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Regional Discrepancies in Cancer Mortality Rates.

Incidence and mortality rates are considered as a guideline in developing public health strategies and allocating resources. I will present some applications of functional data analysis techniques to model age-specific cancer mortality rates and forecast entire age-specific functions using exponential smoothing state-space models. The age-specific mortality curves are decomposed using principal component analysis and fit functional time series model with basis functions. Nonparametric smoothing methods are used to mitigate the existing randomness in the observed data. Functional time series models are used to model age-specific brain cancer mortality rates and forecast mortality curves with prediction intervals using exponential smoothing state-space model. (Received September 21, 2016)