

# Urban-rural Disparities in Trends of Pulmonary Hypertension-Related Mortality in the United States, 2004-2019

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**Introduction:** Despite medical advances that have extended life expectancy in pulmonary hypertension (PH) patients over the past few decades, mortality has continued to be high within the United States. Yet, there is a paucity of research regarding rural-urban disparities associated with PH mortality, with trends only being reported prior to 2011.

**Methods:** We extracted PH-related urban-rural deaths from 2004 to 2019 from the Centers for Disease Control and Prevention Wide-Ranging OnLine Data for Epidemiologic Research (CDC WONDER). Crude and age-adjusted mortality rates (CMR and AAMR) per 100,000 people were calculated. Associated average percentage changes (APC) were computed using Joinpoint trend analysis software and reported as average annual percent changes (AAPCs).

**Results:** A total of 353, 916 pulmonary hypertension-related deaths occurred in the study population within the US between 2004 and 2019. The AAMR for overall PH increased from 8.19 in 2004 to 11.63 in 2019. Rural counties had an overall significantly higher AAMR than urban counties, (rural: 10.75 [95% CI, 10.67 to 10.84] versus (urban: 9.70 [95% CI, 9.66 to 9.74]).

**Conclusion:** Overall, our results indicate a gap in PH-associated healthcare services among those living in rural counties as compared to those living in urban counties within the US.