



Rising Venous Thromboembolism-Associated Mortality Despite Declining Overall Multiple Myeloma Mortality in the United States, 1999-2024: Pulmonary Embolism Burden and Demographic Disparities

Ayşe Gul Korkmaz¹, Dharmik Patel², Adit Dharia¹, Muddassir Salman¹
1. USF Morsani School of Medicine, HCA Florida Oak Hill Hospital, Brooksville, FL, USA
2. HCA Florida Healthcare/Westside/Northwest Hospital, Plantation, FL, USA
Presenting author: Ayşe Gul Korkmaz

BACKGROUND & METHODS

Background

VTE is a potentially preventable fatal complication of MM, but national patterns of VTE mortality and PE burden remain poorly characterized.

Aim

Characterize MM-associated VTE mortality, PE burden, long-term trends, and demographic disparities in the United States.

Data source

CDC WONDER Multiple Cause of Death files for US deaths mentioning MM (ICD-10 C90.0).

Trend files

Long-term trends used 1999-2020 bridged-race data; 2018-2024 trends and disparities used single-race data.

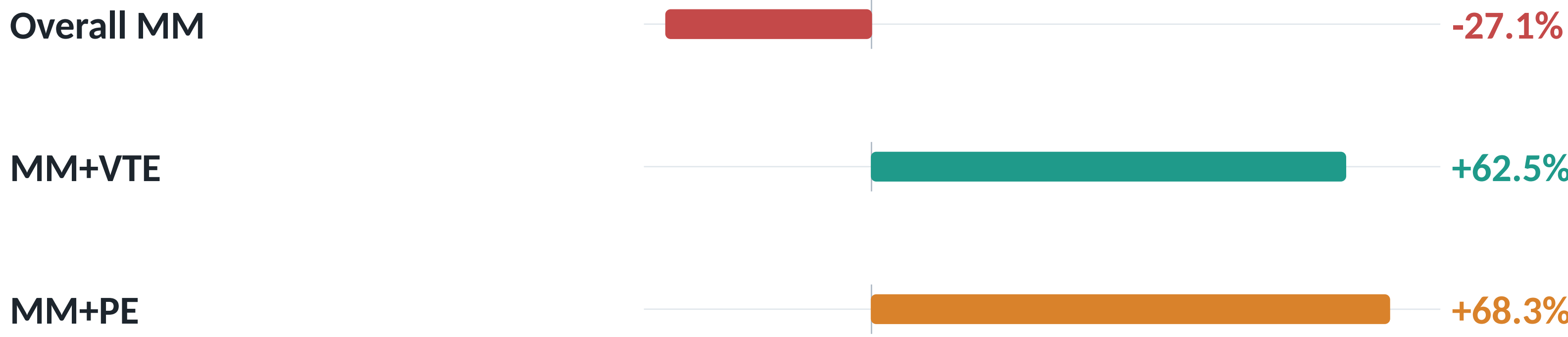
APC testing was limited to the internally consistent 1999-2020 bridged-race period.

DIVERGENT MORTALITY TRENDS, 1999-2024



Descriptive endpoint changes showed falling overall MM mortality but rising VTE- and PE-associated mortality.

Endpoint percent change



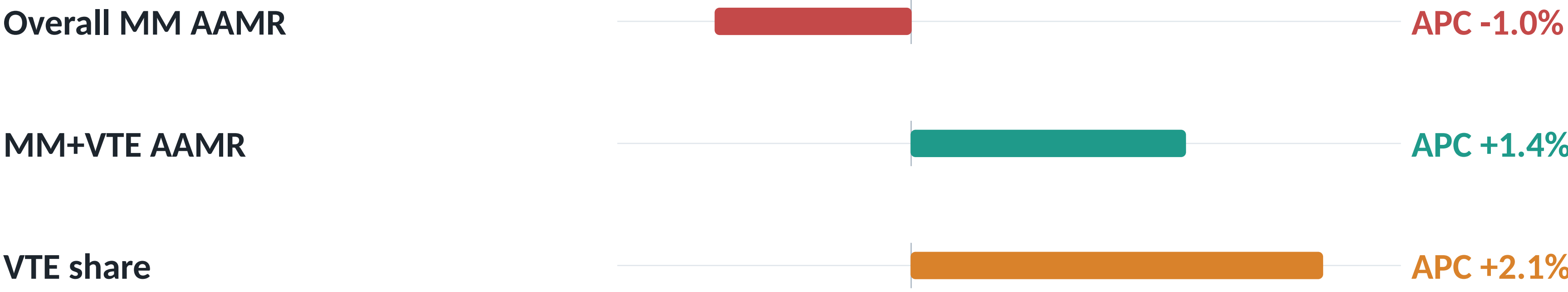
VTE accounted for a growing share of MM-associated deaths, increasing from 1.09% in 1999 to 2.41% in 2024.

These changes occurred despite declining overall MM-associated mortality.

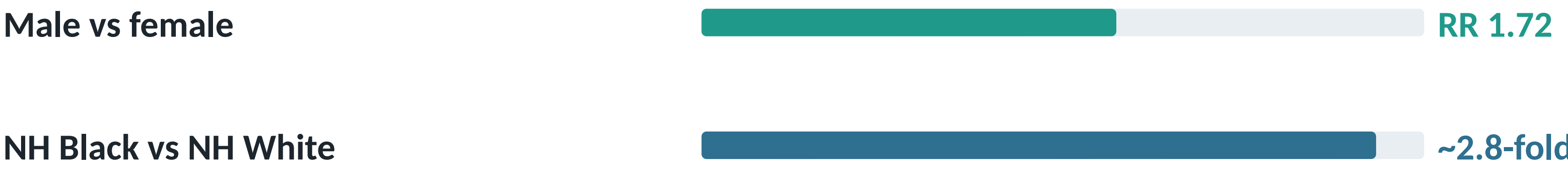
1999-2020 TRENDS & MODERN DISPARITIES

In bridged-race APC analysis, overall MM mortality declined while VTE burden increased.

Annual percent change



Modern-period disparities



NH Black adults had the highest MM+VTE AAMR: 0.1847 vs 0.0663 among NH White adults.

CASE DEFINITIONS

MM-associated deaths

Death certificates mentioning MM (C90.0).

VTE-associated MM deaths

C90.0 plus PE (I26), phlebitis/thrombophlebitis (I80), or other venous embolism/thrombosis (I82).

PE-associated deaths

C90.0 plus PE code I26.

VTE AND PE BURDEN, 2018-2024



PE accounted for most MM+VTE death certificates in the modern period.



Adults aged 65 years or older accounted for 81.8% of MM+VTE deaths.

CONCLUSIONS

Despite declining overall MM-associated mortality, VTE- and PE-associated mortality increased.

VTE represented a growing share of MM deaths, and PE accounted for most MM+VTE death certificates.

Disproportionate mortality was observed among males, older adults, and non-Hispanic Black decedents.

Findings support targeted thrombosis-risk mitigation, PE prevention, and equity-focused supportive care in MM.