Emergency and Inpatient COVID-19 Service Utilization and Its Stratification Based on Comorbid Conditions

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Introduction

- Ever since the very first case of COVID-19 was detected, many studies have been carried out to identify the various aspects of this multifaceted challenging disease.
- The COVID-19 has infected humans of all ages, gender, and races/ethnicity. It was observed that the disease manifested differently in individuals with different comorbid conditions. There is limited information describing the presenting comorbid conditions of patients in the US that require emergency and inpatient services for COVID-19.

Objective

To identify emergency room (ER) and inpatient healthcare service utilization in the COVID-19 patients and major comorbid conditions driving the same.

Method

- This retrospective study considered patients diagnosed with COVID-19 from March 2020 to March 2021 using Optum's de-identified administrative claims database.
- International Classification of Disease, Tenth Revision (ICD-10)* diagnosis codes were used to identify the COVID-19 patients.
- Optum's previous abstract[1] was referred to identify the possible clinical comorbidities having maximum association with emergency and inpatient utilization of services.
- The overall percentage utilization of ER and inpatient was calculated.
- A further analysis was made to analyze what proportion of patients who utilized these services had the specified comorbid conditions.**

Results

- A total of 1,516,883 patients were identified with COVID-19 for the analysis.
- 11% of total patients had ER service utilization whereas 13% used inpatient services.
- Hypertension and hyperlipidemia were found to be associated with maximum COVID-19 related ER and inpatient service utilization.

Figure 1: Split of COVID-19 patients between ER and inpatient service utilization (between March 2020 to March 2021)

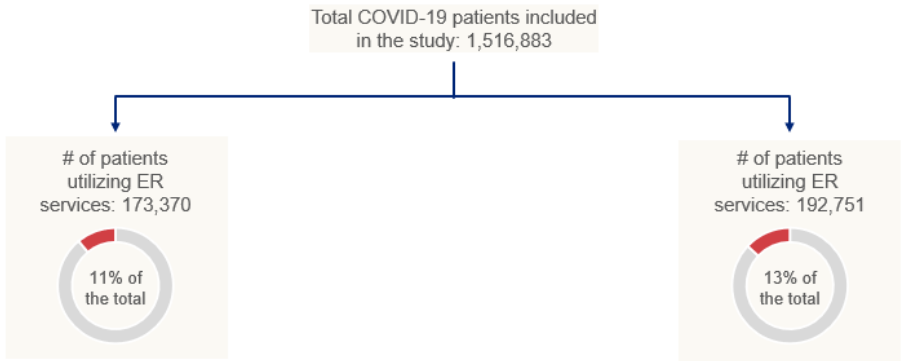


Figure 2: Proportion of ER service utilization based on comorbid conditions

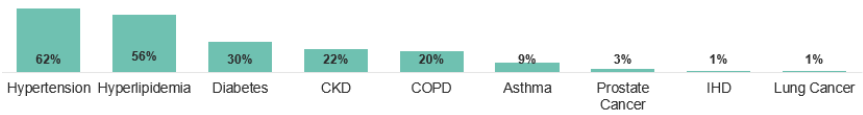
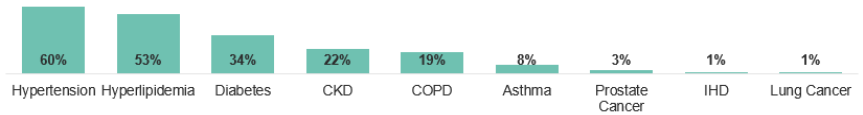


Figure 3: Proportion of Inpatient service utilization based on comorbid conditions



Conclusion & limitations

- This study confirms the findings of other studies where hypertension, hyperlipidemia, and diabetes is found to be a major comorbid condition driving ER and inpatient utilization.
- Further analysis could be performed to assess the impact of comorbidities on COVID-19-related health care utilization cost and mortality.
- Another aspect could be to analyze clinical outcomes during hospitalization, such as intensive care unit, invasive mechanical ventilation, and kidney replacement therapy.
- Impact of COVID-19 infection on the long-term prognosis of the above-mentioned comorbid condition should be evaluated.

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*ICD-10-CM codes used for identification of COVID-19 infection are Z1152, Z20822, Z8616, U00, U071, U09, U099, U49, U50, U85, J1281, J1282, B342, B949, B972, B9721, and B9729.

Reference - 1. Chopra A. et al, Identification of Risk Factors Associated with COVID-19 Hospitalization, Poster presented at ISPOR 2021 (Link: https://www.ispor.org/heor-resources/presentations-database/presentation/euro2021-3407/113343)

** Diabetes - E08, E09, E10, E11, E13; Hypertension - I10, I11, I12, I13, I15, I16; Asthma – J45; COPD - J40, J41, J42,J43, J44, J45,J47; CKD - N18; Hyperlipidemia - E780, E7800, E781, E782, E783,E784; IHD - I20, I21, I22, I23, I24; Prostate cancer - C61; and Lung cancer - C34