

**An Enhanced Geographic Information System for  
Exploration of Multivariate Health Statistics**

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An implementation of an interactive parallel coordinate plot linked with the ArcView® geographic information system (GIS) is presented. The integrated geographic visualization system was created for the exploratory analysis of mortality data from specific cancers as they relate, specifically spatially, to other mortality causes and to demographic and socioeconomic risk factors. The linked and interactive parallel coordinate plot was tested with and compared to a similarly interactive and linked scatterplot in usability assessments designed to assess each representation's relative effectiveness for exploration of these data sets. Evidence from these studies suggests that multivariate, spatial, and/or time series exploration is enhanced through the use of the parallel coordinate plot linked to maps. The paper will present this system as a "case study" to demonstrate the philosophical and practical advantages of highly interactive, multiple-perspective environments for the exploration of complex spatial and spatiotemporal information. Emphasis is placed on the encouragement and facilitation of creative thinking about geographic phenomena, including but not limited to health statistics, through the use of such data-rich graphical tools.