April 2021

PA Health Care Cost Containment Council

PHC4

COVID-19 Analyses

Sepsis among Patients Hospitalized with COVID-19

This research brief focuses on patients hospitalized with COVID-19 who also had a diagnosis of sepsis. Sepsis is a life-threatening condition characterized by a system-wide inflammatory response to infection that can worsen to acute organ dysfunction.

This research brief examines Pennsylvania residents and non-residents of all ages who were hospitalized with COVID-19 and discharged from a Pennsylvania acute care hospital from March through September 2020. As these hospitalizations occurred during the first seven months of the COVID-19 pandemic, the results form a basis for future analysis and comparison as subsequent data becomes available. The results in this report were not adjusted for age or other patient characteristics to avoid masking important sociodemographic differences.

There were **26,266** COVID-19 hospitalizations in Pennsylvania between March and September 2020; **30.5%** (or 7,998) of these patients also had a diagnosis of sepsis. In general, patients who had COVID-19 and sepsis had higher in-hospital mortality rates and stayed in the hospital longer, with a higher percentage needing mechanical ventilation.

30.5%

The in-hospital mortality rate for patients with COVID-19 *and* sepsis was **30.5%**, compared to **7.6%** of patients with COVID-19 who did *not* have sepsis. Overall, patients hospitalized with COVID-19 between March and September had an in-hospital mortality rate of **14.5%**.

12.5 Days

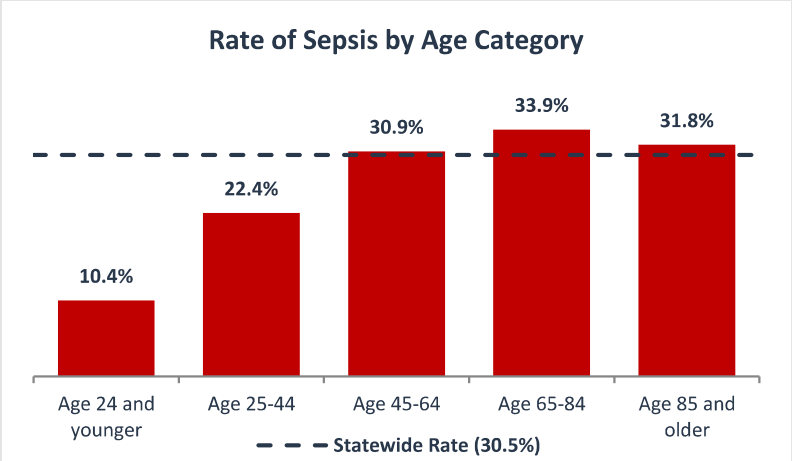
The average length of stay for patients with COVID-19 *and* sepsis was **12.5 days**, compared to **7.2 days** for patients with COVID-19 who did *not* have sepsis. Overall, patients hospitalized with COVID-19 stayed in the hospital an average of **8.8 days**.

33.0%

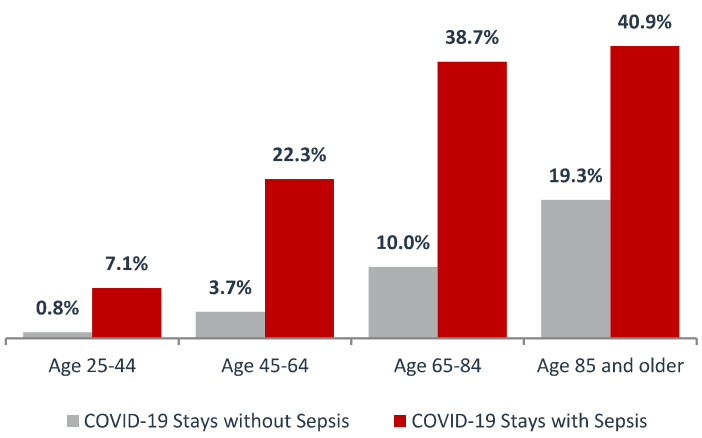
Mechanical ventilation was used in **33.0%** of patients with COVID-19 *and* sepsis, compared to **5.9%** of patients with COVID-19 who did *not* have sepsis. Overall, mechanical ventilation was used in **14.2%** of patients hospitalized with COVID-19.

Among patients hospitalized with COVID-19:

- **33.9%** of those ages 65-84 had sepsis, a rate that was statistically higher than the rate for the rest of the state.
- **10.4%** of those 24 years and younger and **22.4%** of those ages 25-44 had sepsis; both rates were statistically lower than the rates for the rest of the state.



In-Hospital Mortality Rate by Age Category[1]



[1]Age 24 and younger are omitted due to low in-hospital mortality volume.

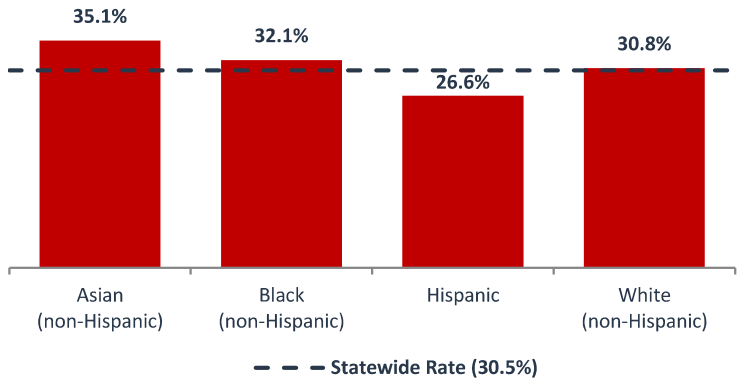
Among patients hospitalized with COVID-19:

- In-hospital mortality rates were higher for those who also had sepsis across all age groups.
- In-hospital mortality rates were highest in patients ages 85 years and older and lowest in patients ages 25-44, for those with sepsis as well as those without sepsis.

Among patients hospitalized with COVID-19:

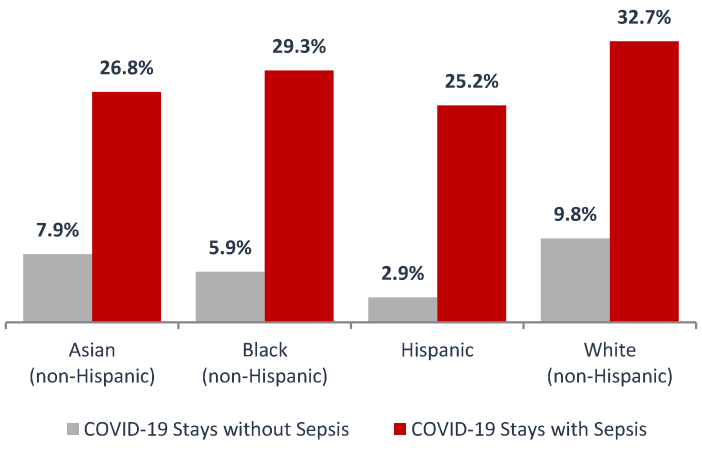
- **35.1%** of Asian (non-Hispanic) patients and **32.1%** of Black (non-Hispanic) patients had sepsis; both rates were statistically higher than the rates for the rest of the state.
- **26.6%** of Hispanic patients had sepsis, a rate that was statistically lower than the rate for the rest of the state.

Rate of Sepsis by Race/Ethnicity[2]



[2]Other race/ethnicity groups are omitted due to low volume.

In-Hospital Mortality Rate by Race/Ethnicity[2]



[2]Other race/ethnicity groups are omitted due to low volume.

Among patients hospitalized with COVID-19:

- In-hospital mortality rates were higher for those who also had sepsis across all race/ethnicity populations.
- In-hospital mortality rates were highest in White (non-Hispanic) patients and lowest in Hispanic patients, for those with sepsis as well as those without sepsis.