Historical & Projected Effects of Cold Temperatures on All-Cause Mortality in Connecticut

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Background
- Most weather-related deaths in CT related to cold (63%)
- Majority households rely on oil (43%) and fossil fuel heating sources (78%)
- Heating oil prices may impact ability to adapt to cold weather
- Effects of climate change on cold-related deaths vary by geographical region
- Understanding regional risk important for adaptation efforts

Aims
2. Project future mortality due to cold temperatures in CT using projected daily temperatures for 2041–2050 under Representative Concentration Pathways (RCP) 4.5 and 8.5

Methods
1. Generalized additive distributed lag models to evaluate association between cold and mortality
   \[ \beta_0 + \beta_1 \text{Below freezing days} + \beta_2 \text{Quartile of heating oil price} + \beta_3 \text{Smooth} \]
   Models: Stratified for Heating Oil Price Quarters

Results
- Below freezing temperatures associated with 12–13% increased risk mortality in all models
- Historical heating oil prices had little effect on the relationship between cold temperatures and mortality

Key Points
- Cold temperatures positively associated with mortality in Connecticut
- Projections estimate reduction in cold-related deaths in Connecticut under RCP 4.5

What is RCP 4.5?
- Possible scenario of how world’s climate may change in the future
- Assumes action will be taken to mitigate climate change
- Global temperatures still rise, but not as much

Under RCP 4.5, warmer temperatures lead to net reduction in cold-related mortality

References