

Trends in Pulmonary Embolism Mortality Amongst Pennsylvania Adults (1999-2020)

Reading Hospital - Tower Health, West Reading PA

Muhammad Umer Riaz Gondal, Zainab Kiyani, Fawwad Ansari, Anthony Donato

Introduction:

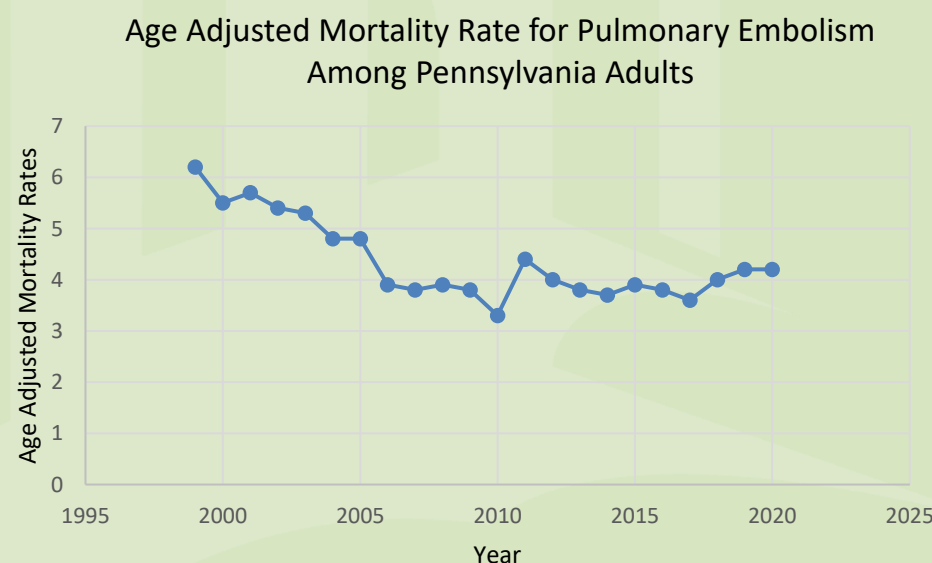
Pulmonary embolism affects around 900,000 people in the United States each year. Assessing trends in mortality amongst Pennsylvania residents can help form policy decisions.

Methods:

Utilizing the Centers for Disease Control and Prevention's WONDER (Wide-Ranging Online Data for Epidemiologic Research) death certificate database, we comprehensively analyzed pulmonary embolism mortality in Pennsylvania in adults aged 25 and older from 1999 to 2020. Age-adjusted mortality rates (AAMRs) per 100,000 persons were calculated and stratified by year, sex, and race.

Results:

Overall, there were 9627 deaths due to pulmonary embolism amongst adults in Pennsylvania from 1999 to 2022. The overall AAMR decreased from 6.2 (95 % CI 5.7 to 6.7) in 1999 to 4.2 (95 % CI 3.8 to 4.6) in 2020, with an average annual percentage change (AAPC) of -2.04 (95 % CI -2.97 to -1.22). The overall AAMR was almost similar amongst males (4.4) and females (4.3). AAMR decreased in males from 1999, 6.3, to 2020, 4.5, with an AAPC of -1.88 (95 % CI -2.77 to -0.98). In females, the AAMR decreased from 1999, 6.1, to 2020, 3.9, with an AAPC of -2.32 (95 % CI -3.48 to -1.38). Amongst racial groups, African American adults had two times higher AAMR (8.3) than Whites (4.0). AAMR decreased in both Whites and African Americans.



In African Americans, the AAMR decreased with an AAPC of -2.00 (95 % CI -3.36 to -0.63); in Whites, the AAPC was -2.07 (95 % CI -2.87 to -1.35). The highest AAMR was among African American males (8.7), followed by African American females (8.1). Dauphin County in Pennsylvania saw the highest AAMR at 7.2, with few counties recording very few deaths, leading to unreliable data in those counties.

Discussion:

According to the American Lung Association, 10-30% of people developing pulmonary embolism die within one month of diagnosis. In the United States, African Americans are two times more likely to die from pulmonary embolism compared to Whites, and this is similar to the trend seen in our analysis for Pennsylvania. New advancements in pulmonary embolism treatment are possibly the reason for decreasing mortality among patients in Pennsylvania. The high mortality in certain racial groups, especially African Americans, is a cause for concern, and targeted health policies addressing social determinants of health are needed to mitigate disparities and enhance healthcare access.