PANCREATIC CANCER MORTALITY TRENDS AMONG DIFFERENT AGE GROUPS

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Introduction

Pancreatic cancer is typically diagnosed at an advanced stage in high-income countries. It predominantly affects older adults, and demographic aging has contributed to a rising absolute number of pancreatic cancer deaths in the United States and globally. The majority of cases are pancreatic ductal adenocarcinoma (PDAC), which carries a 5-year survival rate of less than 15% despite advances in surgical techniques, chemotherapy, and targeted therapies. Large population-based analyses using CDC WONDER and SEER showed already in results and methods reflecting both the strong age dependence of pancreatic cancer incidence until curative treatment.

Objective

The purpose of this project focuses on to compare pancreatic cancer mortality trends in younger and older U.S adults using CDC wonder database.

Methods & Materials

Annual mortality data from 1999 to 2026 were obtained from the CDC WONDER Multiple Cause of Death database. Age-adjusted mortality rates (per 100,000), standardized to the 2000 U.S. population, were analyzed for adults aged 25–44 and ≥45 years. Temporal trends were evaluated using log-linear regression to estimate annual percent change (APC) with 95% confidence intervals (CI). Segmented regression was performed to assess for potential inflection points. Primary analyses were restricted to finalized data (1999–2023), with sensitivity analyses including provisional/partial data through 2026. Analyses were conducted in R.

Results and Discussion

Using finalized data (1999–2023), mortality declined among adults aged 25–44 years (APC −1.15%; 95% CI −1.56% to −0.74%; $p < 0.001$) and increased among adults aged ≥45 years (APC +0.27%; 95% CI 0.22% to 0.32%; $p < 0.001$). Trends differed significantly between age groups (interaction $p < 0.01$). Segmented regression did not identify statistically significant inflection points in either age group, indicating approximately linear trends over time. Inclusion of provisional data through 2026 yielded similar directional findings.

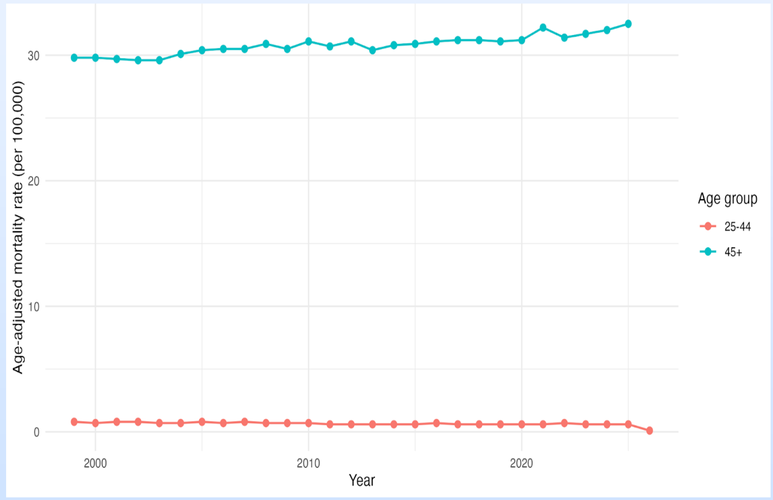

Figure 1: Age-adjusted pancreatic cancer mortality rates in the United States by age group (25 – 44 vs ≥ 45 years), 1999 – 2026.

Conclusion

Overall, Pancreatic cancer mortality in the United States demonstrates different age-specific trends, with sustained declines among younger adults aged 25–44 years and continued increases among adults aged ≥ 45 years over the 1999 to 2026 data.

Limitations

Some of limitations were the misclassification of cause of death in death certificate data and lack of detailed clinical information such as tumor stage, histology, treatment, and comorbidities.

Future Directions

Future studies should further stratify older adults into narrower age groups and examine trends by sex, race/ethnicity, and geography to better characterize disparities in pancreatic cancer mortality.

References

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