Mortality Trends in Older Adults With Myelodysplastic Syndromes and Cardiovascular Disease: A CDC WONDER Analysis (1999–2025)

P. KESHAV LAL[1], M.MAHRUKH[2], H. SABIR NAWAZ[3], S.RASHEED SOHAIL[4], Z.ATTIQ[2], M.TALHA USMAN[5], A.IHSAN ULLAH[6], O.MOHIUDDIN[7]

1.Dow International Medical College, Karachi, Pakistan 2.University of Faisalabad, University Medical and Dental College, Faisalabad, Pakistan 3.Services Institute of Medical Sciences, Department of Medicine, Lahore, Pakistan 4. Jinnah Sindh Medical University, Karachi, Pakistan 5.Gajju Khan Medical College, Swabi, Khyber Pakhtunkhwa, Pakistan 6.Fatima Jinnah Medical University, Lahore, Pakistan 7.INTEGRIS Health, Oklahoma City, OK,

INTRODUCTION

Myelodysplastic syndromes (MDS) frequently coexist with cardiovascular disease (CVD), creating a clinically complex comorbidity burden in older adults. Understanding national mortality trends in this population is essential to inform resource allocation and guide targeted clinical strategies.

AIM

To characterize temporal trends in MDS-related mortality among adults aged ≥65 years with coexisting CVD in the United States from 1999 to 2025, stratified by sex, age group, race/ethnicity, geographic region, and urbanization level.

METHOD

- Population-based retrospective analysis, data extracted from the CDC WONDER Multiple Cause of Death data base, spanning 1999–2025.
- Joinpoint regression was used to estimate annual percent change (APC) and average annual percent change (AAPC) in age-adjusted mortality rates (AAMRs).
- Decedents aged ≥65 years with MDS (ICD-10 code: D46) and coexisting CVD (ICD-10 codes: I00–I99) listed as contributing causes of death. A total of 111133 deaths were identified.

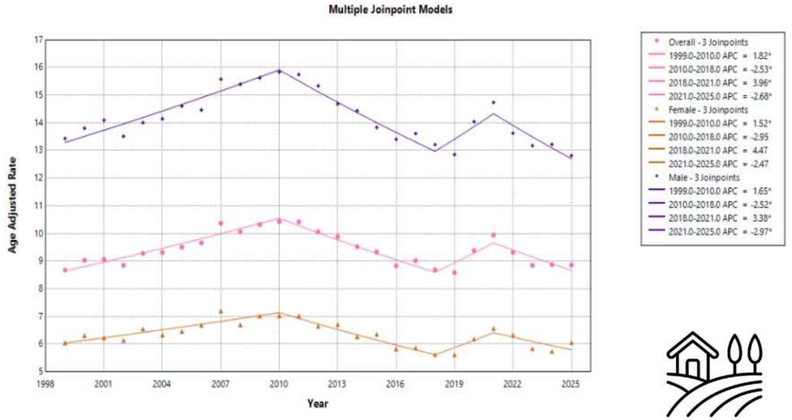
CONCLUSIONS

MDS mortality with coexisting CVD in older adults followed a dynamic, non-linear pattern over 26 years, with pronounced disparities by sex, age, race, region, and urbanization level. The persistent rises in adults aged ≥85, those in Southern states, and those in non-metropolitan areas signal critical gaps in care access and management, highlighting the need for integrated CVD risk strategies within MDS care frameworks targeting high-risk subpopulations.

RESULTS

- The overall AAMR changed from 8.68 to 8.87 per 100000 (AAPC, +0.01; 95% CI, −0.17 to 0.17), with men's substantially higher (14.19) than women's (6.35).
- Overall mortality demonstrated a non-linear trajectory across four distinct phases: rising in 1999–2010 (APC, +1.82; *P*<0.0001), declining in 2010–2018 (APC, −2.53; *P*=0.002), rebounding in 2018–2021 (APC, +3.96; *P*=0.002), and declining in 2021–2025 (APC, −2.68; *P*=0.0004); the full-period AAPC was non-significant.
- Adults aged 65–74 demonstrated a sustained decline (AAPC, −1.07; *P*<0.0001), whereas those aged ≥85 showed a significant overall increase (AAPC, +0.49; *P*<0.0001).
- By race/ethnicity, White decedents exhibited a significant upward AAPC (+0.31; *P*=0.013), whereas Asian or Pacific Islander decedents showed a declining trend (AAPC, −1.52; *P*=0.003).
- Regionally, the South demonstrated a significant upward AAPC (+0.60; *P*<0.0001), whereas that in the West declined (AAPC, −0.56; *P*=0.001).
- Non-metropolitan areas showed a significant upward AAPC (+0.49; *P*=0.036).

Overall and gender trends



Racial group analysis ; AAPCs

White : 0.3080%
Hispanic or Latino: 0.0503%
Black or African American: -0.2868%
Asian or Pacific Islander : -1.5193%

Non-metropolitan
AAPC : 0.4862%

Metropolitan
AAPC : 0.1792%

Age group analysis ; AAPCs

85+ years : 0.4870% > 75-84 years : -0.0798% > 65-74 years: -1.0650%

Census regions (AAPCs)

South : 0.5967%
Midwest : 0.3392%
Northeast : -0.3365%
West : -0.5599%

Gender disparities; AAPCs

Women: -0.1602 %
Men : -0.175%

CONTACT INFORMATION

PRIYANKA KESHAV LAL : 1 201 713 8101