Chronic Disease GIS Exchange: An Innovative Website for Sharing Maps and Mapping Techniques

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ESRI Health GIS Conference

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Objective

- **Provide a community forum for sharing:**
  - Maps that address chronic disease
  - GIS training modules
  - GIS resources
  - Lessons learned and new ideas

Intended Audience

- Public health managers
- GIS users (beginners and advanced)
- Epidemiologists
- Evaluators
- Community leaders

Impact Areas

- Document the burden
- Inform policy and program development
- Enhance partnerships
- Facilitate collaboration among units within an agency

CDC Home

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Chronic Disease GIS Exchange

Produced by the Division for Heart Disease and Stroke Prevention

- **Home**
- Map Gallery
- GIS Training
- GIS Resources
- Add Your Maps to the Gallery

This site is designed for public health managers, community leaders, GIS users, epidemiologists and other people interested in using GIS to prevent heart disease, stroke and other chronic diseases.

The intent is to provide a forum for sharing specific examples, ideas and techniques for using GIS to document geographic disparities, inform policy and program development and build partnerships; thereby contributing in a powerful way to the prevention of heart disease, stroke and other chronic diseases. Read more...

View maps that make an impact

Learn how to make maps

Explore GIS Resources

Learn more about the site | Give feedback

Site Features

- **Map Gallery**
- **GIS Training**
- **GIS Resources**


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GIS Exchange Home › Map Gallery
Select one or more categories below to limit the number of maps shown.
Map Categories
Impact Area
Health Topic
Data Source
Location
Maps are displayed in the order they were submitted.
Page 1 of 2
Next page »
Page 1 of 2
Next page »
Text-only version

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GIS Exchange Home * Map Gallery * Map Details

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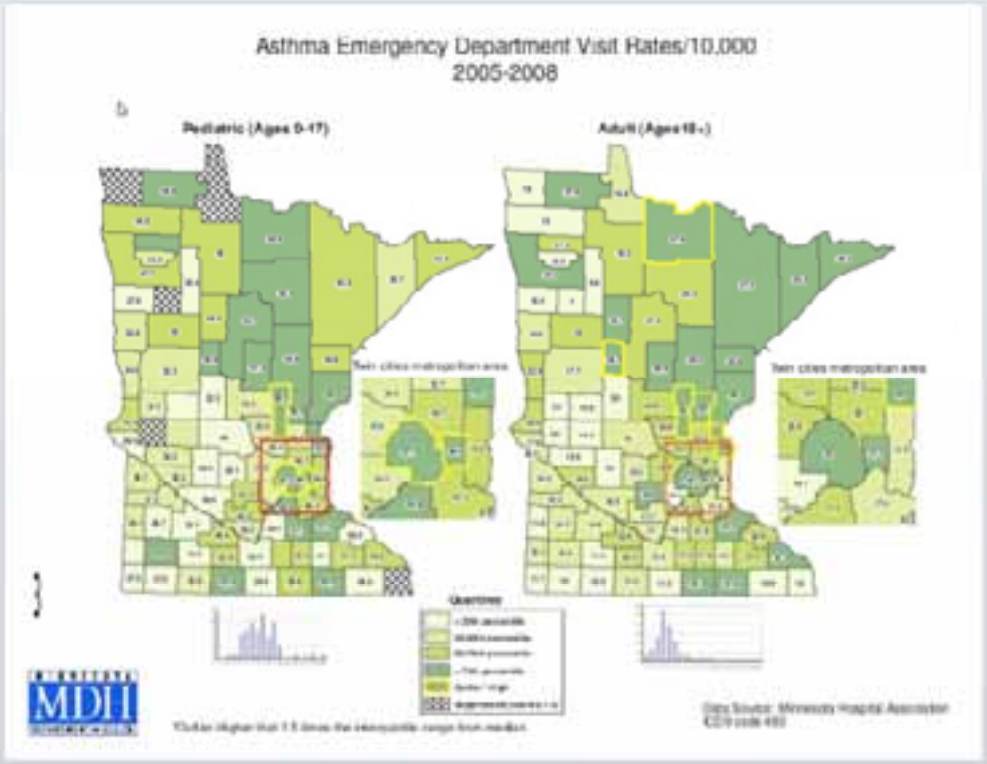
Asthma Emergency Department Visit Rates - Rates/10,000, 2005-2008

Asthma ED rates/10,000 are shown for pediatric and adult asthma cases. The shading is determined by quartiles of the rates with outliers indicated by yellow outlines. Each county has its individual rate displayed. County level maps of asthma rates are shared with state legislators who may follow up with resource requests in areas of higher rates. County and local health departments can use these county level maps to target specific programs for higher rate areas.

- Software used
- Data used
- Methods used

- Contact the submitter of this map
- How to cite this map
- See related links



The maps on this site have been approved by the submitting institution for public dissemination.

Download a PDF of this map.

Learn more about the site | Give feedback

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Asthma Emergency Department Visit Rates - Rates/10,000, 2005-2008

Asthma ED rates/10,000 are shown for pediatric and adult asthma cases. The shading is determined by quartiles of the rates with outliers indicated by yellow outlines. Each county has its individual rate displayed. County level maps of asthma rates are shared with state legislators who may follow up with resource requests in areas of higher rates. County and local health departments can use these county level maps to target specific programs for higher rate areas.

Software used

ArcGIS 9.3.1

Data used

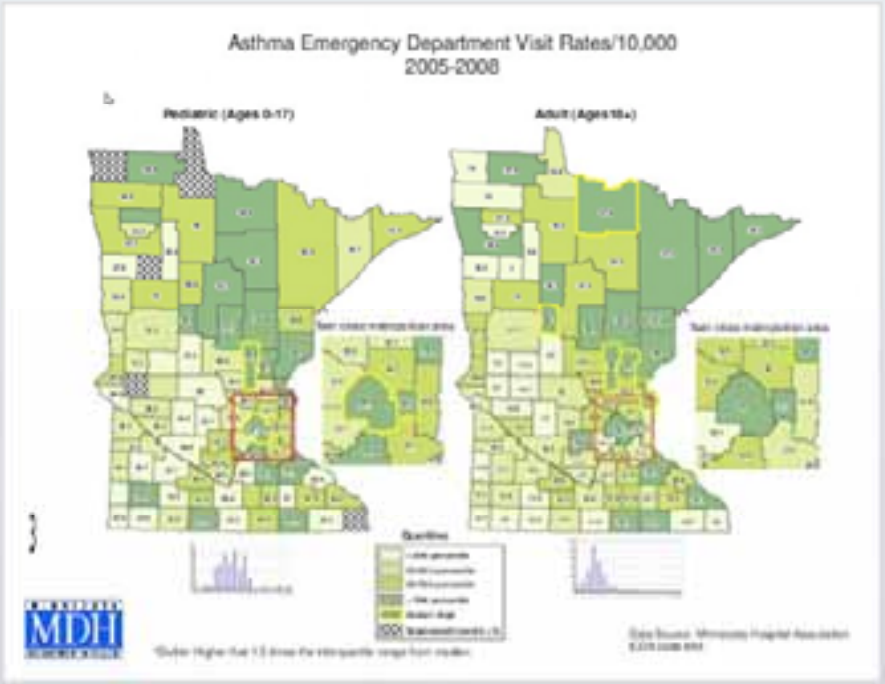
County level ED visit data combined over years 2005-2008. Data obtained from the Minnesota Hospital Association by the Asthma Program of the Minnesota Department of Health

Methods used

Data are displayed for pediatric cases (0-17) and Adults (18+). Shading represents quartiles of rates/10,000 population. Counties indicated as outliers were determined to be higher that 1.5 times the interquartile range (75th-25th percentile). Rates were calculated per 10,000 population

Contact the submitter of this map

Paula Lindgren, Biostatistician, Minnesota Department of Health
(651) 201-5636
paula.lindgren@state.mn.us



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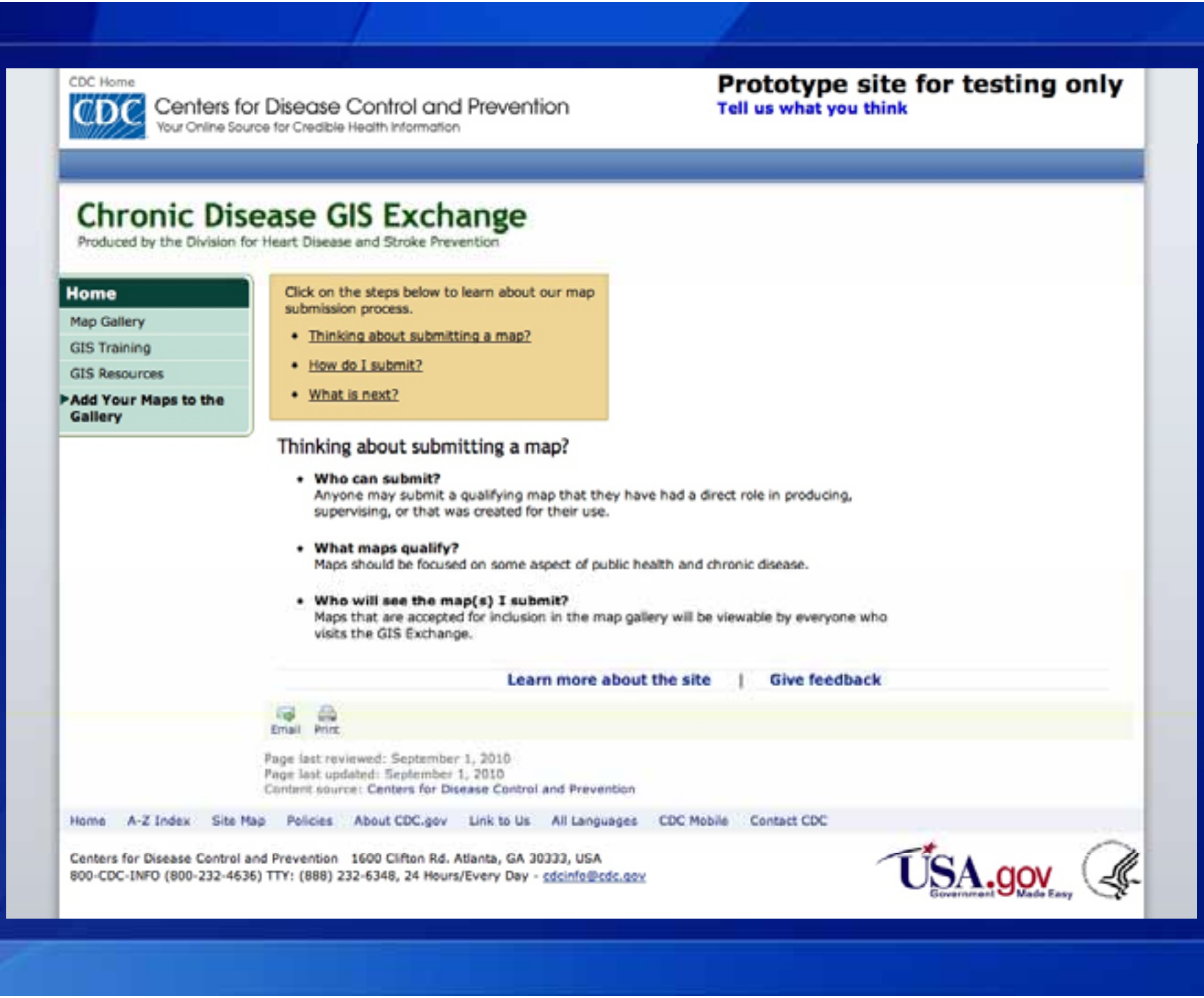
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Add Your Maps to the Gallery
Click on the steps below to learn about our map submission process.
Thinking about submitting a map?
How do I submit?
What is next?
Thinking about submitting a map?
Who can submit?
Anyone may submit a qualifying map that they have had a direct role in producing, supervising, or that was created for their use.
What maps qualify?
Maps should be focused on some aspect of public health and chronic disease.
Who will see the map(s) I submit?
Maps that are accepted for inclusion in the map gallery will be viewable by everyone who visits the GIS Exchange.
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Page last reviewed: September 1, 2010
Page last updated: September 1, 2010
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For best results use Adobe Acrobat Reader to download visit: http://get.adobe.com/reader/

Map Submitter Information

Today's Date

Contact Person

Institutional affiliation

Position

Choose the statement that best describes your role in the production of this map

Email

Phone Number

Map Information

Title

Please list all authors and institutional affiliation(s) (separate authors with semicolon)

Select one or more impact area(s)

Select one or more health topic (s)

Geographic extent

Impact Areas

Health Topics

Software used

Data used

Methods used

Description

Purpose and/or findings

Internet link(s) (optional)

Disclosure and clearance statements (all must be answered in the affirmative for map to be submitted)

The submitter declares no personal financial conflicts of interest in data collection, map production, and distribution of map ☐ Yes

Submitted map has no copyright restrictions, contains no confidential or sensitive information ☐ Yes

Submitted map has received the necessary institutional approval for public sharing ☐ Yes

Before submitting the map associated with this form you must certify that the three(3) statements above are all true. If you are unsure about any of these points please contact the site administrator (email address form will be submitted to)

You may save your progress on this form by saving to a .pdf. When the form is complete and you are ready to submit, click on the submit by email button below

Direction/Guidance for each item above follows on the next two pages:

Site Features

- Map Gallery
- GIS Training
- GIS Resources

Chronic Disease GIS Exchange

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- Home
- Map Gallery
- GIS Training
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- Add Your Maps to the Gallery

Welcome to the GIS Training page. The first training titled An Introduction to GIS and Public Health is intended for users with little or no experience working with GIS. It should approximately take three to four hours to complete. The subsequent three trainings (Organizing Principles, Data Management, and Analysis) are each part of a larger curriculum and may take more time to complete. These trainings have extended information including slideshows, exercises, and data.

Topical GIS Training

An Introduction to GIS and Public Health This training is designed for public health professionals with little or no experience using Geographic Information Systems (GIS). Participants will receive instruction on the use of GIS software and an introduction to commonly used and readily available data sources. At the end of the training participants will have created several statewide and county level thematic map(s) illustrating the use relevant data for public health applications.

CDC's GIS Site Surveillance Training Curriculum

Organizing Principles: An Introduction to GIS This session is an introduction to Geographic Information Systems (GIS) and the ArcGIS software. It includes slideshow modules and self-guided exercises.

Data Management: Creation, edition and maintenance of spatial data. At the end of this training the participants will have experience customizing/creating data to suit their specialized needs and those of their clients

- Creating spatial data
- Editing spatial data
- Maintaining spatial data
- Creating spatial data

Analysis: Applied analysis techniques for GIS in chronic disease.

- Spatial analysis methods
- Interpolation
- Modeling
- Network analysis

The training content on this page has been developed collaboratively under the guidance of CEHI, of the Nicholas School of the Environment at Duke University, with input from participating states and the US Centers for Disease Control. For more information on CEHI, please visit http://nicholas.duke.edu/cehi

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Map Making Session: Fundamentals

This session is concerned with providing the basics to creating coherent maps. Specific themes include:

- Downloading Data
- Starting a GIS project
- Adding data to a project
- Symbology
- Labeling
- Working with frames
- Data
- Layout
- Scales and units
- Legends and north arrows
- Composition
- Exporting maps

Lesson 1: create a map of NC counties as an ArcMap project, and become familiar with the ArcGIS desktop interface.

- Instructions
- Data
- Finished map

Lesson 2: create a simple map in ArcGIS, add data, and create a map layout.

- Instructions
- Data
- Finished map

Lesson 3: illustrate owner occupacy in NC census tracts using ArcMap and ArcCatalog

- Instructions
- Data
- Finished map

Lesson 4: create a basic road network map for a county, and become familiar with complex data labeling and positioning.

- Instructions
- Data
- Finished map

Map Making Session: Transforming Data

This session will focus on techniques for processing or transforming your data to produce thematic maps. Specific themes include:

- Tables
- Sorting
- Selection
- Calculate fields
- Join
- Append
- Shapefiles
- Dissolve
- Merge
- Join
- Buffers
- Exporting shapefiles
- Geocoding

Lesson 1: learn to work with tables, including joining tables of geographic and spreadsheet data.

- Instructions
- Data
- Finished map

Lesson 2: use an online batch geocoding tool to georeference addresses and place address points on a map.

- Instructions
- Data
- Finished map

Lesson 3: create buffers around point features, including both simple and multiple ring buffers.

- Instructions
- Data
- Finished map

Lesson 4: spatially join point-level data with geographic regions.

- Instructions
- Data
- Finished map

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Organizing Principles: An Introduction to GIS

Module 1: What is GIS?

This module is an introduction to Geographic Information Systems (GIS). It provides useful information on the importance of GIS and how it can be successfully utilized. The module is a flash-based slideshow.

- View this presentation

Module and Exercise 2: Considering Spatial Data

This module and exercise covers the importance of organizing spatial data and introduces the ArcCatalog program. The module and exercise are in PDF format with provided data.

- Module and Exercise
- Data

Module and Exercise 3: Displaying Data

This module and exercise introduces the ArcMap program and covers the basics of adding spatial data to a map project, and also examines how to symbolize and classify spatial data. The module and exercise are in PDF format with provided data.

- Module and Exercise
- Data

Module and Exercise 4: Working with Spatial Data

This module and exercise provides information on basic geoprocessing tools and techniques. It also explains coordinate systems and projections for spatial data. The ArcToolbox software is briefly introduces. The module and exercise are in PDF format with provided data.

- Module and Exercise
- Data

Module and Exercise 5: Leveraging the What of Geographic Data

This module and exercise focuses on working with tables in the ArcGIS program. Attribute information, table joins, and table queries are explained. The module and exercise are in PDF format with provided data.

- Module and Exercise
- Data

Module 6: Map Design and Communication

This module focuses on map making fundamentals for communicating with various audiences. It includes some things to consider for cartographic best practices. The module and exercise are in PDF format.

- Module and Exercise

Site Features

- Map Gallery
- GIS Training
- GIS Resources

GIS Resources

- Tips for Creating Maps for Public Health
- Public Health Data Resources
- Social Determinants of Health Data Resources
- Environmental Health Data Resources
- Map Making Resources
- GIS Software
- GIS Blogs


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General Resources
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Map Elements
Classifying Data
Types of Thematic Maps
Recommended Resources
Public Health Data Resources
CDC National Center for Health Statistics: GIS and Public Health
US Federal Data Directory
Partners in Information Access for the Public Health Workforce
CDC Wonder
US Department of Health and Human Services Health Resources and Services Administration Geospatial Warehouse
US Department of Health and Human Services State Data Resources
National Cancer Institute Surveillance Epidemiology and End Results
US Census Bureau Small Area Health Insurance Estimates
CDC National Center for Chronic Disease and Health Promotion: Chronic Disease Indicators
State Health Facts
Social Determinants of Health Data Resources
Dataset directory of social determinants of health
Area Resource File
Community Health Status Indicators (CHSI)
Robert Wood Johnson Foundation
smart: brfss city and county data
Small Area Health Insurance Estimates
Environmental Health Data Resources
National Center for Environmental Health
US Environmental Protection Agency Envirofacts Datahouse
Map Making Resources
National Atlas of the United States
CDC EPI INFO Resources for Creating Public Health Maps
Color Brewer
Open Source Statistic vector Graphics Software
Batch Geocoder
US Census Bureau Cartographic Bordary Files
GIS Software:
GRASS (Geographic Resources Analysis Support System)
QGIS (Quantum GIS)
gvSIG (in Spanish, click /English/ button for translated site)
uDIG (User-friendly Desktop Internet GIS)
OpenJUMP
GIS Blogs:
Spatial.vandbilt
GIS Use in Public Health and Health Care
Strange maps
Cartastrophe

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Map Elements

- Introduction to Map Elements

Color

- Colors may have cultural, personal, or emotional meanings. Consider your audience.
- Colors display differently based on the presentation medium. Check Cynthia Brewer's web tool for advice on which colors print or project best.
- Avoid using green and red in the same map. Approximately 4% of the U.S. population is color vision impaired and cannot distinguish these two colors.
- If you may need to print or copy your map in black and white as well as color, check ColorBrewer to determine which color schemes will work (sequential schemes are better).

Text

- Use simple, easy-to-read fonts. Use a mix of capital and lower-case letters. Never use smaller than 5-6 point font.
- Title of map: indicates map theme – WHAT, WHERE, WHEN
- Legend title: identifies variables. Every feature (layer) in a map should be represented in the legend.
- Maps should stand alone. Provide adequate detail to describe the content.

Layout

- Basic elements - neat line, title, scale bar, north arrow, legend, logo, source, classification method.
- Scale
- Visual balance (between map & other elements)
- Visual hierarchy (appropriate size of font & symbol sizes)
- Visual contrast (using appropriate colors)
- Provision of context or reference info (selecting appropriate layers from data layers)

Map Projections

- Projections transform the curved, three-dimensional surface of the planet into a flat, two-dimensional plane. The proper projection to use for your map will vary depending on the map's focus area.
- SADD: all 2D projections distort either Shape, Area, Distance or Direction.
- The choice of projection may be dictated by the business need of the map. If the map is attempting to show distance from patients to providers, then an equidistant projection may be appropriate to preserve distance. If the map is attempting to show density of cases, or number of cases per unit area, then an equal area projection may be more appropriate.
- A table showing projection suitability
- Detailed descriptions of various projections

http://www.cdc.gov/dhdsp/maps/gisx

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