analysis, compared study variables between patients with and without COVID-19 infection. Multivariable analysis included logistic regression models for dichotomous variables, and a Poisson regression model for LOS.

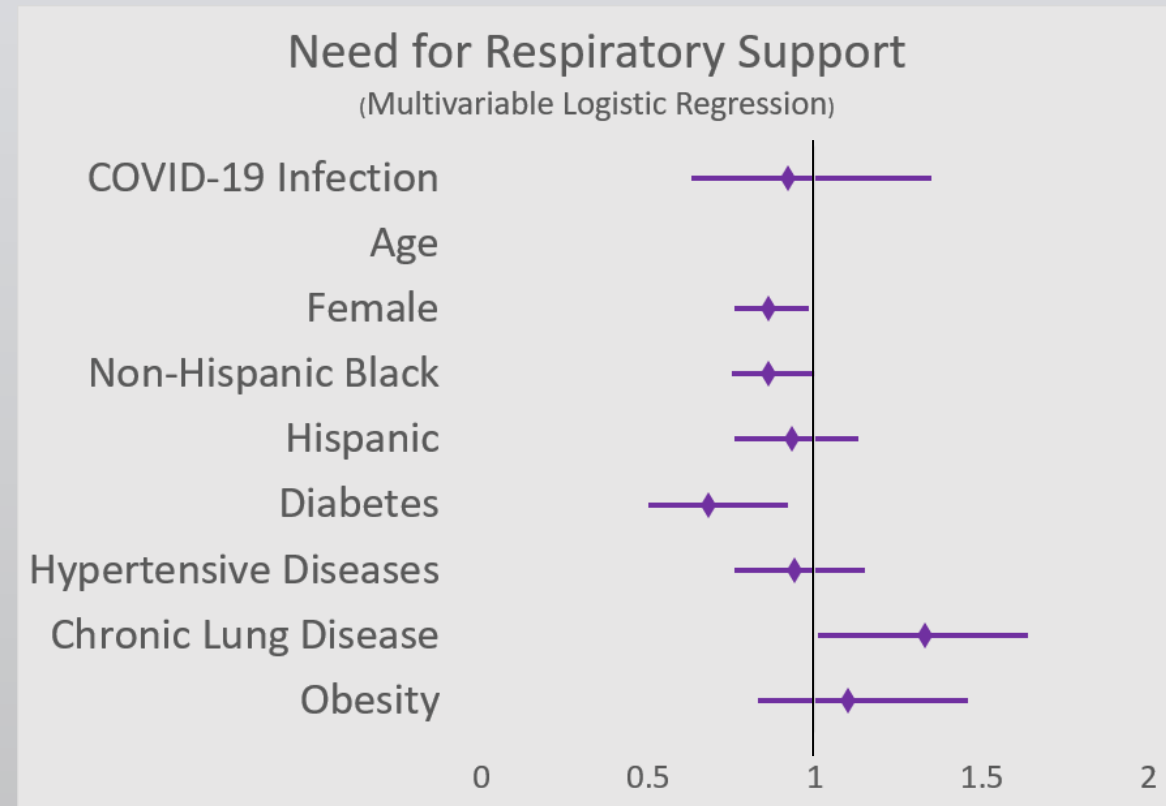
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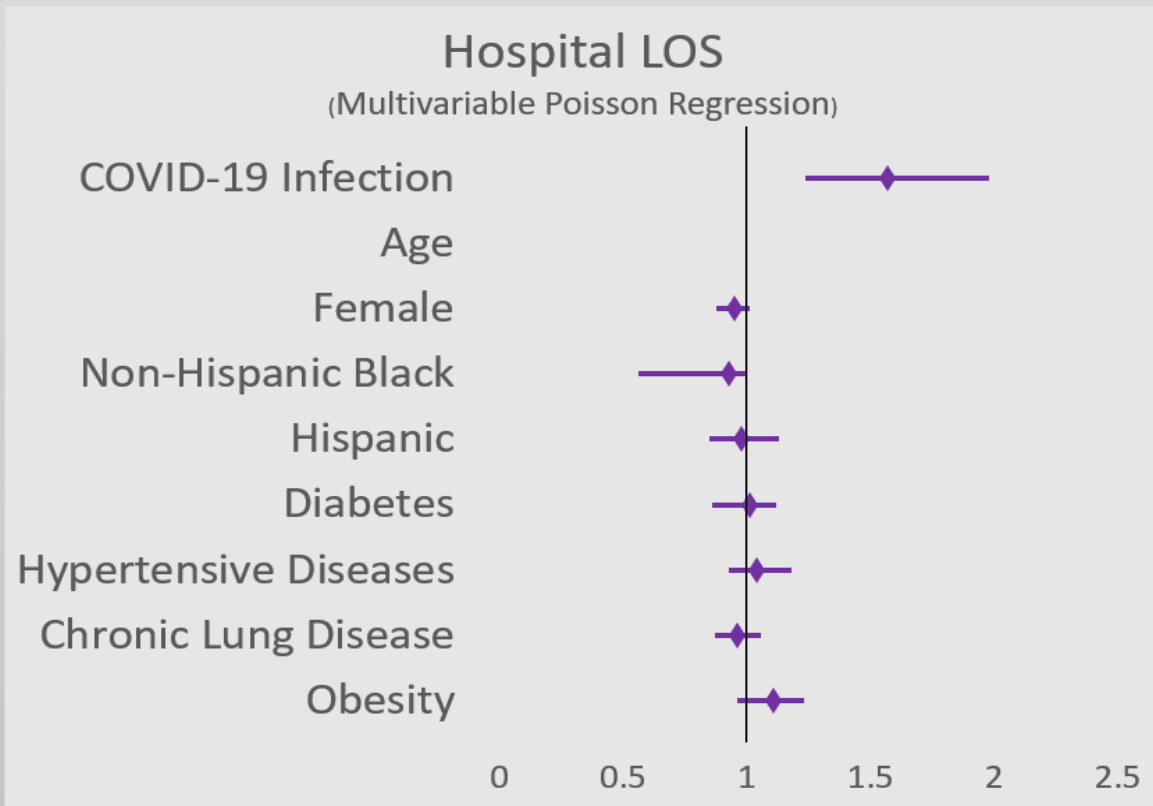
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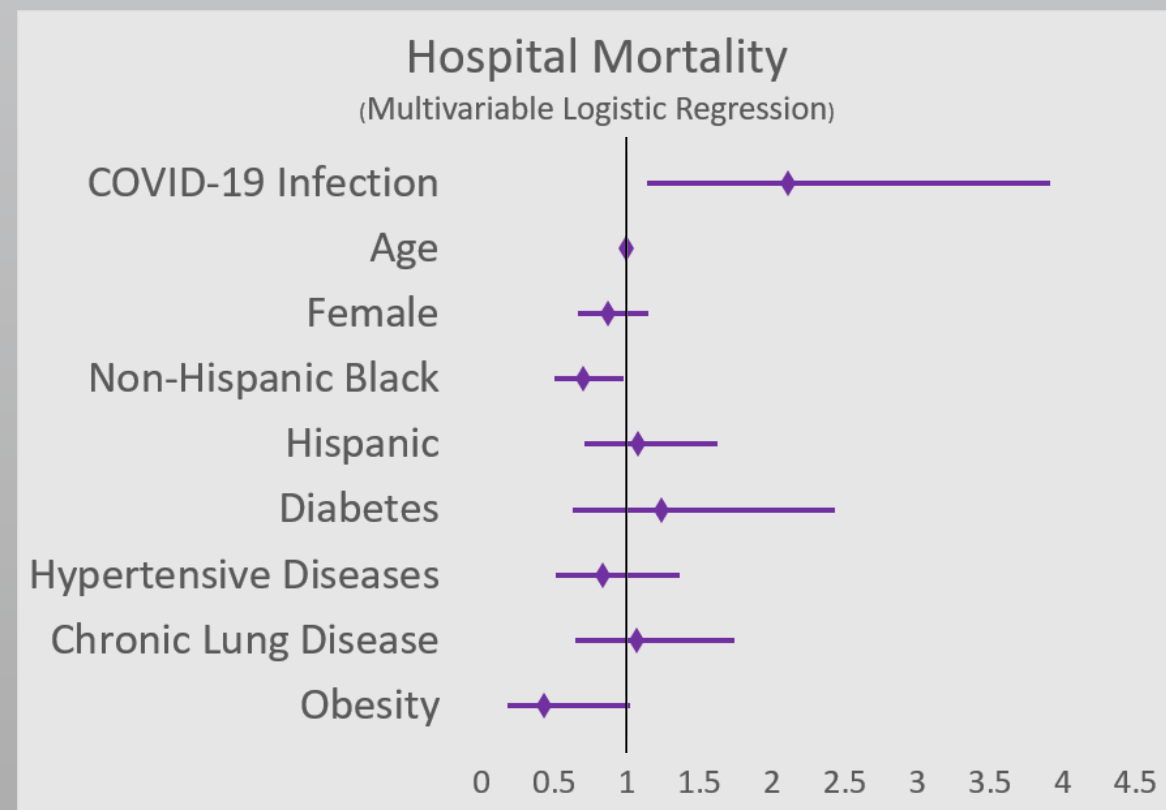
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Figures 3 – 5:

- ❖ Diamonds represent the odds ratio (OR) for need for respiratory support and hospital mortality & the Incidence Rate Ratio (IRR) for hospital length of stay. The horizontal lines indicate the 95% confidence intervals.
- ❖ Female is in reference to male and the race is in reference to non-Hispanic white.

RESULTS

Among the 6,094 eligible ED visits, we estimated that 3% (N = 172) of patients had a COVID-19 diagnosis. The estimated need for respiratory support was 27%, the estimated in-hospital mortality was 4%, and the mean hospital length of stay was 3.9 days.

After multivariable adjustment of study outcomes,

- ❖ COVID-19 was not associated with the requirement for respiratory support.
- ❖ COVID-19 was associated with a higher odd of in-hospital mortality and a longer hospital stay.

Our data suggests that COVID-19 may exacerbate some physiological consequences of opioid overdose, including organ damage. COVID-19 testing may continue to be important in hospitalized patients after an opioid overdose to identify patients at risk for worse clinical outcomes.

PROJECT CONTINUATION

- ❖ Use the newest 2021 set of data from the NEDS database that comes out in December 2023 to compare to our findings.
- ❖ Investigate our finding that there is no difference in need for respiratory support in patients with and without COVID-19 infection. Was there a possibility of under coding? Was our exclusion criteria too selective and we choose only the sickest opioid overdose patients?
- ❖ Identify the reasons that LOS and mortality would be higher in patients with a COVID-19 infection. Is there an administrative reasons for extended LOS? Literature has pointed to a connection between acute kidney injury and worse COVID-19 outcomes does damage to kidneys by opioid abuse play a factor?