

Varsha Miriyala¹, Dileep Raja Kuraku², Venkata Balaji Chenna³, Nagarjuna Keshapogu⁴, Farkhanda Maqbool⁵, Juan Moni Pina⁶

- 1.University of Miami Miller School of Medicine, Miami, FL, USA
- 2.National Pirogov Memorial Medical University, Vinnytsia, Ukraine
- 3.Kurnool Medical College, Andhra Pradesh, India
- 4.National Pirogov Memorial Medical University, Vinnytsia, Ukraine
- 5.Bakhtawar Amin Medical and Dental College, Multan, Pakistan
- 6.Universidad Central del Este, Dominican Republic

INTRODUCTION

Acute myeloid leukemia (AML) is an aggressive hematologic malignancy, yet the impact of concurrent pneumonia on mortality remains undefined. Although infection accelerates decline in immunocompromised patients, the demographic and temporal patterns of AML deaths complicated by pneumonia have not been systematically characterized.

OBJECTIVE

This study analyzes CDC WONDER data to assess mortality trends in the United States from 1999 to 2024, providing a population-based framework for identifying high-risk groups and evolving disease burdens.

METHODS

We conducted a retrospective CDC WONDER analysis (1999–2024). Adults aged ≥ 25 years were included if AML (C92.0) and pneumonia (J12–J18) were listed as a contributing cause. Age-adjusted mortality rates (AAMRs) were stratified by sex, race, age group, census region, and urbanization. Joinpoint regression calculated annual percent change (APC) and average APC (AAPC) with $P < 0.05$.

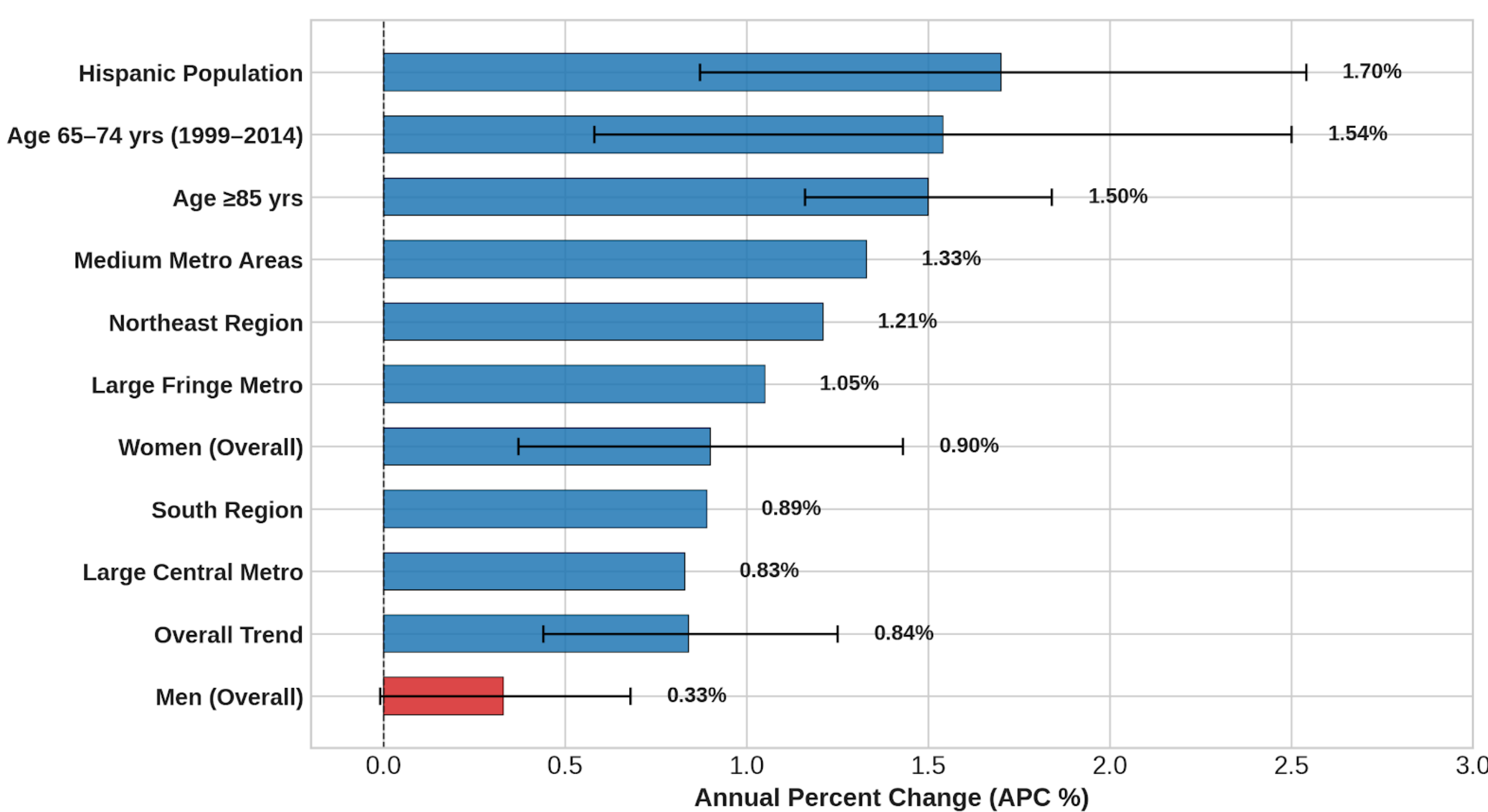
RESULTS

From 1999 to 2024, 20,444 AML and pneumonia deaths were reported. The overall AAMR increased significantly from 0.3126 in 1999 to 0.3533 in 2024 (APC, 0.84%; 95% CI, 0.44%–1.25%; $P < 0.001$). Men exhibited higher mortality than women in 2024 (0.493 vs 0.286). Women showed a significant spike (APC, 0.90%; 95% CI, 0.37%–1.43%; $P = 0.002$), whereas men showed a nonsignificant spike (APC, 0.33%; 95% CI, -0.01% to 0.68%; $P = 0.057$). Hispanic populations showed the highest mortality (APC, 1.70%; 95% CI, 0.87%–2.54%). By age, adults aged ≥ 85 years showed the highest increase (APC, 1.50%; 95% CI, 1.16%–1.84%; $P < 0.001$), followed by those aged 65–74 years from 1999 to 2014 (APC, 1.54%; 95% CI, 0.58%–2.50%; $P = 0.003$). Regionally, the Northeast reported the highest increase (APC, 1.21%; $P = 0.007$), followed by the South (APC, 0.89%; $P = 0.001$) and the Midwest. By urbanization, medium metro areas showed the largest spike (APC, 1.33%; $P = 0.004$), followed by large fringe metro (APC, 1.05%; $P = 0.004$) and large central metro areas (APC, 0.83%; $P = 0.003$).

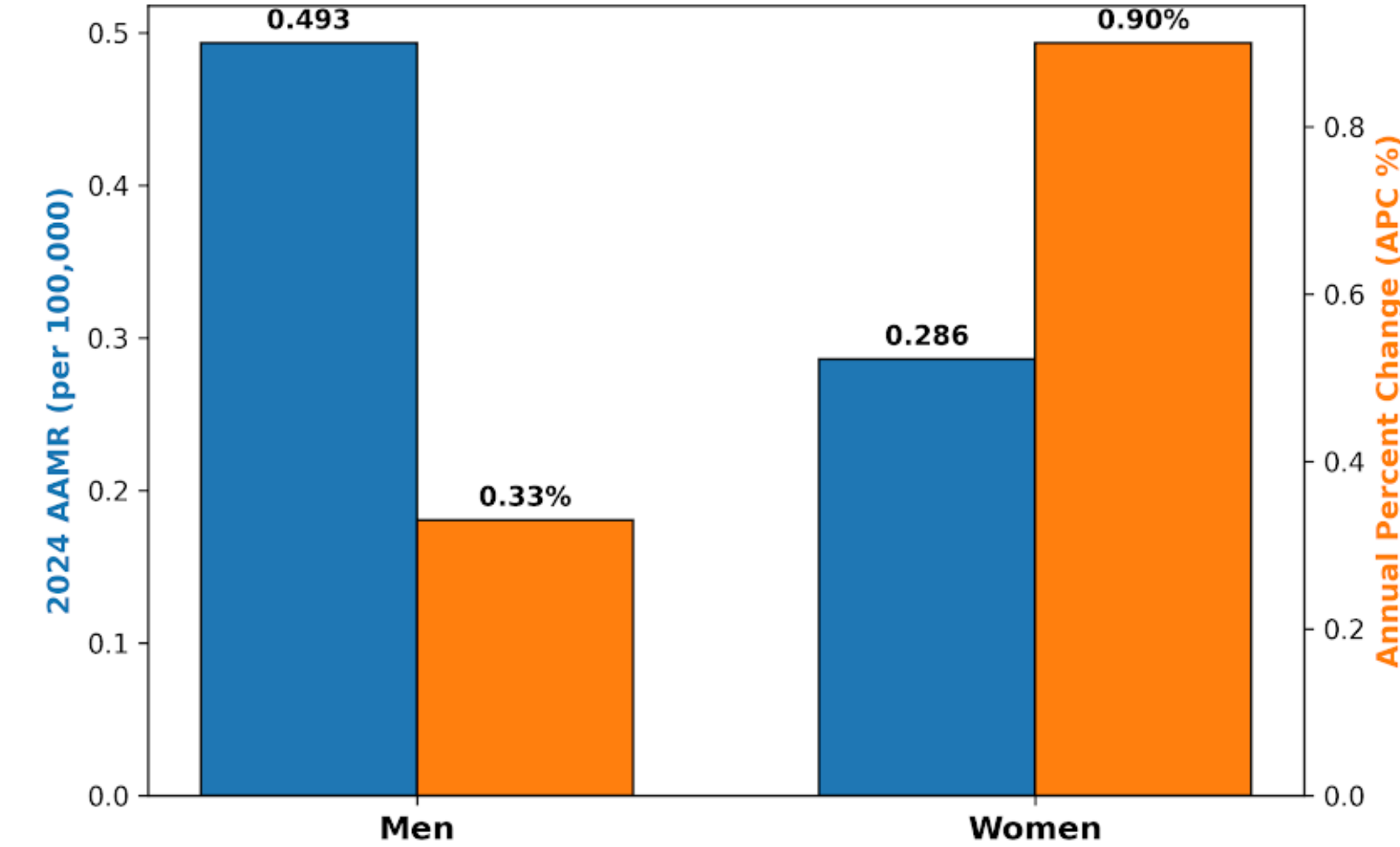
CONCLUSION

AML with concurrent pneumonia exposes stark mortality disparities across age, sex, race, and geography. These findings reveal critical gaps in infection prevention, antimicrobial stewardship, and hematologic supportive care. Urgent oncologic and infectious disease interventions are needed to address this obscure public health crisis.

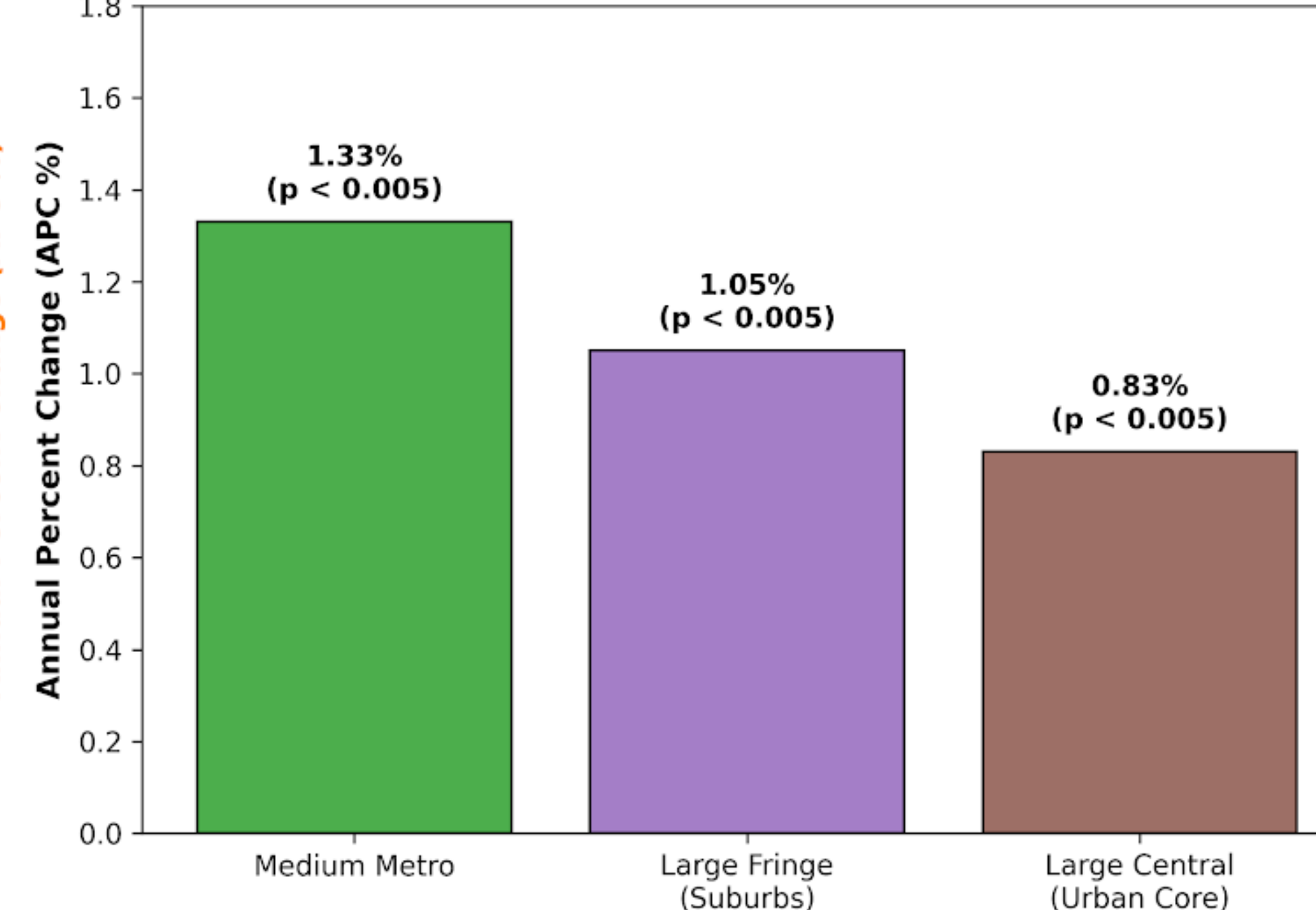
AML with Concurrent Pneumonia Mortality Growth Rates (1999–2024)
CDC WONDER Analysis Subgroup Comparison



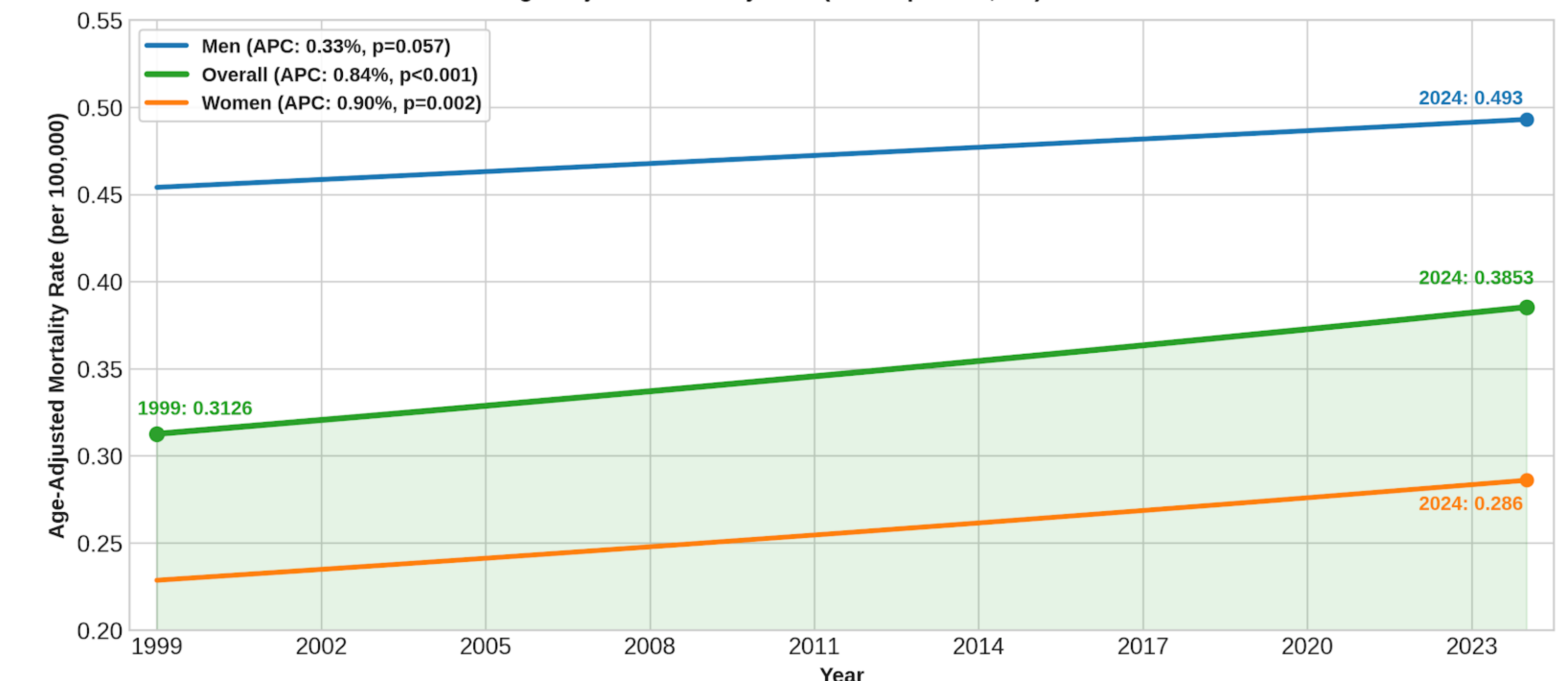
A. Sex Disparity: Absolute Burden vs Growth Rate



B. Mortality Growth Rate by Urbanization Status



CDC WONDER: AML with Concurrent Pneumonia Mortality Trajectory (1999–2024)
Age-Adjusted Mortality Rate (AAMR per 100,000) Time-Series



CDC WONDER

Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiological Research

KEY WORDS

AML, concurrent pneumonia, immunocompromised state, infections, mortality trends

EMAIL-dileepprajakuraku@gmail.com
monipinaj@gmail.com
varshamiriyala16@gmail.com