



TRENDS AND DISPARITIES IN SEPSIS-RELATED MORTALITY IN US ADULTS AMONG PANCREATIC CANCER PATIENTS, 1999-2020

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Introduction

Pancreatic cancer and sepsis represent significant health burdens, often overlapping due to advanced disease, immune dysfunction, and treatment-related complications. Assessing their relationship is essential for recognising temporal patterns, identifying disparities, and guiding preventive strategies, ultimately informing health care planning and improving survival outcomes across diverse demographic and regional populations.

Methodology

We analyzed CDC WONDER data (1999-2020) for adults ≥ 25 with sepsis (A41.9) and pancreatic carcinoma (C25). We categorized age-adjusted mortality rates (AAMRs) per 100,000 by demographic and regional distribution. Joinpoint regression analysis was performed to calculate annual percent changes (APCs) stratified by year, sex, race/ethnicity, urbanization, and geographic region with 95% confidence intervals.

Results

Total deaths:25,452

Overall AAMR:

- decreased from 0.411 in 1999 to 0.338 in 2002(APC: -6.4)
- increased from 2002 to 0.45 in 2011 (APC: 3.64*)
- then again increased from 2011 to 0.78 in 2020(APC:6.15*).

By gender:

Men had consistently higher AAMRs than women (0.64 vs 0.43).

By ethnicity: (highest to lowest AAMR)

Hispanic or Latino(0.56) > non- Hispanic(NH) or Pacific islander population (0.50).

By Region:

North East had highest AAMR (0.58) followed by other regions(West:0.537;South:0.527; Midwest 0.43)

By Urbanization:

metropolitan areas had higher AAMR (0.52 with large central metropolitan: 0.62;large fringe metro:0.52;medium metro: 0.48; small metro: 0.43) than non-metropolitan areas (0.44 with micropolitan areas: 0.43; non-core areas: 0.44) metropolitan areas.

Conclusion

Between 1999 and 2020, mortality from sepsis and pancreatic carcinoma declined substantially across sex and race groups, with progress slowing after 2011. The Midwest, Florida, and California showed the steepest declines, while urban areas experienced greater reductions than rural counterparts, underscoring geographic disparities.

