

# Analysis of Hospitalized COVID Patients' Medical Histories' Effect on Length of Hospital Admission

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## Background

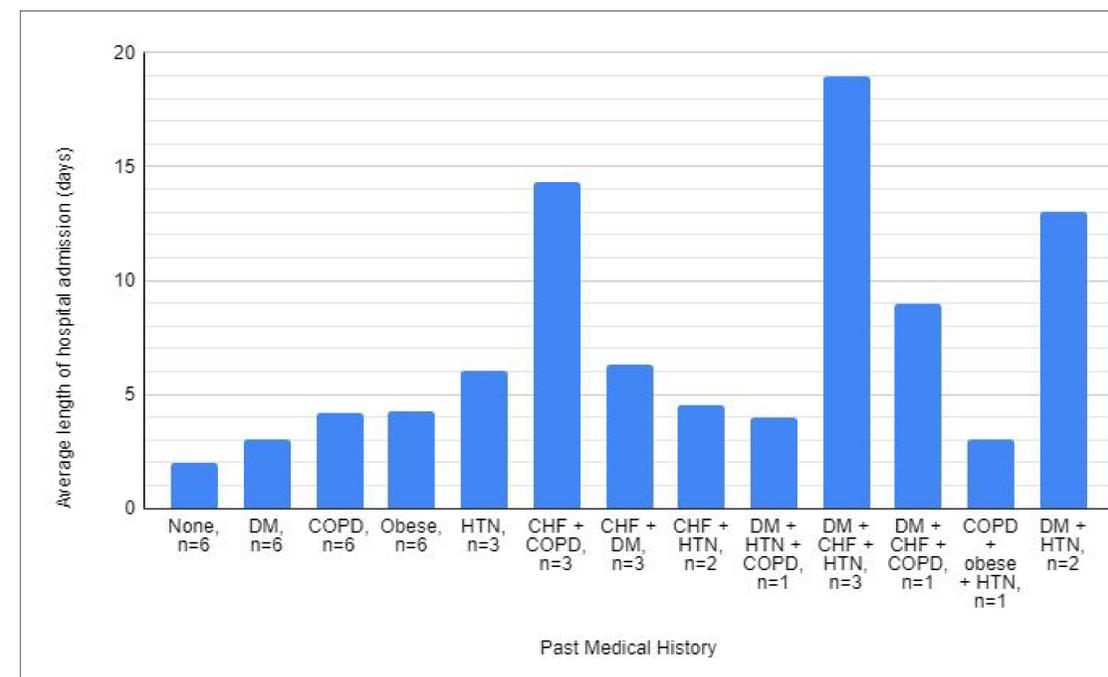
There is abundant evidence to show that individuals with certain health conditions are more vulnerable to infection by the COVID-19 virus. Some of these health factors include: old age, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), hypertension (HTN), obesity, and diabetes (DM). Having these comorbid conditions can also lead to worse health outcomes after a COVID infection. While we know individuals with these health factors are at greater risk, there is not much data on which of these health factors when compared to each other, contribute most to adverse outcomes. This information could be valuable to further understand which individuals are at greatest risk. A potential use for this research would be to understand which subsets of populations are most likely to develop complications from COVID infection, which would let us prioritize which patients should be given the COVID vaccination based on their medical history.

## Objective

The goal for this research was to evaluate data that compared outcomes of individuals who were admitted to the hospital for COVID infection based on their history of health problems.

## Methods

Data was obtained from a list of all patients of the "Our Family Practice" group who were admitted to the hospital from 03/01/2020 to 03/01/2021. From this list, each patient was searched from the Aledade patient database to see their diagnosis for hospital admission. The medical histories and length of hospital admission for patients who were admitted for COVID or suspected COVID were obtained. 43 total patients that were admitted to a hospital for COVID were obtained, and the patients' length of admission to the hospital was used as a parameter for their health outcome, as lengthier stays generally means greater morbidity.



**Figure 1:** This graph depicts the average length of hospital admission given past medical history for the sampled population.

## Results

Results of data collection showed that the average hospital admission of individuals with DM (n=6) was 3 days, COPD (n=6) was 4.2 days, obesity (n=5) was 4.25 days and HTN (n=3) was 6 days. There was no statistical significant difference between these averages. When accounting for individuals with comorbidities of these health problems, it was noted that there was a significant increase in hospital admission days for individuals with CHF+COPD (n=3) at 14.33 days, DM+HTN (n=2) at 13 days, and DM+CHF+HTN (n=3) at 19 days when compared to individuals with no past medical history.

## Discussion/ Conclusion

Limitations to this research included sample size and limited access to data. Further research with a larger sample size will provide more accurate mean values. Along with this, increased access to patient information could eliminate some confounding variables in the study. For example, if information was obtained about how each patient was treated for their hospital admission, this would account for a potential confounding variable of different treatments. Also, information about individuals with these health problems who contracted COVID, but were not admitted to the hospital would be relevant data to have to further understand patient risk.