

# Patients with atrial fibrillation at greater risk of death in rural hospitals than urban hospitals

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Patients with atrial fibrillation (AF) admitted to rural hospitals in the United States have a greater chance of dying during their hospital stay than patients admitted to urban hospitals for the same condition, according to a new report in *Heart Rhythm*.

AF is a common problem, consisting of skipped or irregular heartbeats (arrhythmias) that can lead to blood clots, stroke, heart failure, and other cardiovascular complications. Left untreated, AF doubles the risk of heart-related deaths and is associated with a five-fold increased risk for stroke, according to the American Heart Association.

"The identification of healthcare disparities is of utmost importance at this time to improve the overall care that is delivered in our healthcare system," explained lead investigator Wesley T. O'Neal, MD, MPH, of the Department of Medicine, Division of Cardiology, Emory University School of Medicine, Atlanta, GA. "Our research shows that urban-rural differences exist regarding the risk of [hospital](#) mortality among patients who are admitted for AF."

Investigators used data from the National Inpatient Sample (NIS), a database representative of discharged patients from U.S. community hospitals, to compare the in-hospital mortality of patients admitted for AF in rural versus [urban hospitals](#). The NIS approximates a 20% stratified sample of all discharges and excludes rehabilitation and long-

term acute care hospitals. The data are drawn from 44 states, plus the District of Columbia, representing more than 96 percent of the United States population. The analysis employed a cross-sectional examination of the NIS database of AF hospitalizations between 2012 and 2014 to determine if admission to a rural hospital was associated with an increased risk of in-hospital mortality compared with patients admitted to urban hospitals.

Looking at death due to any cause during hospitalization of patients with AF, the study found that patients admitted to rural hospitals had a 17% increased risk of death during hospitalization compared with urban hospitals. Analysis accounted for differences in patient characteristics and potential confounders. The five most common secondary diagnoses for patients hospitalized for AF were heart failure, hypertension, hyperlipidemia, diabetes, and acute kidney injury.

"Since we have identified [rural hospitals](#) as locations where in-hospital mortality for [atrial fibrillation](#) admission is possibly higher than other areas of the country, our findings will drive future research endeavors to uncover the reasons for this difference, and to develop strategies to improve the medical care for [patients](#) with this heart rhythm disturbance," Dr. O'Neal concluded.

Although the reasons for this difference are unclear at this time, these data likely are of interest to providers and policy makers who are working towards the reduction of mortality in rural regions.

In an accompanying editorial, Thomas F. Deering, MD, FHRS, and Ashish A. Bhimani, MD, FHRS, both from the Arrhythmia Center, Piedmont Heart Institute, Atlanta, GA, commend O'Neal et al for their detailed analysis, increasing awareness in the medical community about a potentially important arrhythmic healthcare issue, and placing their findings into the appropriate context. They also point out that the study

raises important clinical and epidemiological questions.

They stress that factors such as associated comorbidities and their severity, access to care, patient lifestyle decisions, patient compliance, physician adherence to diagnostic and therapeutic guideline recommendations, physician referral patterns, etc., which may have contributed to the observed outcomes, remain unknown.

"Accordingly, claims-based analyses, such as these, should be viewed as hypothesis-generating instead of categorical in nature. The electrophysiology and medical communities should look at the findings presented in this study as a motivational call to initiate prospective studies with the goal of identifying gaps in AF care, which can then be used to create effective healthcare policies, designed to reduce AF-related mortality," commented Dr. Deering and Dr. Bhimani.

**More information:** Wesley T. O'Neal et al, Urban-rural differences in mortality for atrial fibrillation hospitalizations in the United States, *Heart Rhythm* (2017). [DOI: 10.1016/j.hrthm.2017.10.019](https://doi.org/10.1016/j.hrthm.2017.10.019)

Thomas F. Deering et al. Atrial fibrillation: Location, location, location—Does it matter?, *Heart Rhythm* (2017). [DOI: 10.1016/j.hrthm.2017.10.027](https://doi.org/10.1016/j.hrthm.2017.10.027)

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