Disparities in Chronic Myeloid Leukemia (CML) Mortality Across Demographics: A U.S. Study from 1999 to 2023.

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Introduction

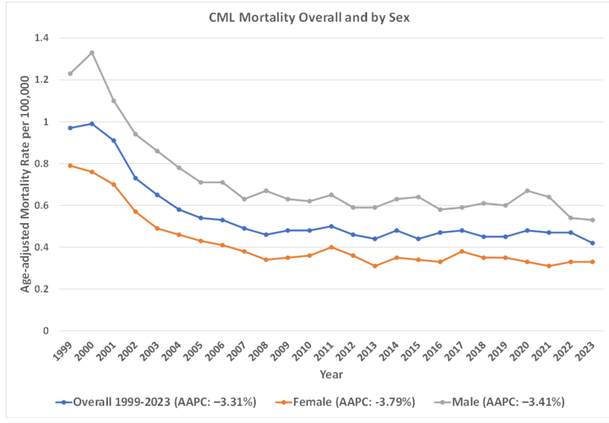
- CML survival improved greatly after Tyrosine Kinase Inhibitors (TKIs).
- Nationwide mortality patterns over time and across population groups remain underreported.
- Understanding long-term trends help measure real-world treatment impact and identify groups at higher risk.

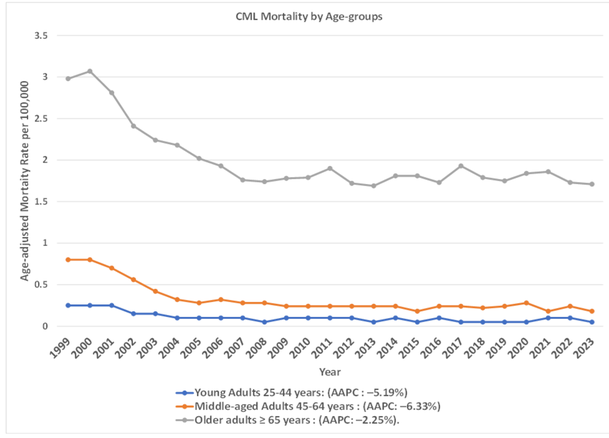
Methods

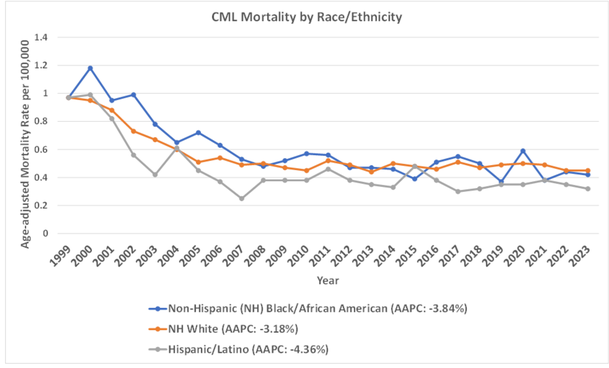
- Data: CDC Wonder Database, 1999-2023, adults ≥ 25 years, ICD-10 C92.1.
- Measure: Age-adjusted mortality rates (AAMRs) per 100,000.
- Variables: Sex, Age-groups, Census Regions, Race/Ethnicity.
- Analysis: Joinpoint regression for Annual Percentage Changes (APCs) & Average Annual Percentage Changes (AAPCs) with 95% CI.

Results

- Total Deaths (1999-2023): 29,487, average AAMR 0.55; AAPC: -3.31%.
- Sharpest decline: 1999-2007 (APC: -9.42%), non-significant change in mortality after 2007.
- Sex: Average AAMR in males (0.72) was higher compared to females (0.42), with a significant decline observed in both.
- Age: The average AAMR in older adults (≥ 65 years) was 1.99, in middle-aged adults (45-64 years) was 0.32, and in younger adults (25-44 years) was 0.10. Steepest decline in 45-64 year-old adults (AAPC: -6.33%).
- Census Regions: Average AAMR in Midwest (0.58), South (0.56), West (0.54) and Northeast (0.49).
- Race: Average AAMR in non-Hispanic (NH) Black/African American (0.60), NH White (0.56) and Hispanic or Latino (0.45). Largest decline in Hispanic/Latino (AAPC: -4.36%).







Conclusion

CML mortality has markedly declined in the U.S. since 1999, particularly during 1999–2007, likely reflecting the early impact of targeted therapies. However, the plateau in mortality decline since 2007 and persistent disparities by sex, race, age, and region underscore the need for continued surveillance and targeted interventions to ensure equitable progress.