

Title: *Mortality from Multiple Myeloma and Plasma Cell Neoplasms in Alabama: A 22-Year County-Level Disparity Analysis*

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Background: Multiple myeloma (MM)/plasma cell neoplasm is a group of malignant neoplasms that affects African Americans and older adults disproportionately, among which MM represents around 1.3% of total cancer in the USA (1). With its racially diverse rural population and significant healthcare access barriers, Alabama represents a critical state for examining county-level mortality and disparities. Our study analyzes the geographic distribution of MM deaths across Alabama counties from 1999 to 2020 using CDC WONDER national mortality surveillance data.

Methods: Mortality records were extracted from the CDC WONDER Underlying Cause of Death database (ICD-10 codes C90.0–C90.2) for all Alabama counties over the 22 years 1999–2020. Outcome measures included total deaths, crude mortality rates, and age-adjusted mortality rates (AAR) per 100,000 persons. County-level data were analyzed to identify geographic clustering and high-burden areas. Counties with fewer than 20 deaths were flagged as unreliable per CDC suppression criteria and excluded from rate comparisons.

Results: In our analysis, we found a total of 4612 deaths, which were recorded across 64 of Alabama's 67 counties. Age-adjusted mortality rates ranged from 2.4 per 100,000 (DeKalb County) to 6.0 per 100,000 (Choctaw County). Notably, the five counties with the highest AARs are Choctaw (6.0), Pickens (5.6), Conecuh (5.2), Marengo (5.1), and Chambers (5.0), which are rural, predominantly African American counties concentrated in the Alabama Black Belt region. Jefferson County recorded the highest absolute death count (752), reflecting its large population. Eleven counties had unreliable or suppressed rates due to small death counts, which is a limitation of our analysis.

Conclusions: We found marked geographic variation in MM mortality across Alabama counties, with rural counties bearing disproportionate burden. We believe these findings are suggestive of racial composition, rurality, and healthcare access as key drivers of MM mortality inequity in Alabama, warranting policy targeting these specific populations and easy access to oncology care in underserved areas.

References:

1. Albagoush SA, Shumway C, Azevedo AM. Multiple Myeloma. [Updated 2023 Jan 30]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK534764/>