

# Researchers find increase in comorbidities among hospitalized patients with heart failure

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A study recently published in the journal *Circulation* looks at temporal trends in the burden of comorbidities and associated risk of mortality

among patients with heart failure (HF) with preserved ejection fraction (HFpEF), in which the left ventricle of the heart is not able to relax enough to fill properly with blood, and HF with reduced ejection fraction (HFrEF), in which the left ventricle is not able contract enough to pump out as much blood.

"The medical complexity of patients hospitalized with HFpEF and HFrEF appears to be increasing over time," said Melissa Caughey, Ph.D., an epidemiologist and instructor in the UNC/NC State Joint Department of Biomedical Engineering, and senior author of the study. "We used data from the surveillance component of the Atherosclerosis Risk in Communities (ARIC) study to examine HF-related hospitalizations from four U.S. areas from 2005 to 2014."

Just over 5,400 hospitalizations were analyzed, with stratification by heart failure type and sex. Caughey says the following comorbidities were extracted from medical records: coronary artery disease, [peripheral artery disease](#), hypertension, [pulmonary hypertension](#), atrial fibrillation, stroke/transient ischemic attack (TIA), [valvular heart disease](#), myocardial infarction, body mass index, diabetes mellitus, serum creatinine, [chronic obstructive pulmonary disease](#) (COPD), sleep apnea, depression, anemia, and thyroid disease. Researchers found that over time, the average number of comorbidities increased in both men and women with both heart failure types. However, HFpEF, which is more common in women and is now the predominant form of heart failure, had the worst comorbidity burden.

Of the comorbidities studied, Caughey says there was a decrease in the prevalence of [coronary artery disease](#) and an increase in nonatherosclerotic or non-cardiovascular comorbidities.

"This finding is consistent with the hypothesis that the epidemiology of heart failure is evolving—shifting from an ischemic etiology to more of

a multi-morbidity heart failure over time," Caughey said. Ischemic, or atherosclerotic heart disease, is usually caused by the buildup of plaque in arteries over time. This can lead to the narrowing of those arteries, reduced blood flow and weakening of the heart muscle. While heart attacks have declined over time, [heart failure](#) arising secondarily to other causes, such as hypertension and obesity, is now more common. Caughey says because many of the comorbidities in the study are manageable or preventable, this highlights the importance of a holistic approach targeting multi-morbidity burden in guiding the management of patients with acute decompensated HF. Because morbidity increases with comorbidities, prevention should be a key focus.

**More information:** Ambarish Pandey et al. Temporal Trends in Prevalence and Prognostic Implications of Comorbidities Among Patients With Acute Decompensated Heart Failure, *Circulation* (2020). [DOI: 10.1161/CIRCULATIONAHA.120.047019](https://doi.org/10.1161/CIRCULATIONAHA.120.047019)

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