

Temporal Trends and Pandemic Disruption in Co-Contributing Mortality from Multiple Myeloma and Chronic Ischemic Heart Disease in Older Adults (1999–2024)



Osama Mohiuddin ¹, Mahrukh ², Sahar Zafar ², Shehryar Rasheed Sohail ³, Priyanka Keshav Lal ⁴, Muhammad Talha Usman ⁵, Arooj Ihsan Ullah ⁶

1) INTEGRIS Health, Oklahoma city, Oklahoma, USA, 2) University Medical and Dental College, The University of Faisalabad, Faisalabad, Pakistan, 3) Jinnah Sindh Medical University, Karachi Pakistan, 4) Dow International Medical College, Karachi, Pakistan 5) Gajju Khan Medical College, Swabi, Pakistan, 6) Fatima Jinnah Medical University, Lahore, Pakistan

Introduction

The growing burden of multimorbidity among older adults has highlighted the complex interplay between hematologic malignancies and cardiovascular diseases. Multiple myeloma (MM) and chronic ischemic heart disease (CIHD) frequently coexist, sharing overlapping risk factors, yet their combined contribution to mortality remains underexplored in population-based analysis.

Aim

To evaluate temporal trends and demographic disparities in mortality involving coexisting MM and CIHD among older adults (≥65) years in the United States from 1999 to 2024.

Method

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

Multiple Myeloma

ICD-10: C90

CIHD

ICD-10: I25.0–25.6; I25.8–25.9

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 and CIHD associated co-mortality showed a significant long-term decline punctuated by a pandemic-era surge, with persistent disparities across subgroups, highlighting the need for integrated cardiovascular-oncologic risk care strategies for aging populations.

Results

- Between 1999 and 2024, 24,347 deaths were recorded among U.S. adults aged ≥65 years with co-existing MM and CIHD.
- The overall AAMR declined from 2.47 to 1.95 per 100,000 (AAPC: −1.20%).
- Joinpoint analysis observed a steady pre-pandemic decline 1999-2018 (APC: −1.87%), followed by a pandemic-era surge 2018–2021 (APC: 6.86%), and a subsequent decline through 2024 (APC: −4.64%).
- Men had persistently higher AAMRs than women. Women showed a steeper overall decline (AAPC: −2.11%) than men (AAPC: −0.47%).
- The ≥85 years group remained largely stable across the study period, while the 65–74 year (AAPC: −1.65%) and 75–84 year groups (AAPC: −1.18%) showed sustained decreases.
- Black/African American individuals had the highest baseline AAMRs (AAPC: −0.87%) compared to White individuals (AAPC: −1.07%).
- Regionally, the Northeast recorded the steepest decline (AAPC: −2.27%).
- Metropolitan (AAPC: −1.14%) and non-metropolitan areas (AAPC: −1.14%) demonstrated parallel reductions.

