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Temporal Trends in Mortality Due to Acute Myeloid Leukemia and Pneumonia in the US (1999–2020): Insights From CDC WONDER

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Introduction

Acute myeloid leukemia (AML) is an aggressive blood cancer that increases the likelihood of infections such as pneumonia. Causes include neutropenia, non-functional leukocytes, and treatment-related immunosuppression. Pneumonia considerably elevates mortality in AML patients.

Aim

This study analyzes mortality trends from 1999 to 2020 to identify inequities and inform targeted interventions.

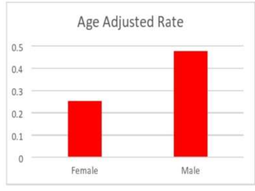
Methods

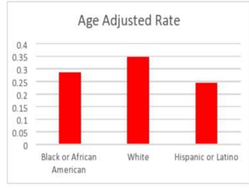
1. **Data and Population:** CDC WONDER database (1999–2020) for adults aged ≥ 25 years with Acute myeloid leukemia (ICD-10: C92.0) and pneumonia (ICD: J12-J18).
2. **Outcome Measure:** Age-adjusted mortality rates (AAMRs) per 100,000 population and Annual percent changes (APCs) estimated via Joinpoint regression **(1)**, stratified by demographic and geographic groups.
3. **Statistics:** 95% confidence intervals (CIs) were reported; statistical significance (*) was set at $P<0.05$.

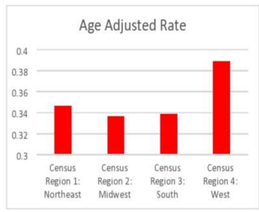
Results

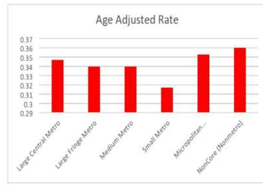
1. From 1999 to 2020, 16,463 deaths were attributed to AML with pneumonia, with 14,125 deaths at medical facilities.
2. AAMRs increased from 1999–2020, notably for women (APC 1.11*), the Black population (2.10*), the Northeast (2.31*), and medium metro areas (1.33*).
3. In 2020, AAMRs were higher for men (0.54; 95% CI, 0.50-0.59), White population (0.44; 95% CI, 0.41-0.47); the Northeast (0.49; 95% CI, 0.42-0.55), and micropolitan areas (0.48; 95% CI, 0.39-0.58).
4. North Dakota had the highest state AAMR (0.50; 95% CI, 0.37-0.64).

Graph









Conclusion

Acute myeloid leukemia with pneumonia mortality increased throughout the entire period 1999-2020, with persistent disparities by sex, race, region, and urbanization. Higher AAMRs among men, the White population, Northeast residents, and micropolitan population, and North Dakota highlight the need for enhanced screening and treatment access. Future research should investigate drivers of recent mortality increases to address these inequities effectively **(2).**

References

1. Kim HJ, Fay MP, Feuer EJ, Midthune DN. Permutation tests for Joinpoint regression with applications to cancer rates. *Stat Med*. 2000;19(3):335–351.
2. Shallis RM, Wang R, Davidoff A, Ma X, Zeidan AM. Epidemiology of acute myeloid leukemia: Recent progress and enduring challenges. Blood Rev. 2019;36:70–87.

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