

Population-Level Multiple Myeloma Mortality Trends in the BCMA Era: Age-Specific Racial and Regional Disparities in the United States, 2018–2024 (CDC WONDER Analysis)

Authors: Z. SONI¹, T. GIRI¹

1. Department Of Internal Medicine, University of Nevada, Reno School of Medicine



INTRODUCTION

B-cell maturation antigen (BCMA)-targeted therapies (chimeric antigen receptor T-cells and bispecific antibodies), introduced into clinical practice since 2021, have markedly improved outcomes in relapsed/refractory multiple myeloma. However, whether these advances have translated into population-level mortality reductions remains unclear. We assessed national multiple myeloma mortality trends, focusing on age-specific racial and regional disparities in the pre-BCMA era (2018–2021) vs the BCMA era (2022–2024).

AIM

To evaluate population-level multiple myeloma mortality trends in the United States from 2018–2024 using CDC WONDER data, with a focus on age-specific racial and regional disparities, and to compare outcomes between the pre-BCMA era (2018–2021) and the BCMA era (2022–2024).

METHOD

We performed a retrospective analysis of the CDC WONDER Multiple Cause of Death database (ICD-10 codes, C90.0–C90.2) for 2018–2024. Age-adjusted mortality rates (AAMRs) per 100,000 (based on the 2000 US standard population) and age-specific rates (10-year groups) were stratified by race/ethnicity and US Census region. Temporal trends were quantified using Joinpoint regression–derived annual percent change. The pre- and post-BCMA eras were directly compared.

CONCLUSIONS

Early declines in multiple myeloma mortality align temporally with the introduction of BCMA-directed therapies, suggesting a potential early population-level benefit in the BCMA era. However, gains have been uneven, with Black patients and Southern regions experiencing disproportionately limited improvement and persistent disparities. These findings underscore the need for strategies to ensure equitable access to novel therapies and to prevent widening outcome gaps in the modern treatment era.

RESULTS

Black individuals exhibited persistently higher age-adjusted mortality rates (AAMRs) compared with White individuals across nearly all age groups, with the largest absolute disparities in the age range of 65–84 years (Black: 22.4–28.5 vs White: 11.1–12.4 per 100,000 in ages 65–74; and Black: 49.5–61.3 vs White: 27.7–32.6 in ages 75–84). Southern US regions consistently showed the highest mortality. In the BCMA era, mortality declines appeared more pronounced, particularly among White patients aged ≥65 years (AAMR declining from 3.2–3.9 to 2.7–3.6), whereas improvements among Black patients were more modest (from 6.1–8.3 to 5.4–7.9), resulting in widening racial gaps in several older age groups. Regional disparities remained largely unchanged despite overall progress.

Table 1: Age-Specific Mortality Rates by Race (2018–2024)

Age Group	Black	White	Absolute Difference
55–64 years	8.6 – 11.3	3.7 – 4.2	5 – 7
65–74 years	22.4 – 28.5	11.1 – 12.4	11 – 16
75–84 years	49.5 – 61.3	27.7 – 32.6	20 – 29
85+ years	70.4 – 96.1	45.8 – 53.5	25 – 42

Key message: Largest absolute racial disparities were observed in the 65–84 year age groups.

Table 2: Age-Adjusted Mortality Rates: Pre-BCMA vs BCMA Era

Race	Pre-BCMA	BCMA Era	Change Pattern
Black or African American	6.1 – 8.3	5.4 – 7.9	Modest decline
White	3.2 – 3.9	2.7 – 3.6	More pronounced decline
Black : White Ratio	≈ 1.9 – 2.1	≈ 1.9 – 2.2	Persistent / widening

Key message: Declines were more pronounced among White patients, while improvements in Black patients remained modest, resulting in persistent racial gaps.

ACKNOWLEDGEMENTS

We thank the Centers for Disease Control and Prevention (CDC) for providing access to the Wide-Ranging Online Data for Epidemiologic Research (WONDER) database, which made this population-level analysis possible.

CONTACT INFORMATION

1. Dr Tapan Giri: tapan_g97@yahoo.co.in
2. Dr Zeal Soni: zeal5827@gmail.com

REFERENCES

- 1) Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 2018–2024 on CDC WONDER Online Database. Accessed 2026. Available at: <https://wonder.cdc.gov/mcd.html>
- 2) Trends in mortality rates associated with multiple myeloma in the United States, 1999–2023. *Frontiers in Oncology*. 2025.
- 3) Beyond overall declines: Unequal trends in multiple myeloma mortality across racial and demographic subgroups in the United States from 2018–2023. *Blood*. 2025 (ASH Abstract).