



Rising Fall- and Fracture-Associated Mortality Despite Declining Overall Multiple Myeloma Mortality in the United States, 2018-2024: National Trends, Fracture Site Burden, and Disparities

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BACKGROUND & METHODS

Background

MM is associated with skeletal fragility, osteolytic disease, frailty, and fall risk, yet national mortality patterns involving falls and fractures remain poorly characterized.

Aim

Evaluate contemporary US trends in fall- and fracture-associated MM mortality, fracture-site burden, and demographic/geographic disparities.

Data source

CDC WONDER Multiple Cause of Death single-race final data, 2018-2024.

Outcome definition

MM-related deaths were identified by C90.0 listed anywhere on the death certificate; fall/fracture-associated deaths required C90.0 plus fall or fracture codes.

CASE DEFINITION & SITES

Fall codes

W00-W19

Fracture codes

S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, or T14.2

Major site-specific fractures

Hip/femur, thoracic/rib/sternum, and lumbar spine/pelvis fractures were evaluated.

DIVERGENT MORTALITY TRENDS, 2018-2024

3.6730 to 3.2828

Overall MM AAMR
-10.6%

0.0385 to 0.0527

Fall/fracture AAMR
+36.9%

1.35% to 1.64%

Share of MM deaths
fall/fracture codes

Overall MM-related mortality declined, while fall- and fracture-associated MM mortality increased.

Endpoint percent change

Overall MM AAMR

-10.6%

Fall/fracture AAMR

+36.9%

Major site fractures

+49.1%

A total of 106,937 MM-related deaths were identified; 1,545 (1.44%) had a fall or fracture code.

The proportion of MM-related deaths with fall or fracture codes rose from 1.35% to 1.64%.

FALL & FRACTURE BURDEN

1,545

Fall/fracture deaths
1.44% of MM deaths

1,079

Falls

934

Fractures

Falls and fractures overlapped in 468 deaths.

Major site fractures among fracture deaths

69.3%

Major site-specific fractures involving hip/femur, thoracic/rib/sternum, or lumbar spine/pelvis accounted for 647 deaths.

AGE, SEX, AND REGIONAL DISPARITIES

Mortality was concentrated in older adults and varied by sex and region.

Deaths age >=65 years

90.7%

South share of deaths

578; 37.4%

Highest-risk groups

0.9376

Age >=85 crude rate
per 100,000

0.0587

Male AAMR
vs 0.0369 female

0.0603

Midwest AAMR
highest region

The South accounted for the largest number of deaths, while the Midwest had the highest regional AAMR.

These patterns identify older adults and other high-risk groups as key targets for fall/fracture-risk mitigation.

CONCLUSIONS

Fall- and fracture-associated MM mortality increased despite declining overall MM-related mortality.

This pattern suggests a growing supportive-care gap in contemporary MM care.

Major fracture-site burden was substantial, with hip/femur, thoracic/rib/sternum, and lumbar spine/pelvis fractures accounting for most fracture-associated deaths.

Findings support intensified fall prevention, bone health optimization, frailty assessment, and fracture-risk mitigation, particularly among older adults and other high-risk groups.