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# Most COVID-19 hospitalizations due to four conditions

## At a Glance

- A study estimated that nearly two-thirds of COVID-19 hospitalizations in the U.S. could be attributed to obesity, diabetes, hypertension, and heart failure.
- The findings give insight into how underlying conditions contribute to hospitalizations during the pandemic.

Studies show that certain common medical conditions put people at higher risk for severe illness from COVID-19. These include metabolic disorders like type 2 diabetes and obesity, as well as heart conditions like high blood pressure (hypertension) and heart failure. People with these four conditions are more likely to be hospitalized with COVID-19.

Underlying medical conditions account for many COVID-19 hospitalizations. *xavierarnau / E+ via Getty Images*

To better understand how these conditions affect hospitalizations, a research team led by Meghan O'Hearn and Dr. Dariush Mozaffarian of Tufts University developed a statistical model. They incorporated data on the association of these four underlying conditions with COVID-19 hospitalizations in the U.S. They also included national data on COVID-19 hospitalizations and prevalence of the conditions by age, sex, and race/ethnicity.

Based on this data, the model calculated the percentage of COVID-19 hospitalizations that could have been prevented without these four underlying conditions. Results were published in the *Journal of the American Heart Association* on February 25, 2021.

The researchers estimated that more than 900,000 COVID-19 hospitalizations occurred through November 2020. Based on their model, 30% of these hospitalizations were attributable to obesity, 26% to hypertension, 21% to diabetes, and 12% to heart failure. These people would still have been infected with COVID-19, but likely would not have been sick enough to need hospitalization.

More than one of these conditions are often present in the same person. The model also estimated hospitalizations due to different combinations. The numbers weren't simply additive. In total, 64% of the hospitalizations might have been prevented if not for the four conditions.

The model suggested that COVID-19 hospitalizations due to these conditions varied by age. Older adults with diabetes, heart failure, or hypertension were more likely to be hospitalized than younger people with the same condition. However, obesity affected COVID-19 hospitalization risk similarly across age groups.

Race/ethnicity also resulted in disparities in COVID-19 hospitalizations due to these conditions. Black adults had the highest proportion of hospitalizations attributable to all four conditions at any age. Other studies show that COVID-19 deaths have disproportionately affected

Black and other minority communities.

This research further highlights the burden of heart and metabolic diseases in the U.S. Almost 3 in 4 U.S. adults is overweight or obese. Nearly half of people have prediabetes or diabetes.

All of the conditions examined in the study have been shown to impair the body's immune response. This may be one reason COVID-19 causes more harm in people with these underlying conditions. Improving heart and metabolic health may help reduce hospitalizations from COVID-19.

"Medical providers should educate patients who may be at risk for severe COVID-19 and consider promoting preventive lifestyle measures, such as improved dietary quality and physical activity, to improve overall cardiometabolic health," says O'Hearn.

—by Erin Bryant

## Related Links

- SARS-CoV-2 Antibodies Protect from Reinfection (https://www.nih.gov/news-events/nih-research-matters/sars-cov-2-antibodies-protect-reinfection)
- Humidity From Masks May Lessen Severity of COVID-19 (https://www.nih.gov/news-events/nih-research-matters/humidity-masks-may-lessen-severity-covid-19)
- Study Examines Measures to Slow COVID-19 Spread (https://www.nih.gov/news-events/nih-research-matters/study-examines-measures-slow-covid-19-spread)
- Lasting Immunity Found after Recovery from COVID-19 (https://www.nih.gov/news-events/nih-research-matters/lasting-immunity-found-after-recovery-covid-19)
- Experimental Coronavirus Vaccine Highly Effective (https://www.nih.gov/news-events/nih-research-matters/experimental-coronavirus-vaccine-highly-effective)
- Coronavirus (COVID-19) (https://covid19.nih.gov/)
- Coronavirus Prevention Network (https://www.coronaviruspreventionnetwork.org/)
- Coronavirus (COVID-19) (https://www.coronavirus.gov/)

**References:** Coronavirus Disease 2019 Hospitalizations Attributable to Cardiometabolic Conditions in the United States: A Comparative Risk Assessment Analysis. O'Hearn M, Liu J, Cudhea F, Micha R, Mozaffarian D. *J Am Heart Assoc.* 2021 Feb;10(5):e019259. doi: 10.1161/JAHA.120.019259. Epub 2021 Feb 25. PMID: 33629868.

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