# Epidemiological Differences in Prostate Cancer Mortality Across State and Medicare Status

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## Background

- Prostate cancer (PCa) outcomes vary widely across U.S. states, reflecting inequities across social determinants of health, insurance coverage, access to care, and public health investment.
- While screening initiatives have been well documented to promote more favorable mortality rates, less is known about how broader socioeconomic and insurance-related factors shape state-level variation.

## Methods

- Through an investigation of a state-level ecological analysis of demographic, insurance, spending, and epidemiologic data, we assessed the data via pairwise Pearson correlations and multivariate regressions were used to identify predictors of PCa mortality (population-adjusted).
- Analyses were performed using Julius Software.

## Results

- Mortality was strongly associated with Medicare share: states with higher proportions of Medicare enrollees had substantially higher mortality (r = 0.65, p < 0.0001).
- This likely reflects age structure but may also capture care delivery differences.

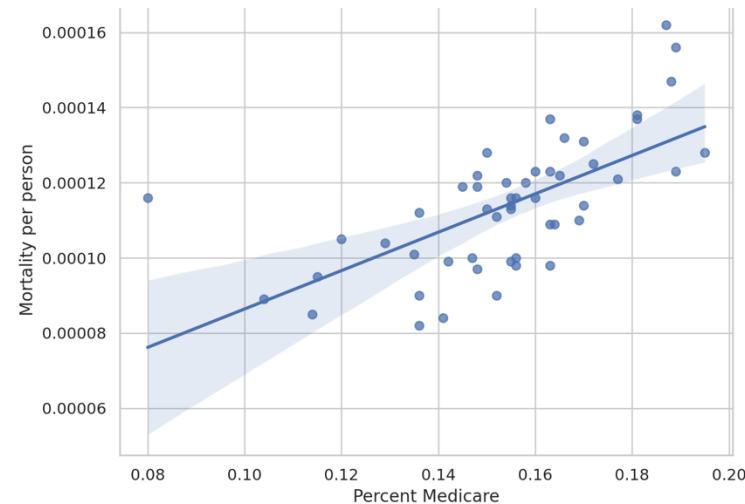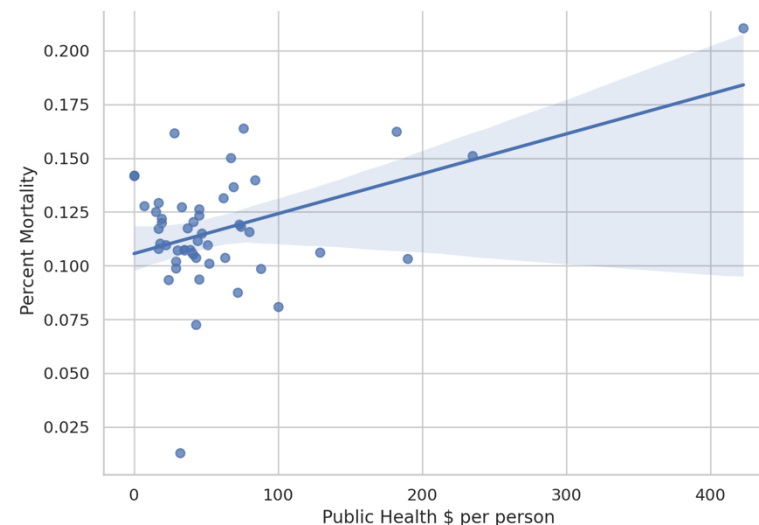## Figure One: Mortality by State Compared to Percent on Medicare



## Figure Two: Mortality by State Compared to Spending



## Results cont.

- Public health dollars per capita were positively associated with mortality (r = 0.46, p = 0.0007), suggesting reactive allocation of funds to higher-burden states rather than preventive investment.
- Mortality was also positively associated with % Medicaid (r = 0.35, p = 0.013) and % Medicaid-eligible (r = 0.37, p = 0.007).
- Screening rates were inversely correlated with mortality (r = -0.31, p = 0.025), consistent with prior literature, though not significant in multivariate models.
- No predictors of incidence reached statistical significance, highlighting the need for additional covariates such as race/ethnicity distribution, stage at diagnosis, and PSA testing workups.

## Conclusions

- State-level prostate cancer mortality is strongly influenced by insurance coverage and access to care, highlighting the need for policy interventions that expand eligibility and reduce uninsured populations.
- Screening remains essential for improving outcomes, but needs to be considered in tandem with broader reforms.
- The paradoxical association between higher public health spending and mortality underscores the need for proactive allocation of resources rather than reactive investment.
- Policymakers should prioritize insurance expansion and equitable funding to reduce disparities in prostate cancer outcomes.