Using a Health Literacy Approach When Integrating Oral Health Data into an Online Public Health Data Portal:

Lessons from the Minnesota Oral Health Statistics System

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April 29, 2015

National Oral Health Conference (Kansas City, MO)

CHP Center for Health Promotion

DELTA DENTAL

DELTA DENTAL OF MINNESOTA FOUNDATION

MINNESOTA MDH DEPARTMENT OF HEALTH Oral Health Program

Overview

- Background
- Web considerations
- Plain language
- Numeracy
- Accessibility (508-compliance)
- Working with a project team

Background

Minnesota Oral Health Statistics System (pronounced “minnows”)

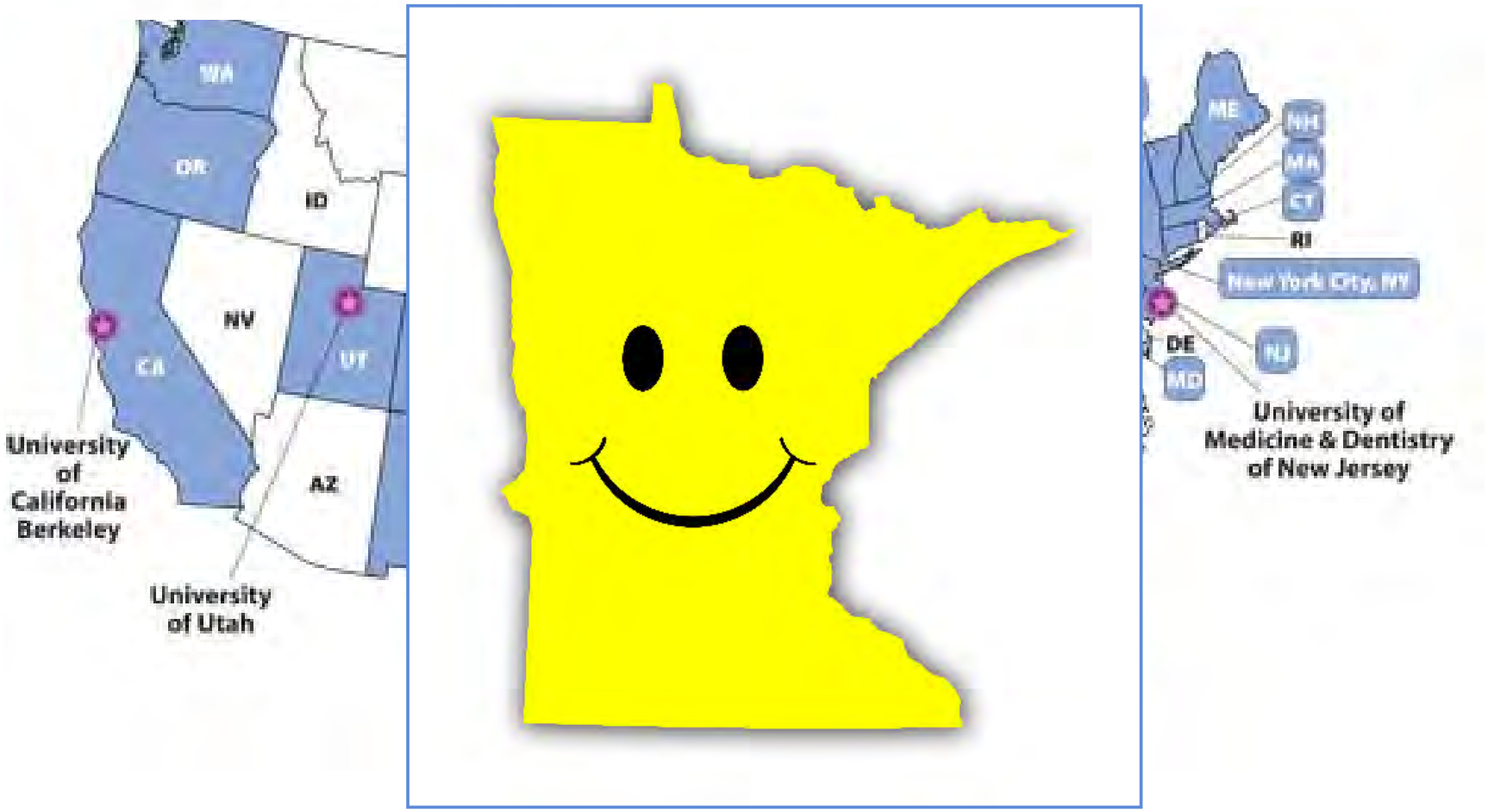
One-Stop Source for Oral Health Data

So you Don’t Have to Go Fishing!

MN Tracking
Environment, Exposure & Health

MN.IT Services
Information Technology For Minnesota Government

MN Public Health Data Access



Web Considerations

Web Considerations

- **An engaged audience stays**

- F-shape pattern

- Users leave Web page in 10-20 seconds

- Average web visit, users read 20-28% of the words

Nielsen Norman Group, www.nngroup.com/articles

Web Tips

- Keep it short, simple
- Use plenty of white space
- Use a center-focused design
- Chunk information
  - Anchors
  - Headings and subheadings
  - Bullet-points
  - Side-bar, call-outs, and quotes

Web Tips (contin.)

- Use consistent language, style
- Use readable font (at least 11-point, sans-serif)
- Use of colors, images, and graphs provide interest
- Google analytics and audience testing can guide work

Most Web Users Hate the "Normal" Font Size

https://apps.health.state.mn.us/mndata/

Minnesota Department of Health

Minnesota Public Health Data Access

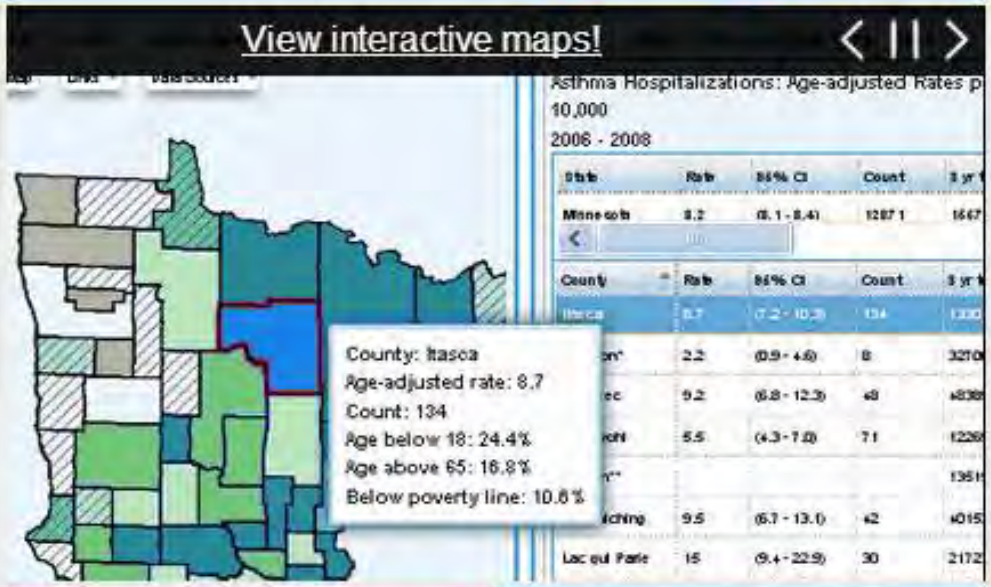
Search the site

Select a topic below:

Share this | Email updates

Topics A-Z | Topics by category

- Air Quality
- Asthma
- Birth Defects
- Cancer
- Carbon Monoxide Poisoning
- Chemicals in People: Biomonitoring
- Childhood Immunizations
- Childhood Lead Poisoning
- Chronic Obstructive Pulmonary Disease
- Drinking Water Quality
- Environmental Tobacco Smoke
- Heart Attacks
- Heat-Related Illness
- Obesity

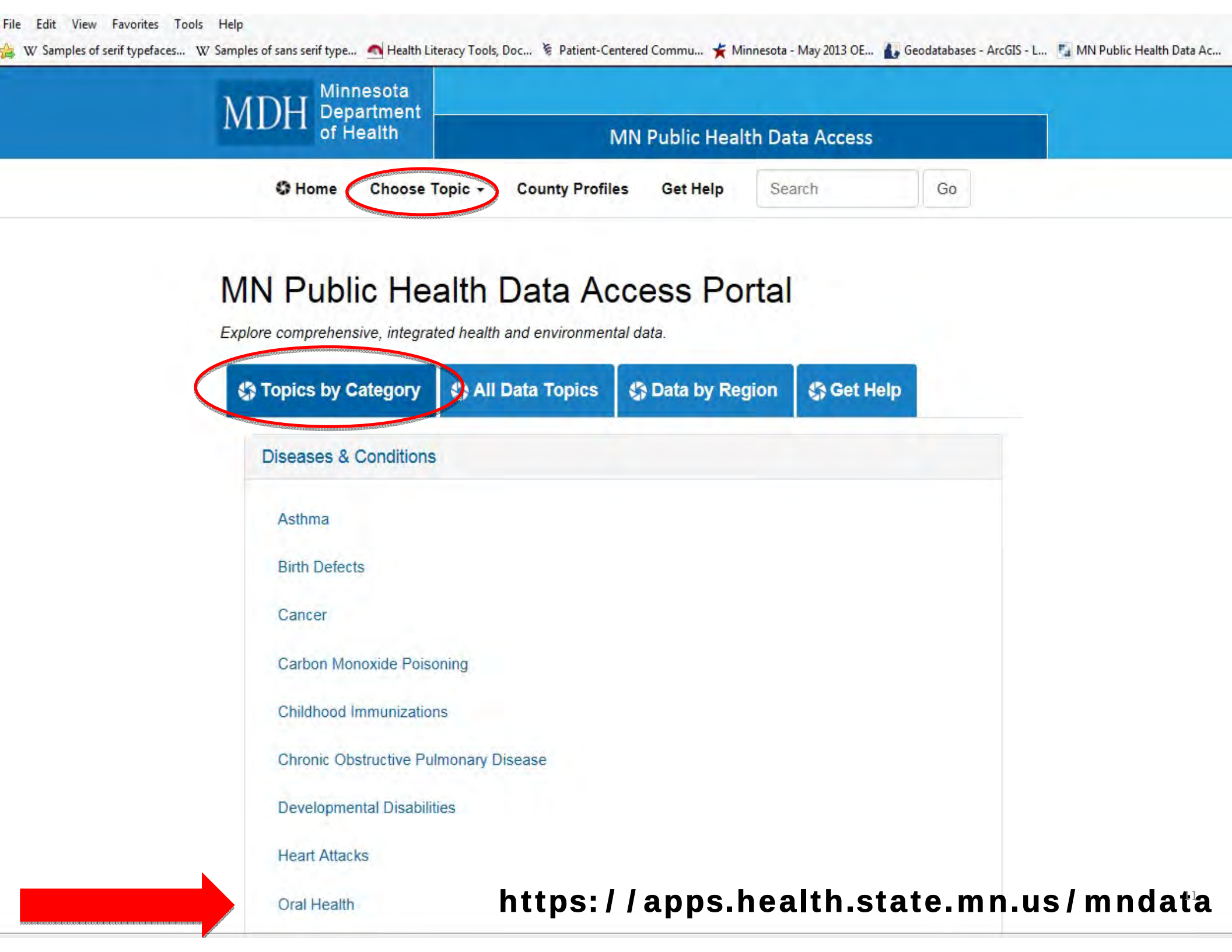


Learn More:

- How-To Guide
- FAQs
- News & Updates
- Glossary
- Data Resources
- Contact Us

Related Sites:

- Tracking in Action
- MDH Data & Statistics
- MN Environmental Public Health Tracking
- DATA.gov


File Edit View Favorites Tools Help
Samples of serif typefaces...
Samples of sans serif type...
Health Literacy Tools, Doc...
Patient-Centered Commu...
Minnesota - May 2013 OE...
Geodatabases - ArcGIS - L...
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Explore comprehensive, integrated health and environmental data.
Topics by Category
All Data Topics
Data by Region
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Asthma
Birth Defects
Cancer
Carbon Monoxide Poisoning
Childhood Immunizations
Chronic Obstructive Pulmonary Disease
Developmental Disabilities
Heart Attacks
Oral Health
https://apps.health.state.mn.us/mndata

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MDH Minnesota Department of Health

MN Public Health Data Access

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Oral Health

Facts & Figures Data Query About the Data

Oral health is essential to overall health

Oral health refers to the health of the entire mouth (oral cavity), including the jaw bones, teeth, gums, lips, inner lining of the lips and cheeks, the chewing muscles, roof and floor of the mouth, tongue, salivary glands, tonsils and adenoids (immune system), and pharynx (throat).

"...Oral health is much more than clean teeth...[it] refers to the health of our mouth, and ultimately, supports and reflects the health of the entire body."
-Surgeon General Regina M. Benjamin, M.D., MBA (2010)

Oral health means being free of chronic oral-facial pain conditions, oral and pharyngeal cancers, oral soft tissue lesions, birth defects such as cleft lip and palate, and other diseases and disorders that affect the oral, dental, and craniofacial tissues (craniofacial complex) such as:

- Tooth decay
- Gum disease
- Periodontitis
- Tooth loss
- Oral-dental trauma

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Mobile Responsive Technology

MDH Minnesota Department of Health

MN Public Health Data Access

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Facts & Figures

Data Query

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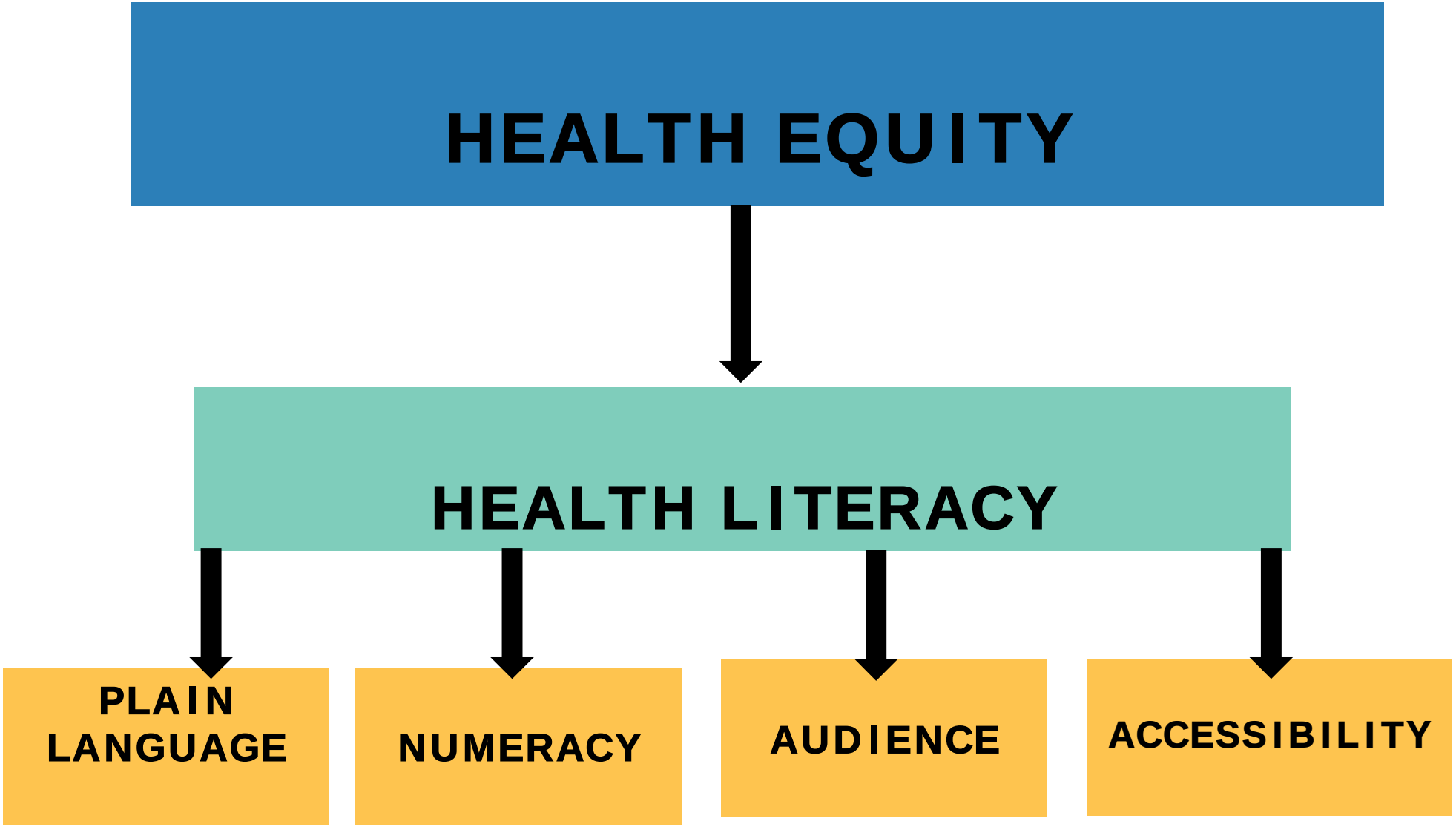
Oral health means being free of chronic oral-facial pain conditions, oral

Oral Health Literacy

What is health literacy?

The ability to find, understand, interpret, use and act on health information.

-Minnesota Dept. of Health Center for Health Promotion Adopted Definition (January 16, 2014)



Expanded Health Literacy Model

Plain Language

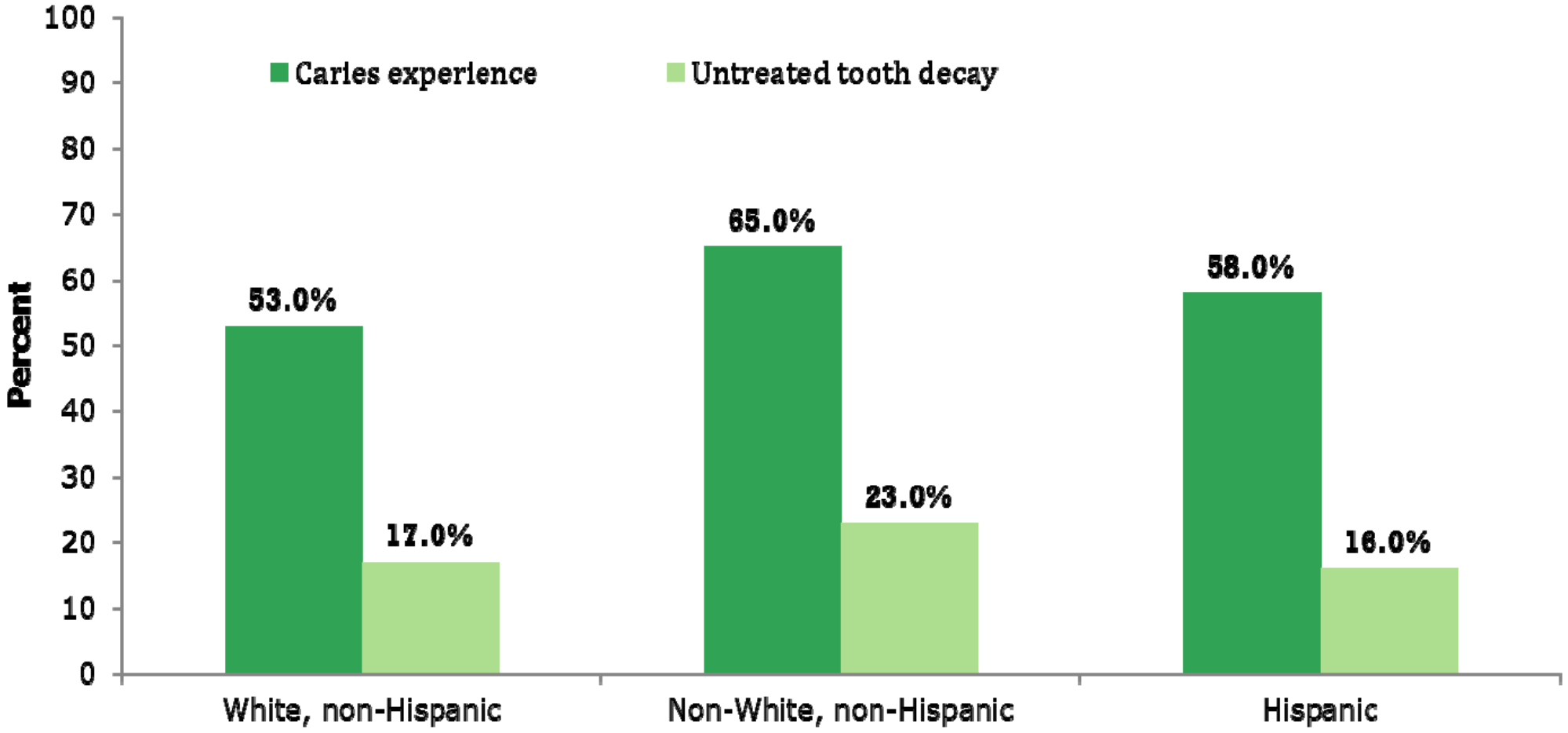
Introduction To Plain Language

https://www.youtube.com/watch?v=WM9Jt4VjFrA

0:01 / 4:24

Version 1

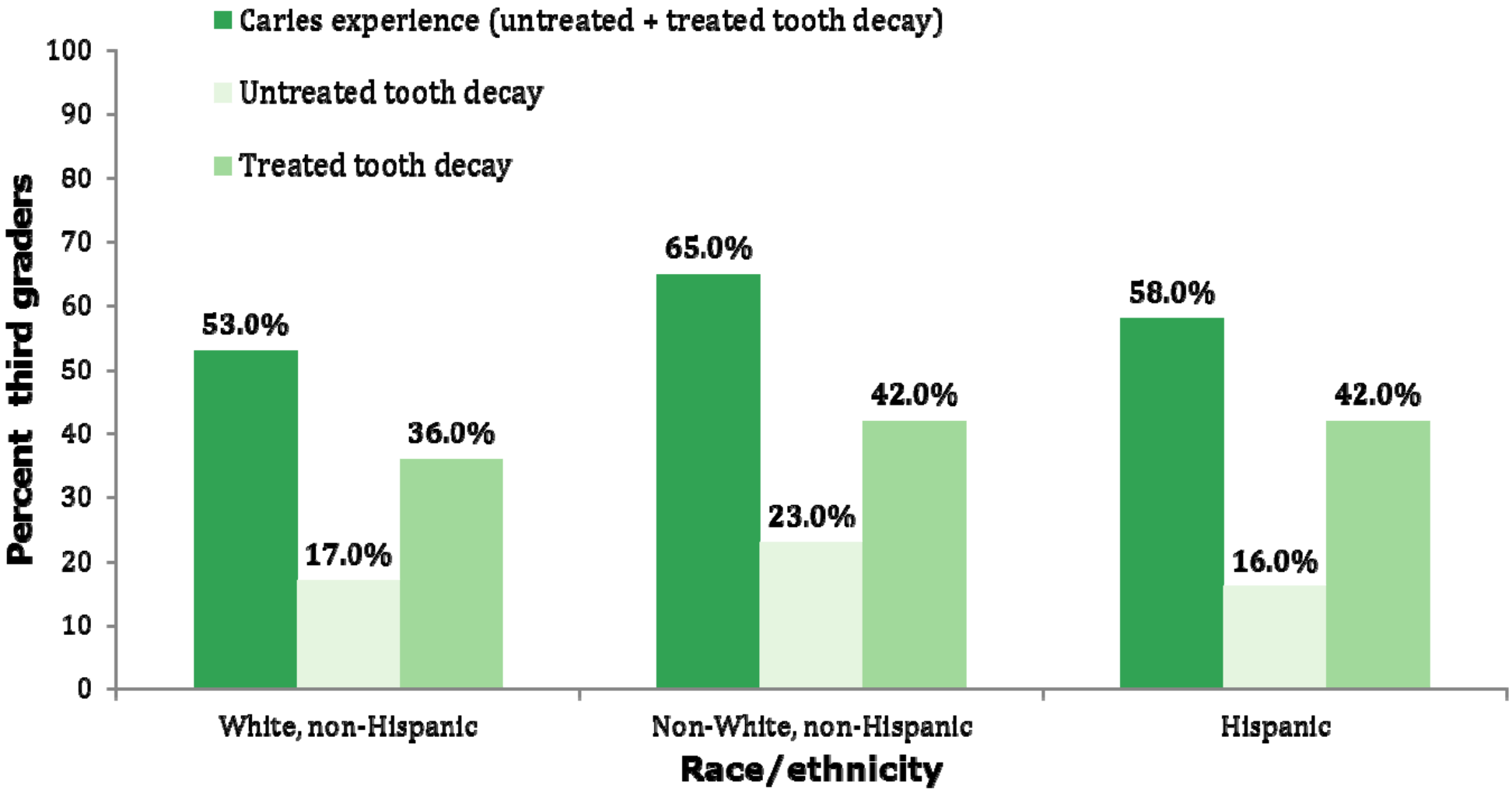
Untreated and treated tooth decay (caries experience)



Data source: Minnesota Department of Health, Oral Health Program. Basic Screening Survey (BSS). 2010
Note: Bars represent the percentage of third graders within racial/ethnic groups (row percent), therefore do not add to 100-percent. Sample size= 1,748. See **About the Basic Screening Survey data** for more information.

Final

Minnesota third grade public school students with tooth decay by race/ethnicity, 2010



Data source: Minnesota Department of Health, Oral Health Program. Basic Screening Survey (BSS).
Note: Bars represent the percentage of third graders within racial/ethnic groups (row percent), therefore do not add to 100-percent. Sample size= 1,748. of 3,054 eligible third grade students. See **About the Basic Screening Survey data** for more information.

Health Numeracy

What is health numeracy?

The ability to understand and use numbers in daily life.

Source: Rothman et al (2006). Perspective: The role of numeracy in health care. *Journal of Health Communications*, 13(6): 583-595.

Challenges

- U.S. low in basic numeracy**

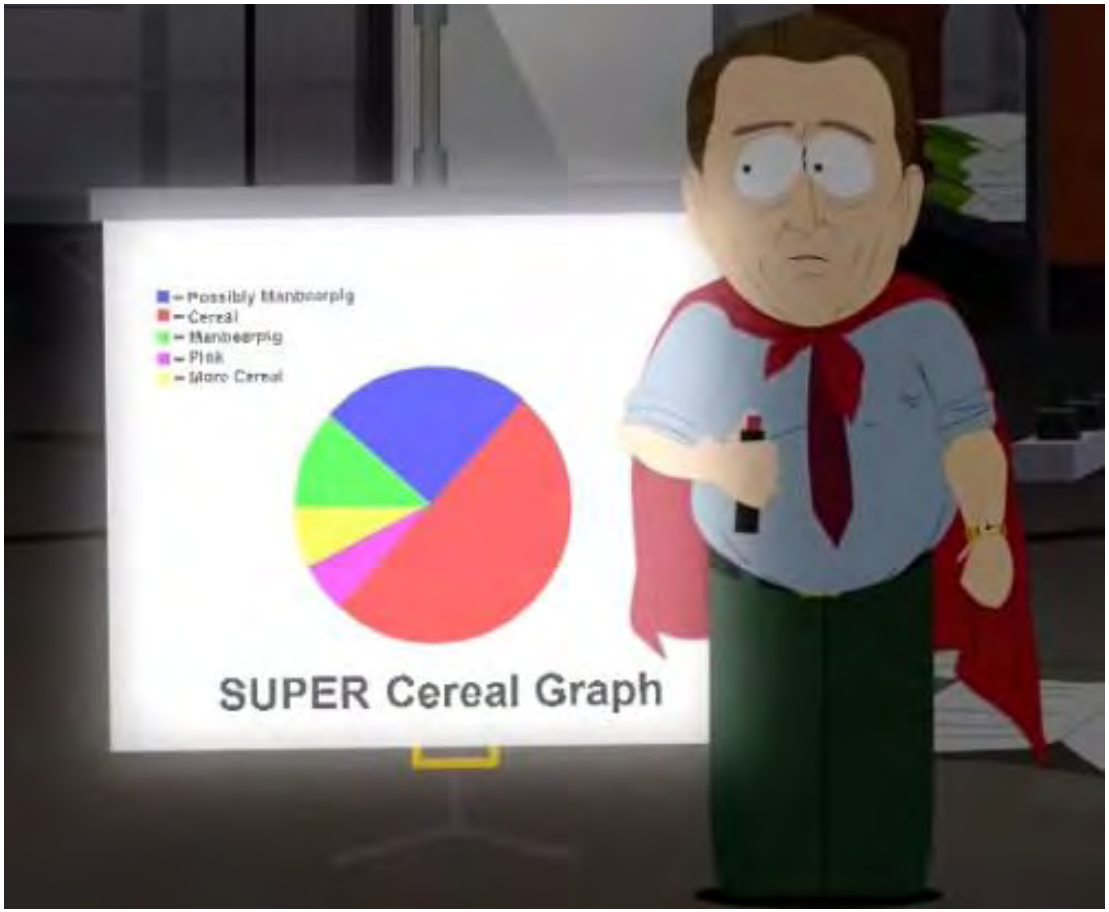
Out of a total score of 500

  - International (24 countries): 269
  - United States: 253

- Numerical operations, statistics and reading lists, graphs and maps challenging*

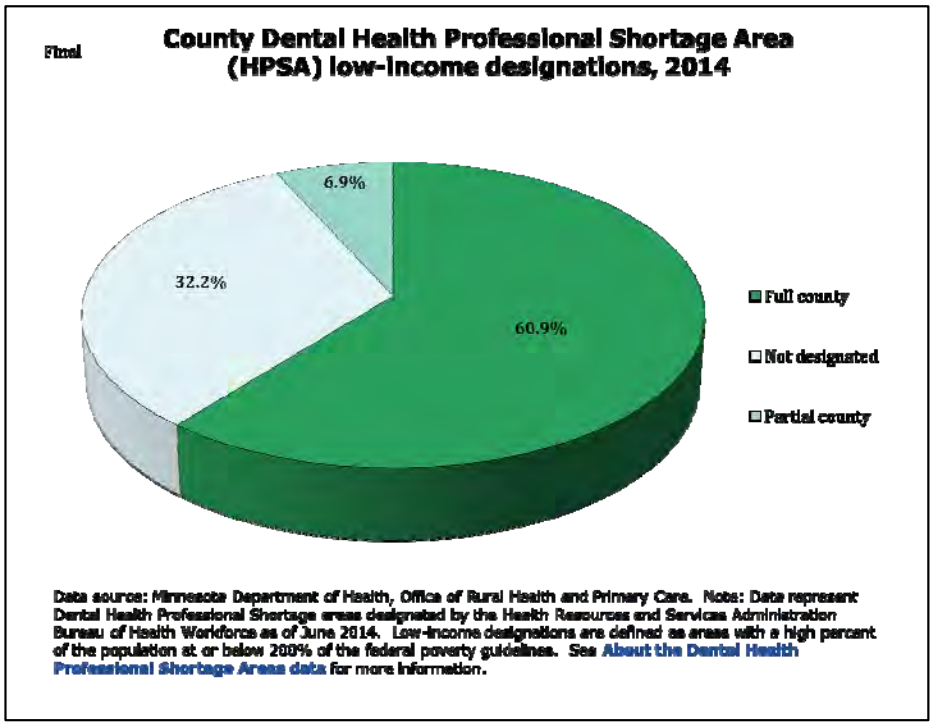
Source: *CDC Health Literacy, Creating Easier to Understand Lists, Charts and Graphs;
**Program for International Assessment of Adult Competencies (PIACC), 2012
http://www.oecd.org/site/piaac/

How to decide graph type?

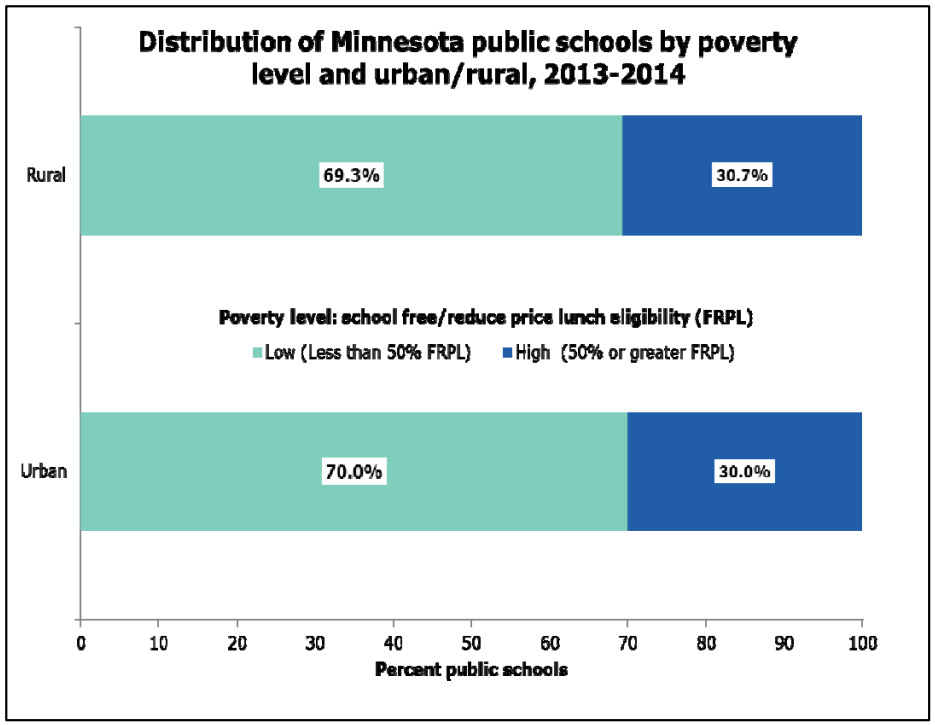


Depends on your message

Parts to Whole Relationship



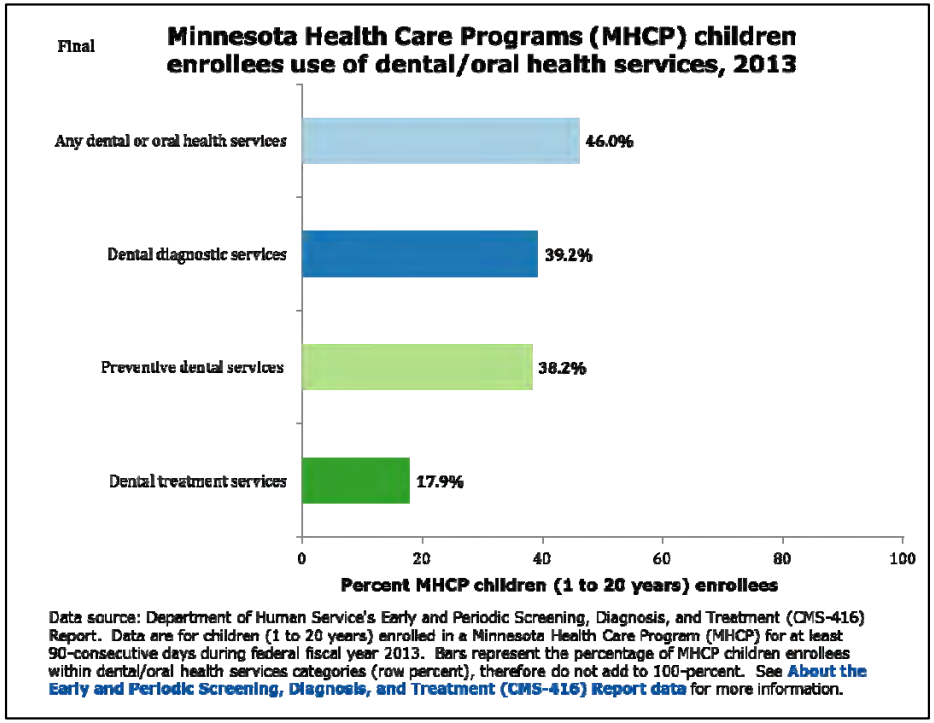
Pie chart



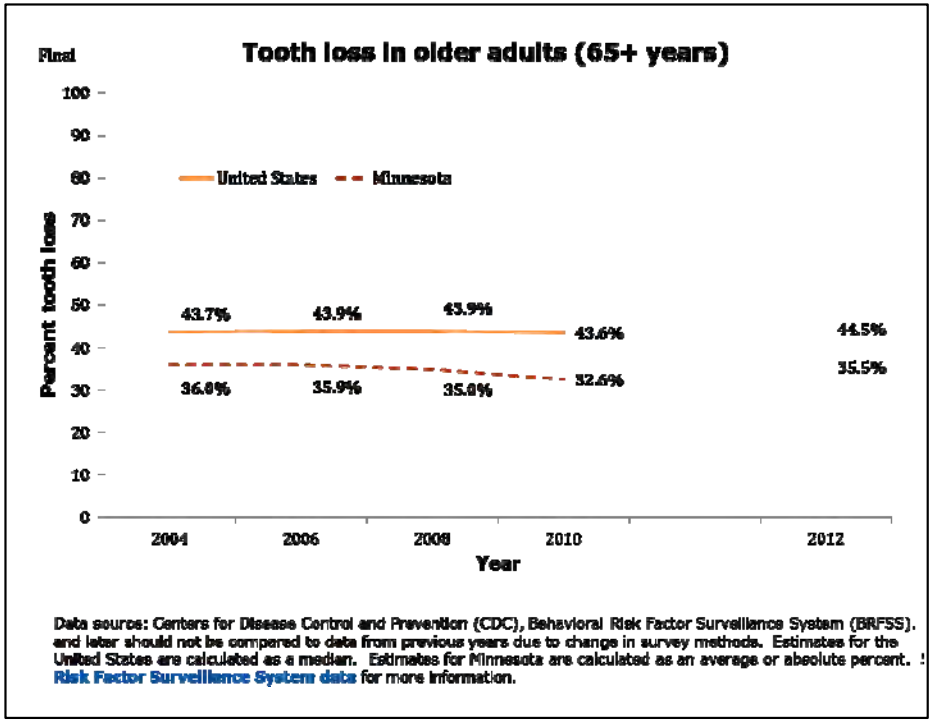
Stacked bar chart

Source: CDC Health Literacy, Creating Easier to Understand Lists, Charts and Graphs

Magnitude of risk between groups



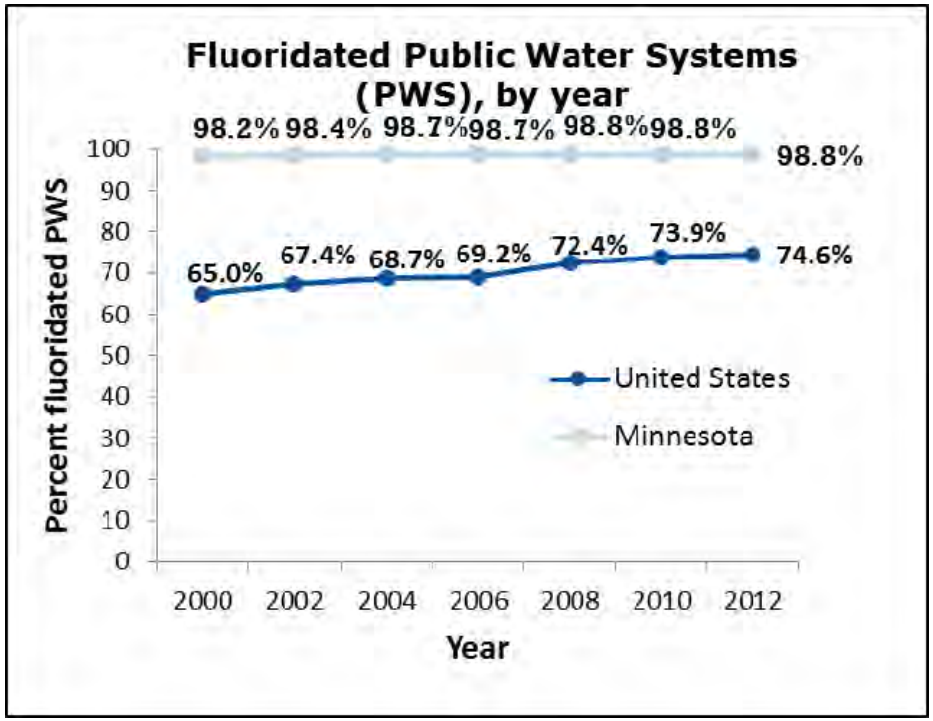
Bar graph



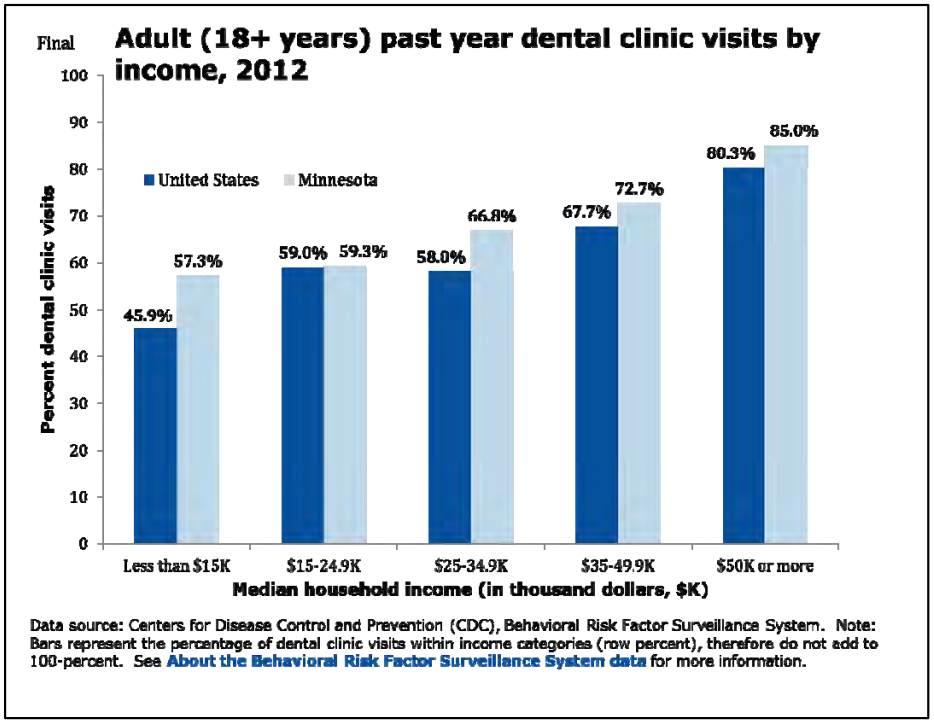
Line graph

Source: CDC Health Literacy, Creating Easier to Understand Lists, Charts and Graphs

Trends or comparison of two rates



Line graph



Bar graph

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Data display tips

1.Keep simple, clean with white space

2. One message per graph

3. Title should answer the who, what, where and when of the graph

4. Remove grid lines and unnecessary logos or images

5. Limit data categories

Data display tips (contin.)

6. Clear x and y title axes and legend

7. Keep scale to 0 to 100%

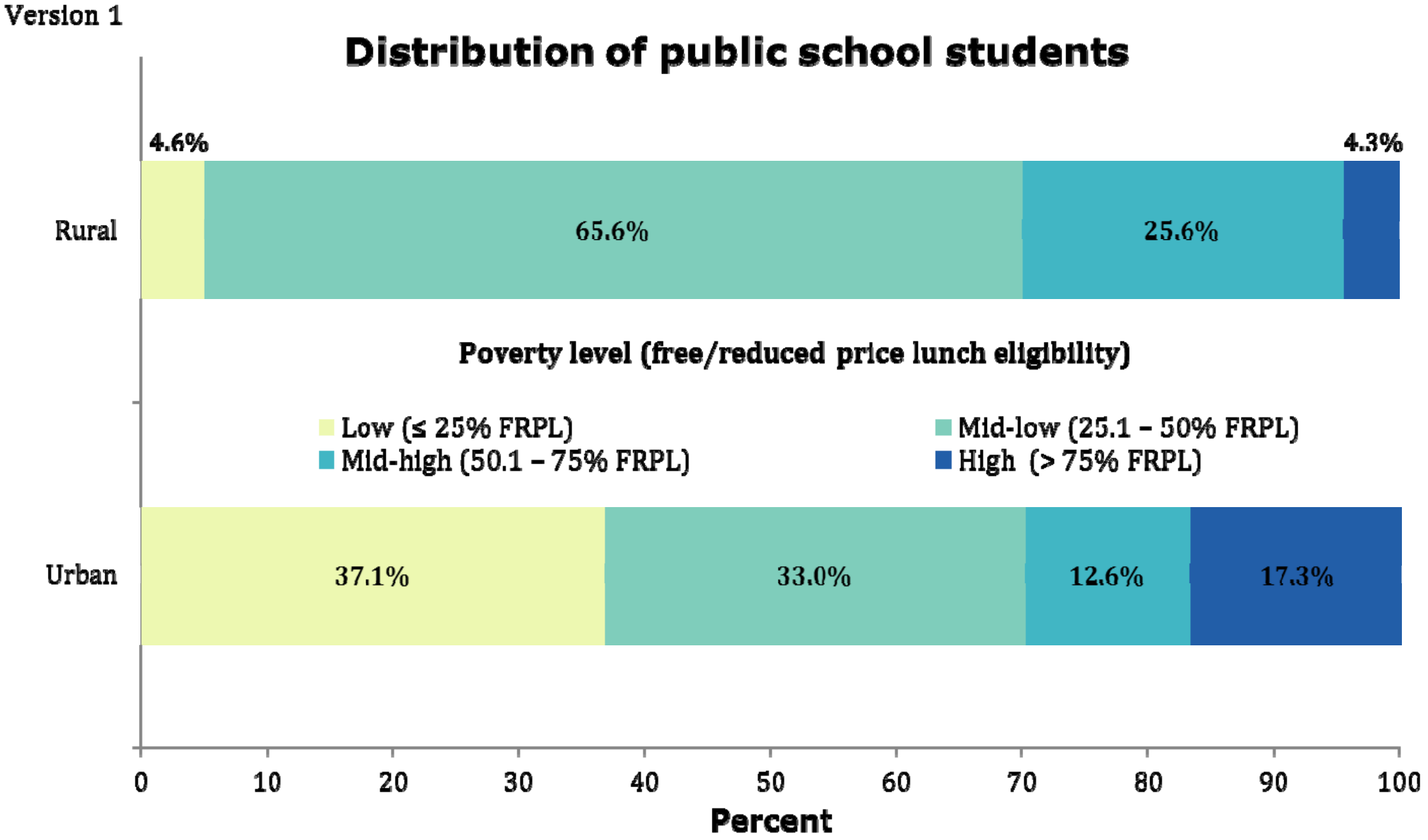
8. Label data series with number and units

9. Consistent category order (alphabetical; low-high)

10. Footnotes should contain source and need-to-know only information.

Stacked Bar Graph Example

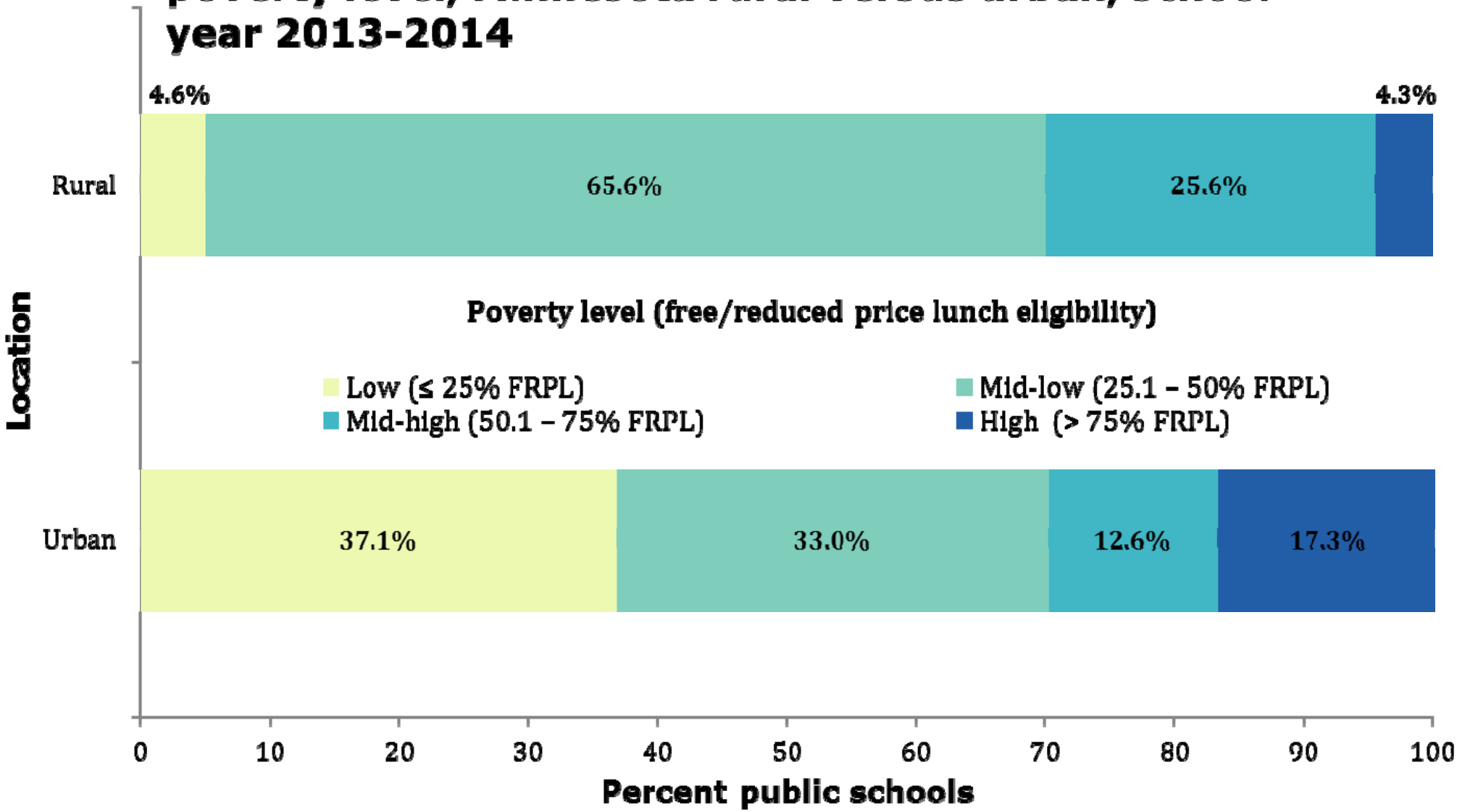
Version 1



Data source: Minnesota Department of Education (MDE), Student Enrollment Data for Special Populations. Note: FRPL= school free/reduced price lunch eligibility. This chart does not include schools for which information on free/reduced price lunch is missing, schools that did not participate in the National School Lunch Program, schools with less than ten students enrolled, and within school programs such as online schools, special education, deaf and blind schools, area learning programs, juvenile detention and correction programs, and hospital programs for mental health and chemical treatment. Total number of schools equal 1,601. See **About the School Free and Reduced Price Lunch data** for more information.

Version 2

Distribution of public school students, by school poverty level, Minnesota rural versus urban, school year 2013-2014



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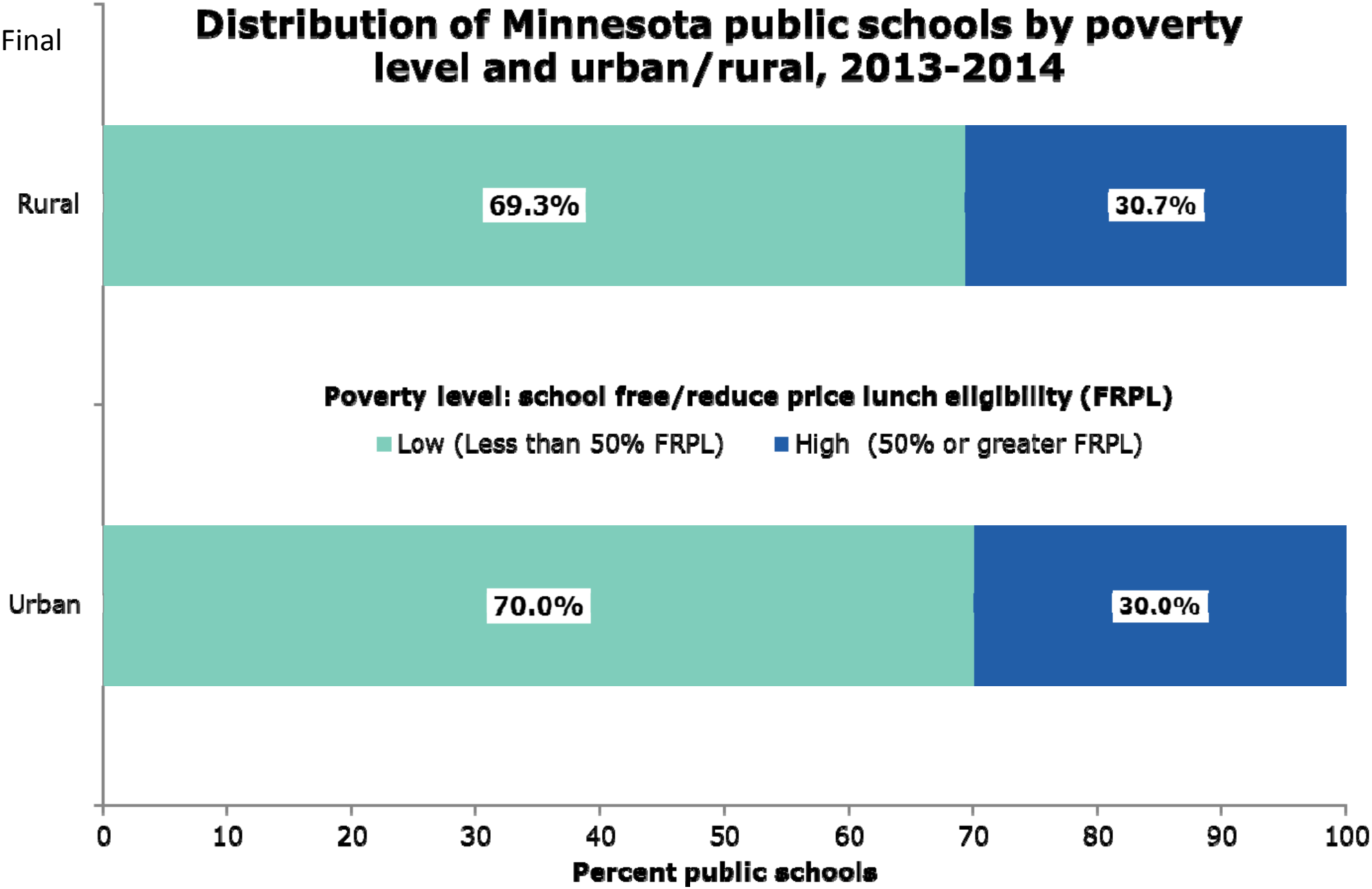
Final

Distribution of Minnesota public schools by poverty level and urban/rural, 2013-2014



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Infographics

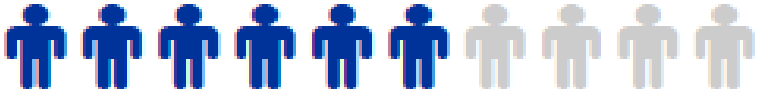
- Also known as an icon-array or pictograph
- Useful for simple comparisons
- Display ratio, probabilities, or comparison of rates
- Alternative: bar chart or table

Source: University of Michigan, Risk Science Center, www.iconarray.com

Overall oral health status among third graders in public schools, Minnesota versus United States, 2010

The 2010 BSS showed that compared to the United States, Minnesota third grade students have:

Higher prevalence of caries experience (untreated and treated tooth decay)


Minnesota (55%)

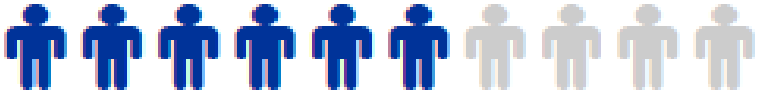

United States (52%)

Lower prevalence of untreated tooth decay


Minnesota (18%)


United States (29%)

Higher dental sealant prevalence rate


Minnesota (64%)


United States (23%)

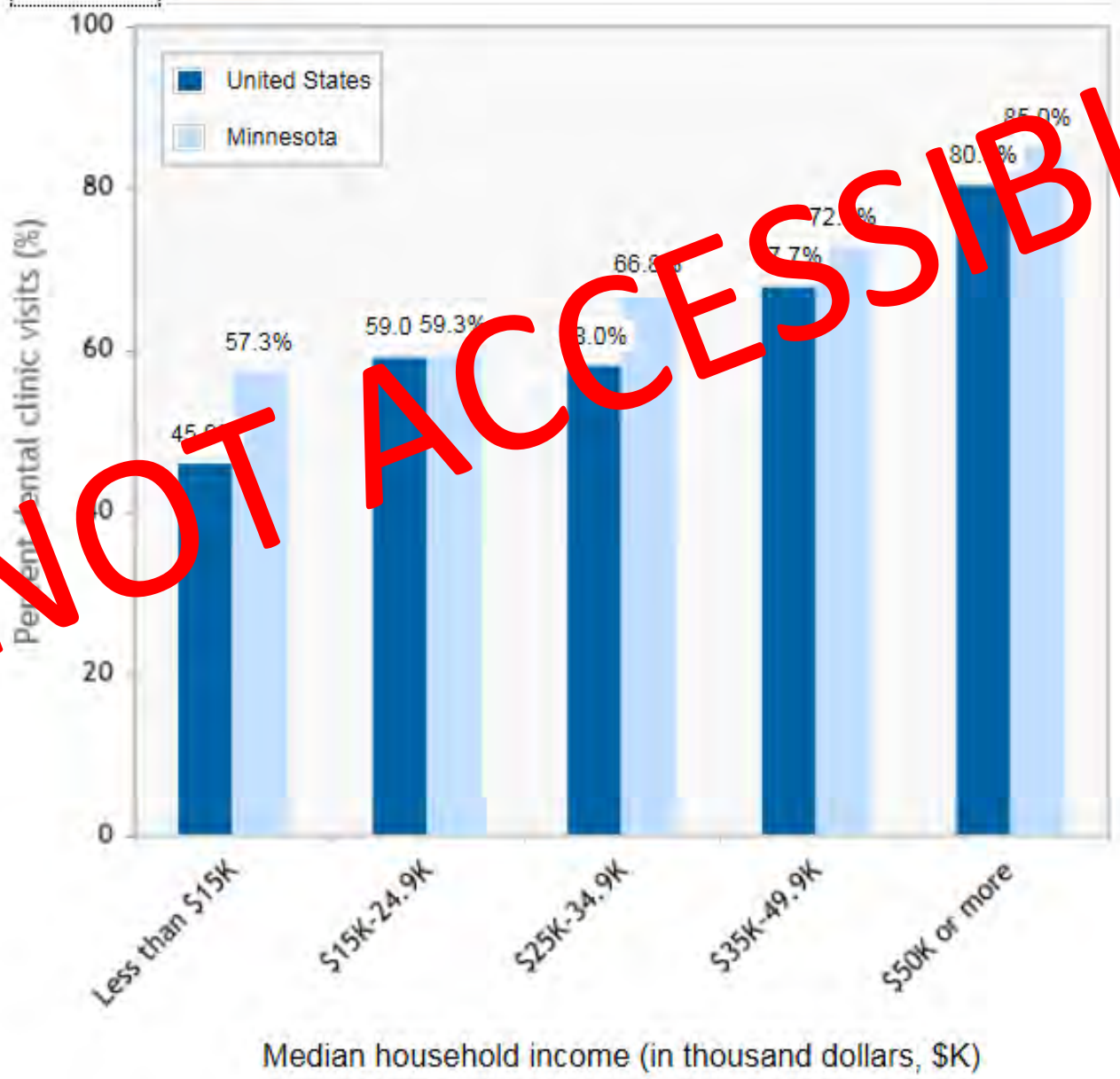
What is accessibility?

The ability to access information found in a document, website, or video regardless of an individual's disability status.

Source: Modified and adapted from the Americans with Disability Act, Title II

Adult (18+ years) past year dental clinic visits, by income, 2012

Chart | Table

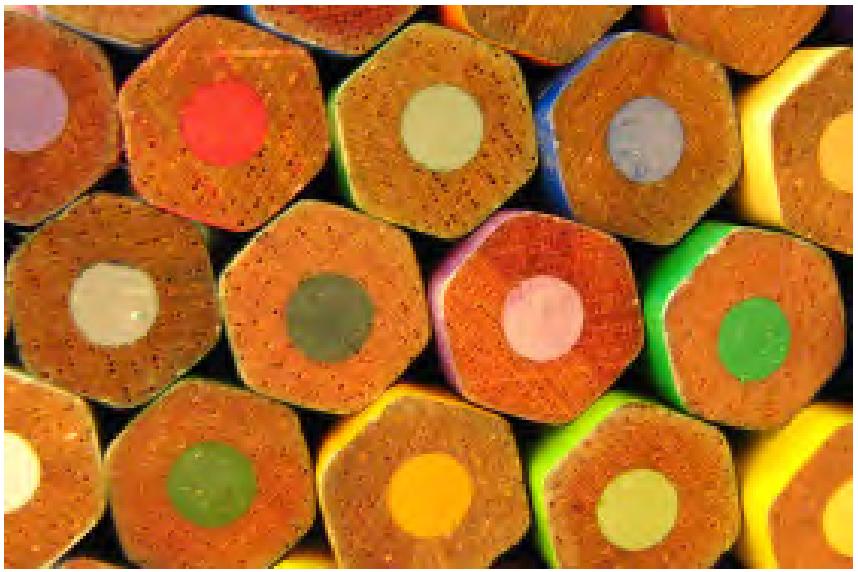


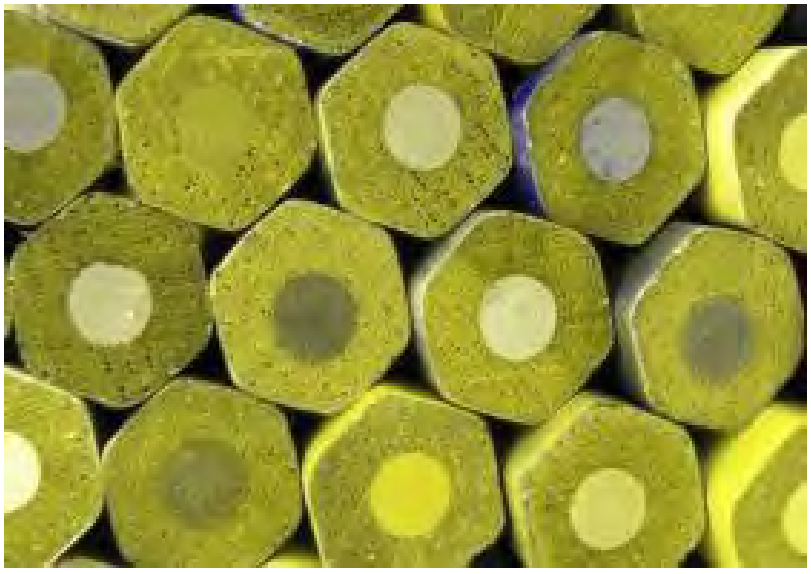
Adult (18+ years) past year dental clinic visits, by income, 2012

Chart | Table

Median household income (in thousand dollars, $K)	Percent dental clinic visits United States, Year 2012	Percent dental clinic visits Minnesota, Year 2012
Less than $15K	45.9	57.3
$15K-24.9K	59.0	59.3
$25K-34.9K	58.0	66.8
$35K-49.9K	67.7	72.7
$50K or more	80.3	85.0

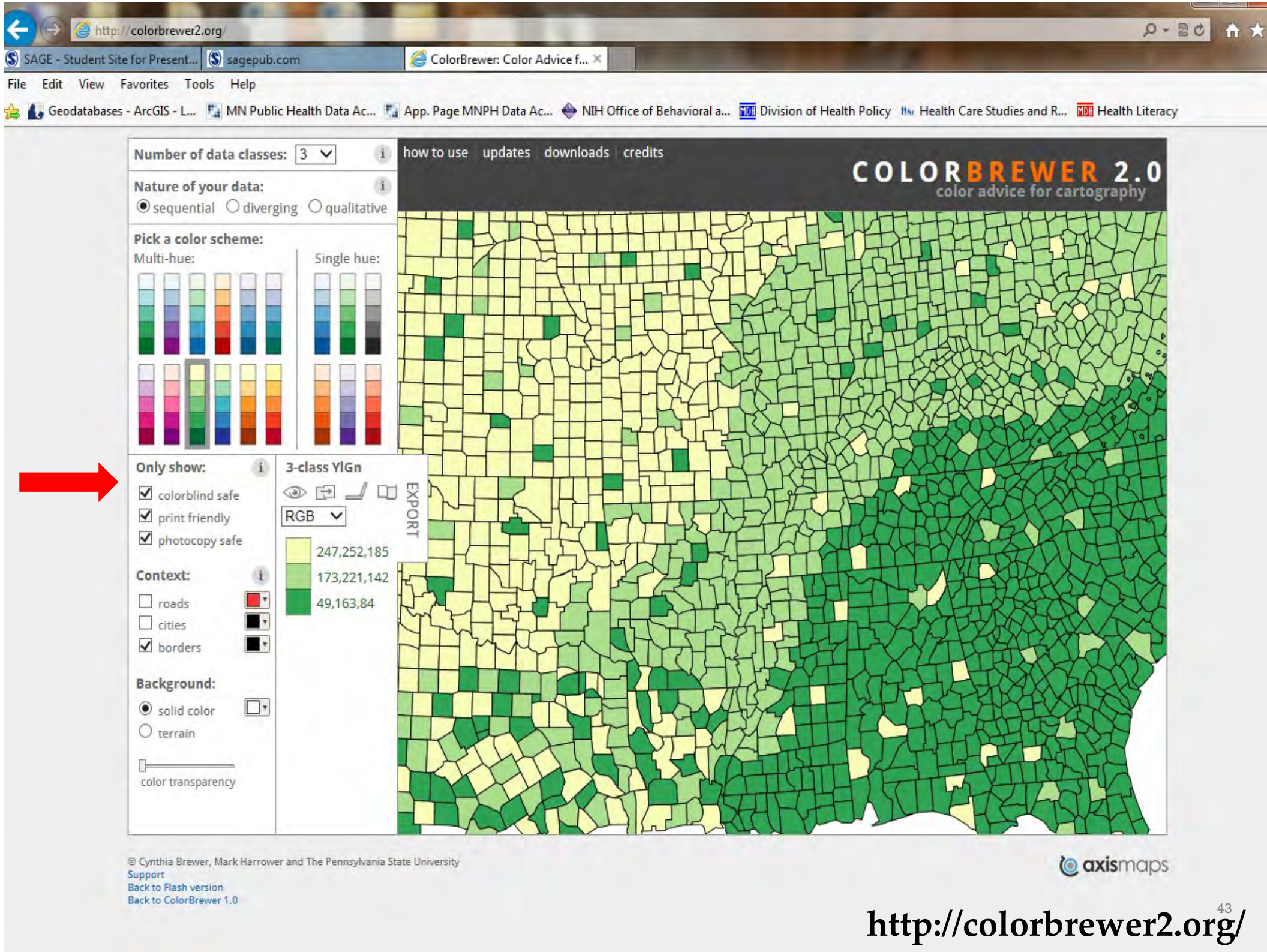
Normal color vision





Blue-blind (tritanopia) Red-blind (protanopia)

www.color-blindness.com/coblis-color-blindness-simulator/



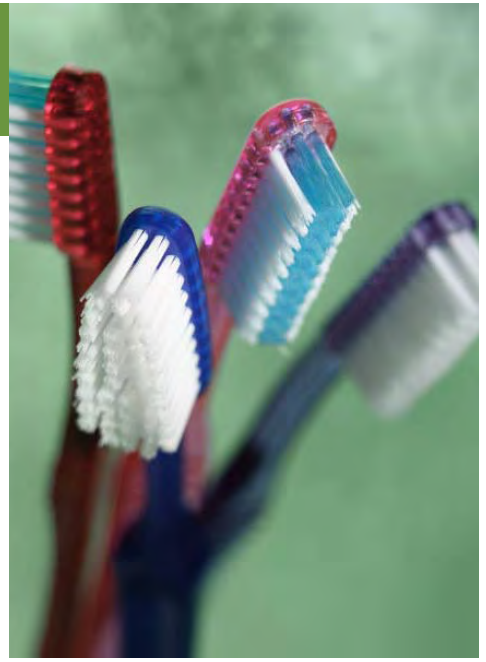
http://colorbrewer2.org/

Team Work

Lessons learned

- Be aware of jargon and specialized language used
- Understand computing platforms for online applications may have limits
- Develop Web standards and processes as a team
- Displaying data online involves balancing the needs of the content experts, data programmers, web developers, and audience
- Possible to promote health literacy in Web content and data displays through advocacy of best-practices and audience testing

Acknowledgments



Delta Dental of Minnesota Foundation

- Joe Lally, Interim Executive Director
- Dana L. Jensen, Program Officer & Senior Grants Manager
- Sharon Oswald, Program Manager

MN Environmental Public Health Tracking Network

Chuck Stroebel, Program Manager
Matthew Montesano, Data Access Portal Coordinator

MN.IT

Dave Stewart, Data Programmer
Mary Ruth Harsha, Project Manager

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Sahiti Bhaskara, Research Scientist
Kris Haugen, Communications Coordinator
Clare Larkin, Prevention Coordinator
Barbara Hann, Data Coordinator
Jon Roesler, Epidemiologist
Katie Verchota, Student Volunteer Intern

Questions

Data displays

Make em' count!

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Oral Health Surveillance Coordinator

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https://apps.health.state.mn.us/mndata