

Interactive mapping with cancer incidence, demographic and behavioral risk data

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Presenter Disclosure

Chester Schmaltz, PhD

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

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Background

- ❖ The Missouri Cancer Registry and Research Center (MCR-ARC) collects population-based data from healthcare providers about Missouri residents diagnosed with reportable tumors.
- ❖ The data includes:
 - ❖ Patient information
 - ❖ Tumor characteristics
 - ❖ 1st course treatment

Background

- ❖ The capability of showing where the burden of cancer is high, and especially to put it into context with:
 - ❖ demographic
 - ❖ socioeconomic
 - ❖ behavioral riskscan provide an important part of disseminating data to the public.

Background

- ❖ MCR-ARC previously disseminated data to the public as:
 - ❖ Tables via the Missouri Department of Health and Senior Services' (DHSS) interactive MICA website
 - ❖ Interactive maps of selected cancers types (without additional contextual indicators).

Purpose

- ❖ To produce a better means of disseminating cancer data to the public, an interactive map incorporating data on a small number of cancer types and possibly-related indicators from other data sources was produced.

Methods

- ❖ The cancer types of interest were:
 - ❖ All cancers combined
 - ❖ Lung & bronchus
 - ❖ Colorectal
 - ❖ All ages
 - ❖ 50+
 - ❖ (Female) breast
 - ❖ All ages
 - ❖ 40+
 - ❖ 55+

Methods

- ❖ Cancer mortality & incidence indicators:
 - ❖ Age-adjusted rates
 - ❖ Ratio of observed to expected cases based on age, race and sex
 - ❖ Standardized incidence/mortality ratios (SIR, SMR)

Methods

- ❖ Breast cancer survival indicator:
 - ❖ 5-year cause-specific survival rates
 - ❖ Percentage who survived breast cancer 5 years after diagnosis

Methods

❖ Behavioral risk indicators:

- ❖ Cancer screening

- ❖ Nutrition

- ❖ Smoking

- ❖ General health status

- ❖ Obesity

- ❖ Exercise

- ❖ Lack of healthcare coverage

❖ Prevalence & Observed-to-Expected Ratios

Methods

❖ Demographic/socioeconomic indicators:

❖ Age

❖ Education

❖ Employment

❖ Poverty

❖ Income

❖ Crowding

❖ Race/ethnicity

❖ Mobility

❖ Foreign born /
language isolation

Methods

- ❖ Miscellaneous indicators:
 - ❖ Rural-Urban Continuum Code,
 - ❖ County Topology
 - ❖ Farming-dependent, mining-dependent, *etc.*
 - ❖ Health Service Areas
- ❖ Additionally, the locations of general acute hospitals and incorporated cities are shown.

Cancer, Risks & Demographics Maps


❖ MCR-ARC homepage:


❖ <http://mcr.umh.edu>

Cancer, Risks & Demographics Maps

MISSOURI CANCER REGISTRY AND RESEARCH CENTER








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The Missouri Cancer Registry and Research Center (MCR-ARC) is located on the fourth floor of Clark Hall on the campus of the University of Missouri - Columbia and housed within the Department of Health Management and Informatics in the School of Medicine. The MCR-ARC is a collaborative partnership between the Missouri Department of Health and Senior Services (DHSS) and the University of Missouri. Since 1995, the MCR-ARC has received financial support from the National Program of Cancer Registries (NPCR) of the Centers for Disease Control and Prevention (CDC).

About our website

The Missouri Cancer Registry and Research Center's website was created to assist the various entities who are required by statutes and regulations (RSMo [192.650](#), [192.653](#), [192.655](#), [192.657](#) and 19 CSR [70-21.010](#)) to submit cancer information to the state central cancer registry.

Some of the contents include:





- the MCR-ARC Abstract Code Manual for hospitals abstracting resources for hospital registrars, such as required surgery codes, Missouri county codes, etc. reporting forms for long-term care facilities and other non-hospital facilities links to sites frequently utilized by cancer registrars information about and links to the Missouri state cancer-reporting legislation
- HIPAA information

For persons less familiar with MCR-ARC or new to cancer reporting, we've included a web site search tool located on the upper left corner of all pages. This search (by default) is limited to the contents of the MCR-ARC website.

This project was supported in part by a cooperative agreement between the Centers for Disease Control and Prevention (CDC) and the Missouri Department of Health and Senior Services (DHSS) (#U58/DP003924-02) and a Surveillance Contract between DHSS and the University of Missouri.

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HMI Group Consulting
HIT Assistance Center
Health and Behavioral Risk Research Center (HBRRCC)
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For questions or information not found on this website, please call 573-882-7775

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InstantAtlas

MCR-ARC InstantAtlas Data

What is InstantAtlas?

InstantAtlas is an interactive, internet-based mapping tool, licensed to and supported by the Missouri Cancer Registry and Research Center, which allows users to visually display data gathered from registry data.

InstantAtlas was designed to present statistics in a more user-friendly way. By using InstantAtlas, information and data can be viewed and displayed in a variety of formats (example: charts, tables, maps), and allows easy comparison of different areas (example: counties, regions, measures, years).

What Are The Benefits?

By providing ready-to-view, customizable graphics and charts, InstantAtlas allows users to:

- Visually explore not only the data of a selected county or central office program, but also its trends, rankings, and other data relationships;
- Save time creating maps, charts, and graphs;
- Make the data much more stimulating and easier to understand for presentation;
- Better communicate health trends and issues;
- Use visual data displays to identify public health priorities in a specific county or geographic region;
- Gauge performance over time; and
- Compare performance among counties or geographic regions.

Links

As an interactive, internet-based mapping tool, InstantAtlas has two versions:

Basic/desktop version for use in designing, populating and publishing Dynamic Reports.

InstantAtlasTM desktop has four parts:

- Templates - pre-defined views of maps, tables and charts to meet your needs "out-of-the-box".
- Publisher - enables you to publish reports with the geographies of your choice.
- Designer and Style Editor - enables you to create a custom look and feel for your reports.
- Data Manager - enables you to store, manage and publish your data from Excel or Access.

[InstantAtlas Desktop Overview](#)

Cancer Incidence, Demographic and Behavioral Risks

Data are presented both as a [double map](#) showing correlations between indicators and as an [area profile](#) showing comprehensive overviews for user-selected counties.

[County Cancer Profile Dashboard with Age-adjusted Invasive Incidence Rates](#)

This dashboard shows the rates for eight (8) types of cancer* for each county along with an infographic comparing the rates to other Missouri counties and to the 2010 US rate.**


[Age-Adjusted Invasive Cancer Incidence Rates Over Time](#)

These maps have data for five (5) consecutive three-year periods (1997-1999; 2000-2002; 2003-2005; 2006-2008; and 2009-2011) for eight (8) types of cancer.* To change the site or time period, click on the 'Data' button located at the top-left of the screen.**

Advanced/modular server version extends and expands the range of solutions to include database-driven local information systems, data observatory and area profiling applications that allow you to share location-based statistics and indicators. InstantAtlasTM server enables information analysts, researchers, and data professionals to create highly interactive web solutions that combine statistics and GIS data to improve data visualisation, enhance communication, and engage people in more informed decision making.

Cancer, Risks & Demographics Maps

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[County Cancer Dashboard](#) - [View](#) - [Print](#) - [Refresh](#) - [Help](#) - [Feedback](#)

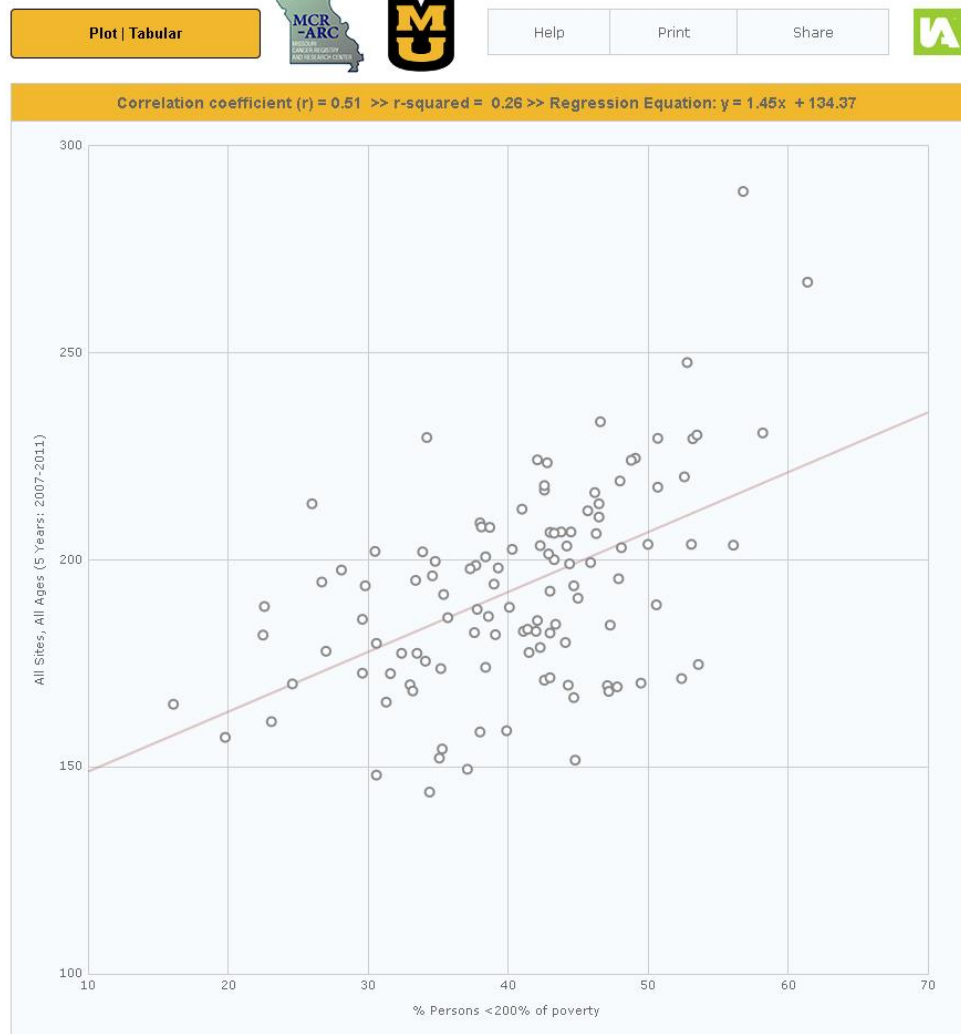
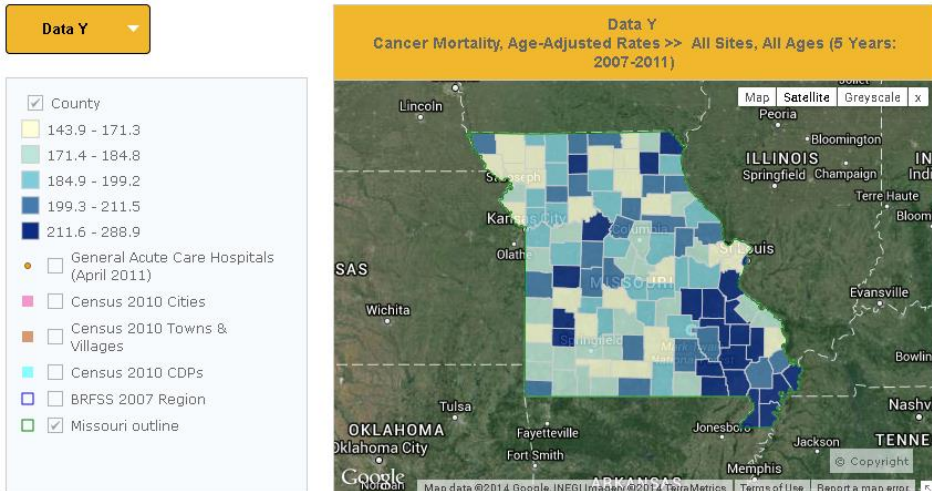
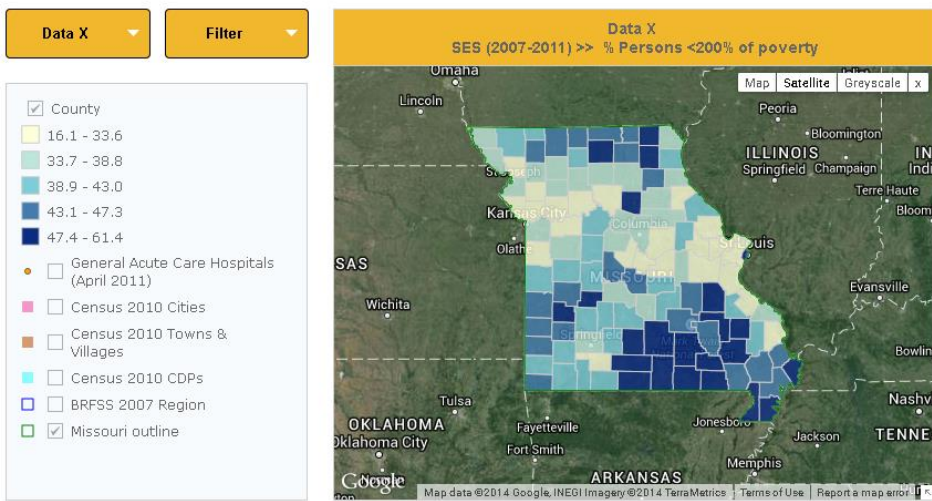
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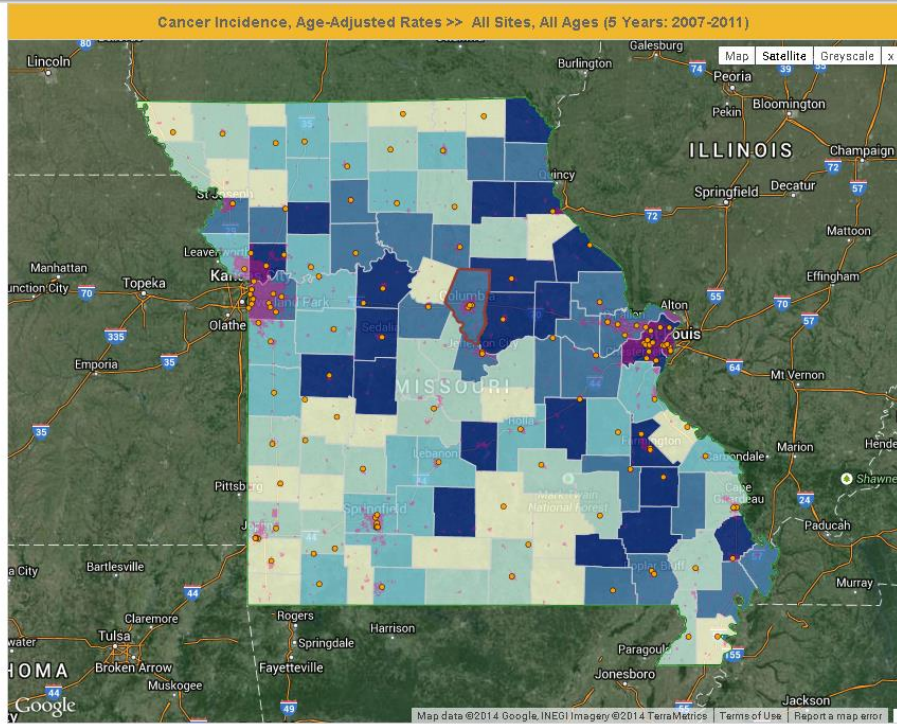
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Cancer, Risks & Demographics Maps



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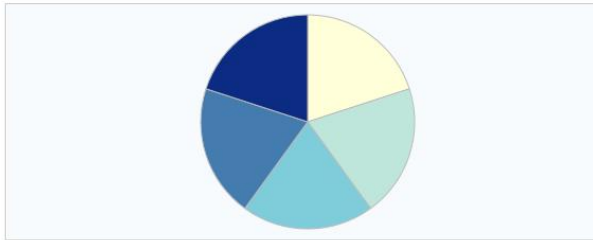
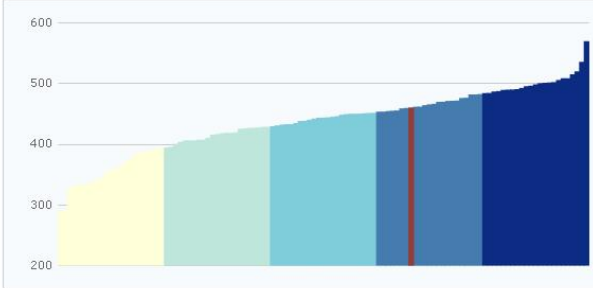
Help Print Share



Map Data Filter

- County
- 288.8 - 394.5
- 394.6 - 429.1
- 429.2 - 452.9
- 453.0 - 483.9
- 484.0 - 569.8
- General Acute Care Hospitals (April 2011)
- Census 2010 Cities
- Census 2010 Towns & Villages
- Census 2010 CDPs
- BRFSS 2007 Region
- Missouri outline

Map | Tabular



Expand/Collapse Spine Chart

County Indicators (Over 5 Years: 2007-2011)

Indicator	Area	County Value	Lowest	Median	Highest
Cancer Incidence, Age-Adjusted Rates					
All Sites, All Ages (5 Years: 2007-2011)	Boone	460.3	288.8		569.8
Female Breast, All Ages (5 Years: 2007-2011)	Boone	130	55.3		184.2
Female Breast, 40+ (5 Years: 2007-2011)	Boone	277.2	120.3		386.6
Female Breast, 55+ (5 Years: 2007-2011)	Boone	401.8	150.2		501.9
Lung & Bronchus, All Ages (5 Years: 2007-2011)	Boone	68.1	39.2		133.7
Colon & Rectum, All Ages (5 Years: 2007-2011)	Boone	38.7	30.1		69.5
Colon & Rectum, 50+ (5 Years: 2007-2011)	Boone	125.9	91.3		225
Cancer Incidence, Percent Early Stage					
All Sites, All Ages (5 Years: 2007-2011)	Boone	55.9	39.8		60.2
Female Breast, All Ages (5 Years: 2007-2011)	Boone	73.2	50		90.5

Results

- ❖ It does not replace a fully-featured statistical package for analysis of data
- ❖ The effort to setup is high
- ❖ The resulting maps provide an intuitive method of visualizing where cancer is being diagnosed in relation to contextual factors

Results

- ❖ Using such maps may provide a great interface for members of the general public to utilize data from the cancer registry and to put the data into context of other related factors.

Conclusions

- ❖ A system capable of mapping the data interactively may provide a better means for members of the public to access cancer data since it allows them to see the data in a more intuitive means than a table.

Acknowledgments

- ❖ MCR-ARC data collection activities are supported by a Cooperative Agreement between the Missouri Department of Health and Senior Services (DHSS) and the CDC and a Surveillance Contract between DHSS and the University of Missouri (#U58/DP003924–02/03).
- ❖ The authors would like to thank MCR-ARC Quality Assurance staff and the staff of facilities throughout Missouri and other states' central cancer registries for their dedication and desire for continuous quality improvement and submitting their reportable cases to MCR-ARC.

Questions?

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