

## Changes in Mortality after Massachusetts' Health Care Reform

### EXTENDED ABSTRACT:

**BACKGROUND:** Massachusetts' 2006 health reform has been called a model for the Affordable Care Act. The law attained near-universal insurance coverage, increased access to care, and improved self-reported health. Our objective was to determine whether the reform was associated with changes in all-cause mortality and mortality from causes amenable to health care.

**METHODS:** We used a quasi-experimental differences-in-differences design, comparing changes in mortality rates for adults ages 20-64 in Massachusetts from 2001-2005 (pre-reform) to 2007-2010 (post-reform) versus a propensity-score defined control group of U.S. counties. Data were from the CDC's Compressed Mortality File. The primary outcome was annual all-cause mortality at the county-level, in sex-age-race specific cells (county-level cells:  $n=146,825$ ). We used a generalized linear model (GLM) with a negative binomial distribution to analyze death counts in each population, adjusting for demographics, local economic factors, and state of residence. Secondary analyses examined coverage, access to care, and self-reported health.

**RESULTS:** Massachusetts' reform was associated with a significant decline in all-cause mortality compared to the control group (-2.9 percent,  $p=0.003$ , or an absolute decline of 8.2 deaths per 100,000). Deaths from causes amenable to health care also significantly declined (-4.5 percent,  $p<0.001$ ). Changes were larger in counties with lower household incomes and higher pre-reform uninsured rates. Differences-in-differences models using elderly adults as an additional control group yielded similar results. Secondary analyses showed significant gains in coverage, access to care, and self-reported health. Combining our estimates of increased health insurance coverage and decreased mortality, the "number-needed-to-treat" was approximately 830 people gaining health insurance to prevent one death per year.

**CONCLUSION:** Massachusetts' reform was associated with significant declines in all-cause mortality and deaths from causes amenable to health care.