

# Rising Mortality from Multiple Myeloma–Associated Heart Failure in Older U.S. Adults: A CDC WONDER Analysis (1999–2024)



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## Introduction

Multiple myeloma (MM) is an incurable hematologic malignancy increasingly associated with cardiovascular complications, particularly heart failure (HF), driven by disease burden and cardiotoxic therapies. Understanding mortality trends of MM–HF comorbidity among older adults is critical for optimizing clinical management.

## Aim

To characterize temporal trends in MM–HF mortality among U.S. adults aged ≥65 years from 1999 to 2024, stratified by demographic and geographic factors.

## Method

Retrospective, population-based trend analysis of mortality in adults aged ≥65 in the United States from 1999 to 2024

CDC WONDER Multiple Cause of Death database

**Multiple Myeloma**  
ICD-10: C90

**Heart Failure**  
ICD-10: I11.0, I13.0, I13.2, and I50.x

Age-adjusted mortality rates (AAMRs) calculated per 100,000 population. Joinpoint regression used to assess temporal trends.

Analyses were stratified by sex, age group, race/ethnicity, census region, and urbanization.

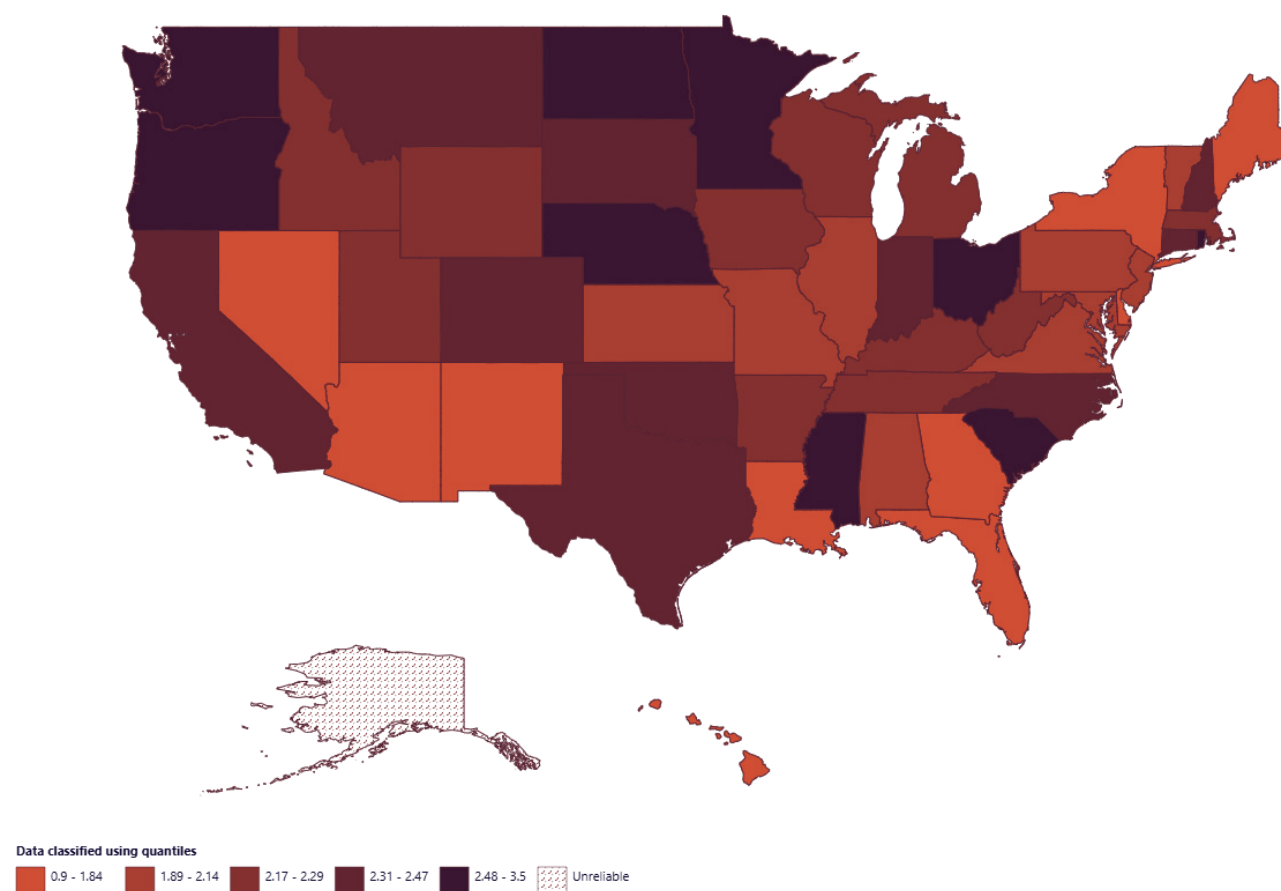
Annual percent change (APC) and average annual percent change (AAPC) calculated with 95% confidence intervals.

## Conclusions

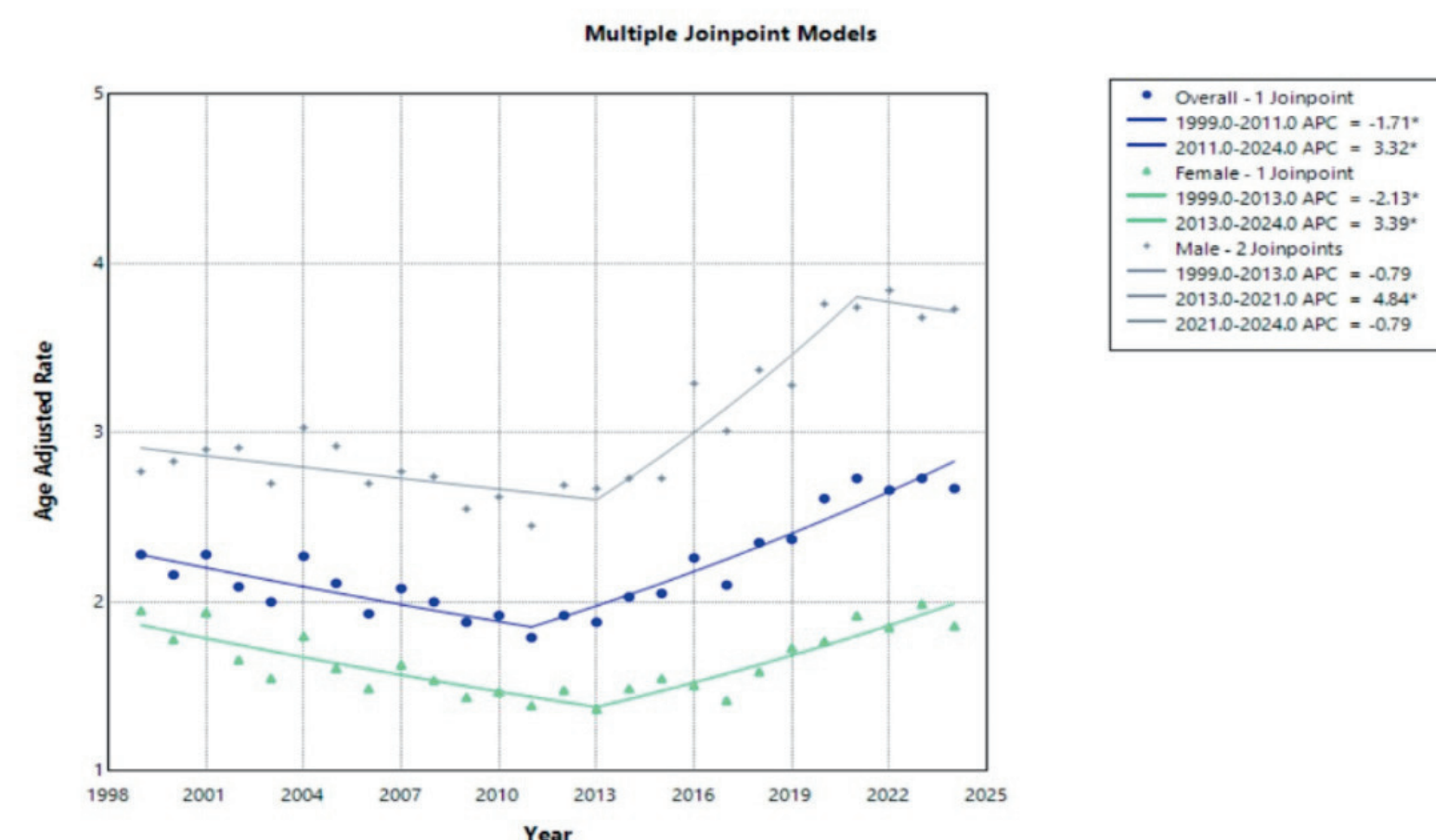
MM–HF mortality among older U.S. adults declined until 2011 but has since risen significantly across demographic and geographic subgroups. The disproportionate burden among males, Black individuals, and the oldest age groups underscores the need for targeted cardio-oncology strategies and early cardiovascular risk mitigation in MM management.

## Results

- The AAMR increased from 2.28 to 2.67 per 100,000 (AAPC: +0.87; 95% CI: 1.20–0.58 ).
- Men exhibited higher mortality (AAMR 3.01; 95% CI: 2.75–3.27) than women (AAMR 1.64; 95% CI: 1.48–1.81).
- Mortality declined from 1999–2011 (APC: –1.71%), followed by a significant increase from 2011–2024 (APC: +3.32%).
- By census region, the steepest rise was observed in the Midwest (APC: +4.07%, 2012–2024).
- By race, Black or African American decedents demonstrated the most pronounced increase (APC: +4.03%, 2009–2024).
- Adults aged ≥85 years experienced the sharpest recent rise (APC: +5.59%, 2014–2024), and those aged 75–84 years showed a significant overall increase (AAPC: +0.82%).
- Both metropolitan and non-metropolitan populations demonstrated parallel increases beginning in 2011 and 2012, respectively (APC: +3.58% and +3.67%).



States; AAMRs



Overall and Gender Trends



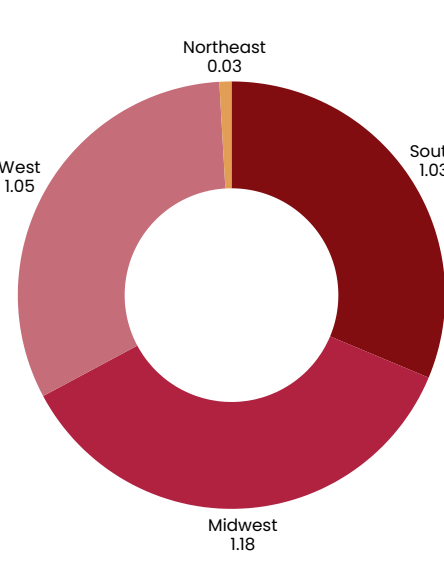
### Gender Disparities; AAPCs

Men: 0.98%  
Women: 0.26%



### Age Group Analysis; AAPCs

85+ years: 1.65%    75–84 years: 0.82%    65–74 years: -0.48%



### Census Regions (AAPCs)



### Racial Group Analysis; AAPCs

Black or African American: 1.09%  
White: 0.93%  
Hispanic or Latino: 0.17%

## References and Sources

**Mortality data obtained from:**  
Centers for Disease Control and Prevention; Wide-ranging Online Data for Epidemiologic Research (CDC WONDER).  
<https://wonder.cdc.gov>

**ICD-10 codes for Multiple Myeloma:**  
Shehroz Yar Khan, Farhan Israr, Aamer Ahmad, Iqbal Hussain, Aqib Latif, Sadaf Marjan, Zarlish Farooq, MM-737: Temporal Trends and Racial Disparities in Multiple Myeloma Mortality Across the United States—A CDC WONDER Analysis, Clinical Lymphoma Myeloma and Leukemia, Volume 25, Supplement 1, 2025, Page S938,  
[https://doi.org/10.1016/S2152-2650\(25\)02637-0](https://doi.org/10.1016/S2152-2650(25)02637-0)

**ICD-10 codes for Heart Failure:**  
Siddiqi, T, Khan Minhas, A, Greene, S. et al. Trends in Heart Failure–Related Mortality Among Older Adults in the United States From 1999–2019. J Am Coll Cardiol HF. 2022 Nov, 10 (11) 851–859.