

National Trends in Multiple Myeloma–Associated Pneumonia Mortality Among U.S. Adults Aged ≥25 Years, 1999–2024

A CDC WONDER Analysis of Multiple Cause-of-Death Data

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26,769

MM-associated pneumonia deaths analyzed, 1999–2024

0.68 → 0.33

Overall AAMR per 100,000 (1999 → 2024)

–2.79%

Average annual % change · 95% CI –4.14 to –1.42 · P<0.001

77.4%

Deaths occurring in inpatient settings

Introduction

Multiple myeloma (MM) impairs humoral immunity and is associated with a markedly increased susceptibility to pneumonia — a leading infectious cause of death in this population. Despite advances in MM therapy, long-term national trends and demographic disparities in MM-associated pneumonia mortality remain insufficiently understood.

We analyzed 26 years of U.S. death-certificate data to characterize temporal patterns and identify the groups carrying the greatest burden.

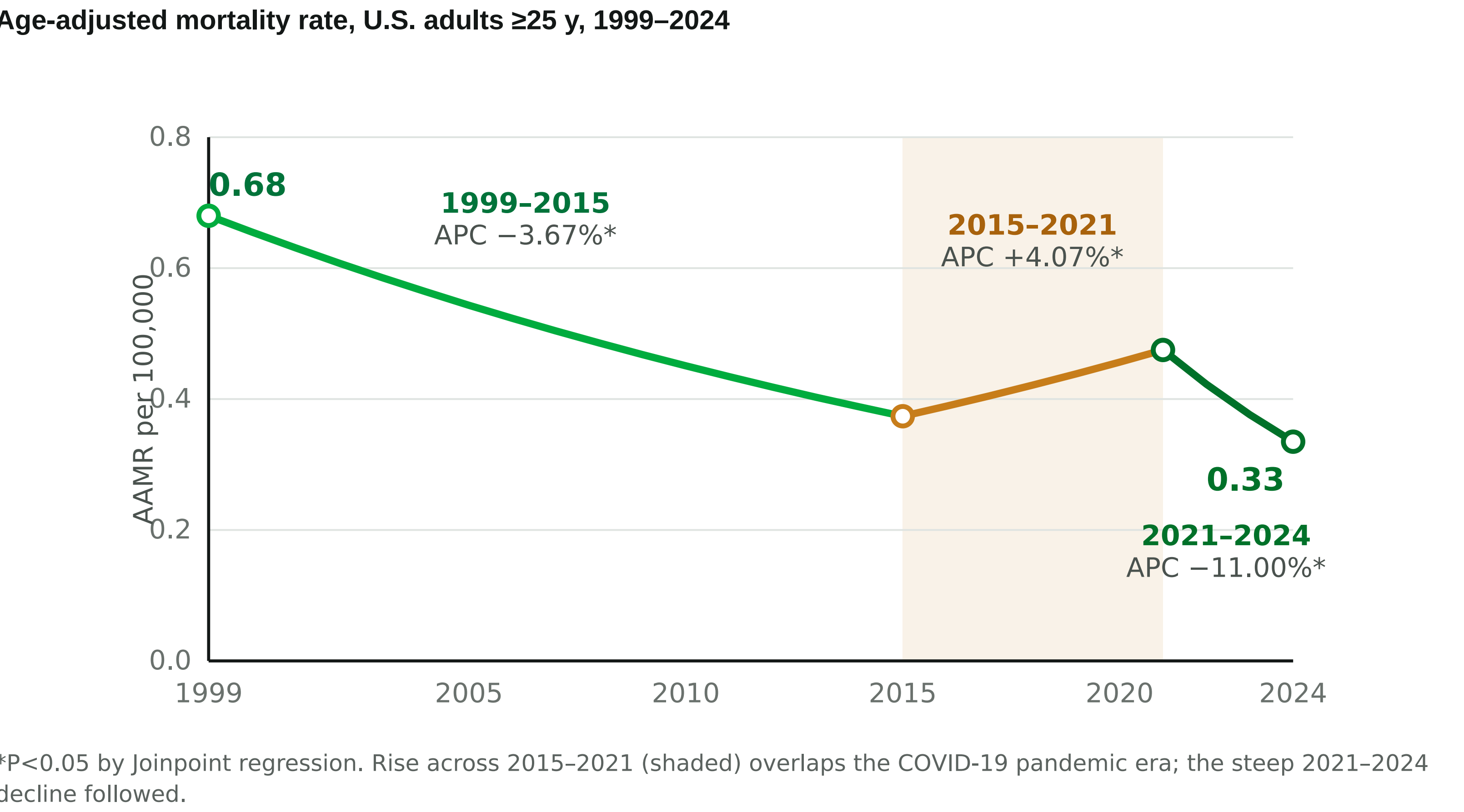
Methods

- ◆ **Source.** CDC WONDER Multiple Cause of Death database, 1999–2024.
- ◆ **Population.** U.S. adults aged ≥25 years.
- ◆ **Case definition.** MM (ICD-10 **C90.0**) and pneumonia (**J12–J18**) both listed as causes of death.
- ◆ **Rates.** Age-adjusted mortality rates (AAMR) per 100,000, standardized to the 2000 U.S. Standard Population.
- ◆ **Trends.** Joinpoint regression yielding annual percentage change (APC) and average annual percentage change (AAPC) with 95% CIs.
- ◆ **Strata.** Sex, age group, race/ethnicity, census region, urbanization, and place of death.

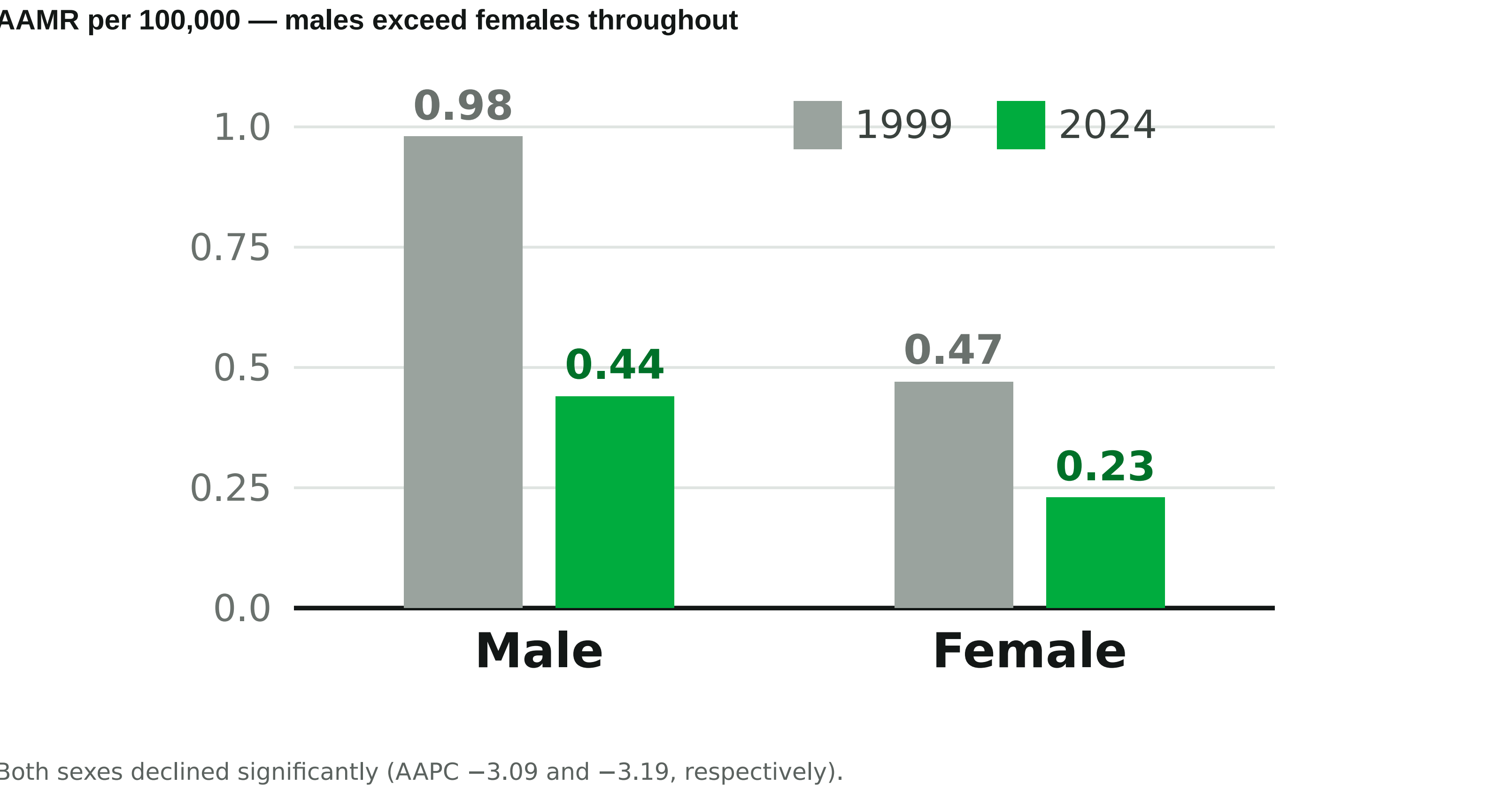
Bottom line

MM-associated pneumonia mortality fell by roughly half over 26 years, interrupted by a transient rise across the 2015–2021 pandemic era. Declines were broad, but a persistent excess among Black patients remained through 2024.

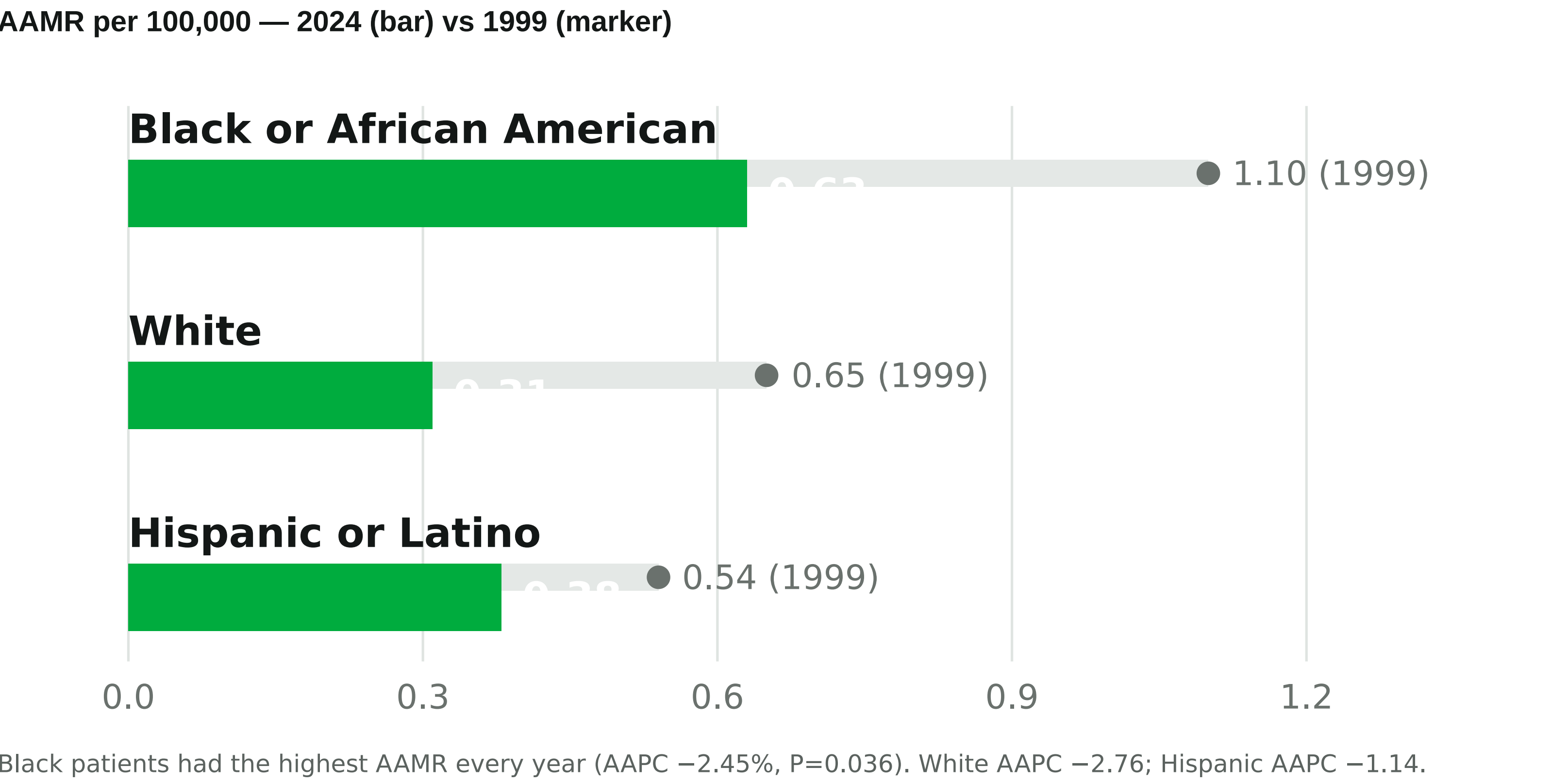
Overall trend: three distinct phases



Mortality by sex



Persistent racial disparity



Who is most affected

- ◆ **Age.** Highest crude rates in adults **≥85 y** (4.77 → 2.10 per 100,000); lowest at **45–54 y** (0.18 → 0.08). All age groups declined (AAPC –1.95 to –3.46).
- ◆ **Region.** All four census regions declined significantly (2024 AAMR 0.28–0.36); the **West** had the highest initial rate (0.82 in 1999).
- ◆ **Urbanization.** Metropolitan (0.67 → 0.46) and nonmetropolitan (0.74 → 0.44) areas declined in parallel through 2020.
- ◆ **Place of death.** **77.4%** of deaths occurred in inpatient settings.

Conclusions

- ◆ MM-associated pneumonia mortality declined substantially from 1999 to 2024.
- ◆ A transient rise (2015–2021) overlapping the COVID-19 pandemic era was followed by a sharp post-2021 decline.
- ◆ Persistent racial disparities — greatest among Black patients — highlight an urgent need for targeted, equity-focused interventions.
- ◆ Concentration of deaths in hospitals and among the very elderly points to infection prevention and supportive care as priorities.