

Pennsylvania Cancer Atlas

A Model GIS/Atlas for State Comprehensive Cancer Control

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<http://www.geovista.psu.edu/grants/CDC/>

The Pennsylvania Cancer Atlas is an interactive online atlas intended to help policy-makers, program managers, and epidemiologists with tasks related to cancer prevention and control. The Atlas is designed to support exploratory analysis and decision-making with spatio-temporal cancer data. The goal of the model GIS/Atlas project is to develop, test and disseminate methods and products that provide an accurate, timely, and innovative display and analysis of state-based, geo-referenced cancer data.

Primary users of this research will be state and national health agencies as they plan, implement and evaluate initiatives to reduce cancer morbidity and mortality. Epidemiologists, other health researchers, and public health professionals will also benefit from this research, product development and dissemination.

The Atlas is designed with a client-server architecture (in which data are stored in a database and "served" to a web mapping "client" that is visible to users in a standard web browser window. The client interface was developed using Flash technology, which provides clean vector graphics and dynamic functionality in the web browser. The interface allows the user to choose between a one-map view that includes population and other demographic data, and a two-map view that supports variable comparisons.

The system uses a PostgreSQL database and the geoServer Web Feature Server (WFS). Both of these technologies are free, open-source, and standards-based, which allows for flexibility in using other databases and map servers in other deployment situations.

Figure 2: In the one-map view, the atlas displays demographic data (for the state or for a selected county) such as this dynamic population pyramid, which can be focused by race.

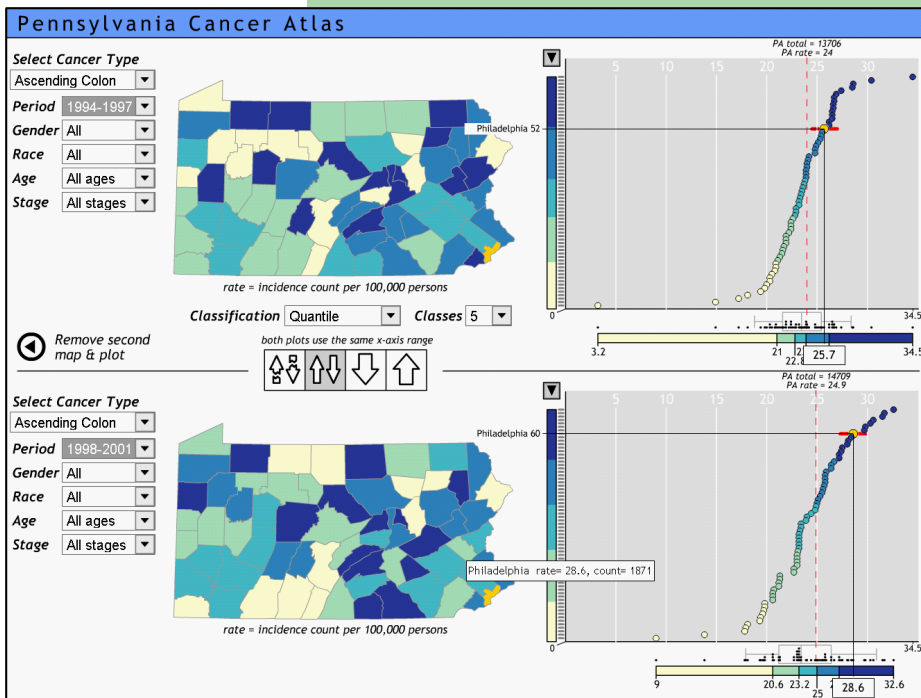
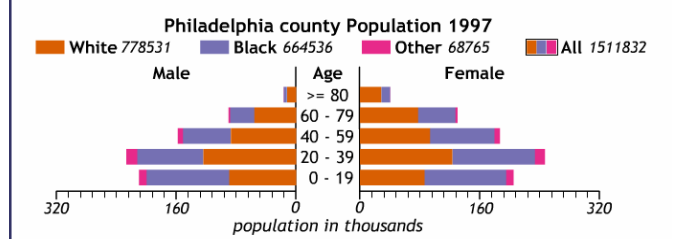


Figure 1: The Pennsylvania Cancer Atlas in the two-map view. Users can compare different cancers, time periods, and covariates by using two maps. The maps and plots are linked: a selection on one map or plot is indicated on the other map and plot.

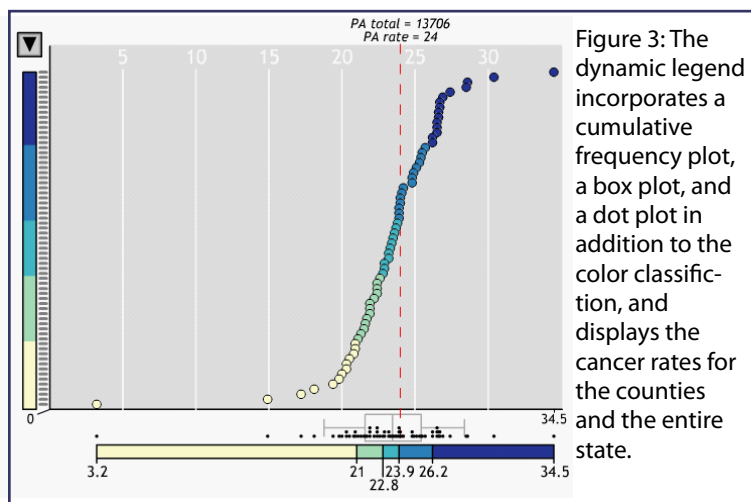


Figure 3: The dynamic legend incorporates a cumulative frequency plot, a box plot, and a dot plot in addition to the color classification, and displays the cancer rates for the counties and the entire state.

This project was made possible through a Cooperative Agreement between the Centers for Disease Control and Prevention (CDC) and the Association of American Medical Colleges (AAMC), award number MM-0718.

Atlas design and implementation: Stephen Crawford and James Macgill