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**Keshav P Pokhrel\*** (kpokhrel@mail.usf.edu), FL , and **Chris P Tsokos** (ctsokos@usf.edu), FL. *Forecasting Using Functional Data Analysis Models in Cancer Epidemiology.*

An increasing incidence of brain cancer has been reported for the last three decades. In this study of brain cancer incidence and mortality in the US, we attempt to explore the information on rate function in longitudinal studies by examining data provided by the Surveillance, Epidemiology, and End Results (SEER) Program. Population-based data from the SEER Program are used to calculate the incidence, mortality and survival rates for people with brain cancer. We use annual unadjusted brain cancer mortality rates from 1969 to 2009 in 5-year age groups for the different regions of United States. Age-specific mortality curves were obtained using nonparametric smoothing methods. The importance of regional differences is studied to identify the cause of the subject. We apply functional time series models on age-specific brain cancer mortality rates for each group of patients, and forecast their mortality curves using exponential smoothing state-space models with damping. (Received September 25, 2012)