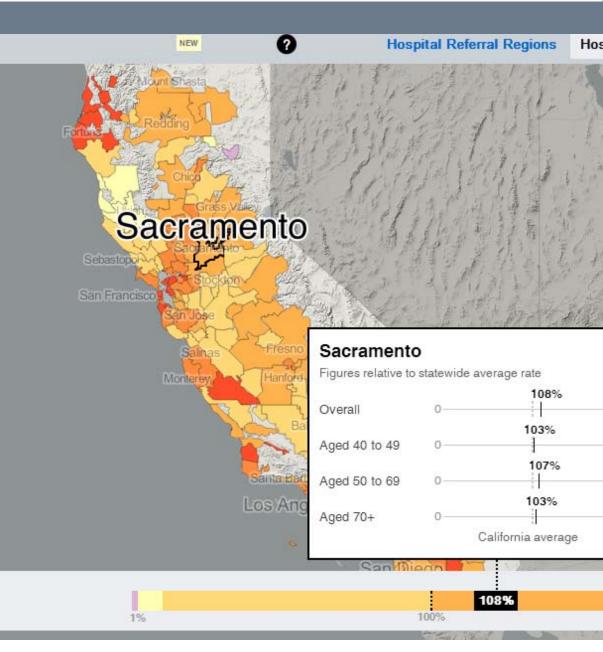


### Worth a Thousand Words: How to Display Health Data

February 2014



### Introduction

Organizations with access to health data face difficult decisions about how best to visualize these data for clarity, storytelling, and impact. This presentation serves as a guide to select the best visualization options for your data, and explains how to get started on the path to better data presentation.

The presentation will explore:

- 1. Case Study: Columbus County, NC
- 2. How to Present Data Visually: Toolkit
- 3. How to Get Started Visualizing Data
- 4. Strategies for Sharing Your Data
- 5. Resources & Inspiration

Note: Throughout this presentation, web links are embedded for more information on the examples given when available.

### **Spreadsheets Aren't the Answer**

To better communicate findings and implications, take data out of its native spreadsheet or database to conduct analysis in a way not possible through simply reviewing a spreadsheet. The visual representation of the data must help you communicate it better.

Keep in mind that others may have good ideas for how to communicate the data, so it is also very valuable offer a data download or, even better, an API into the data. 1. Case Study: Columbus County, NC

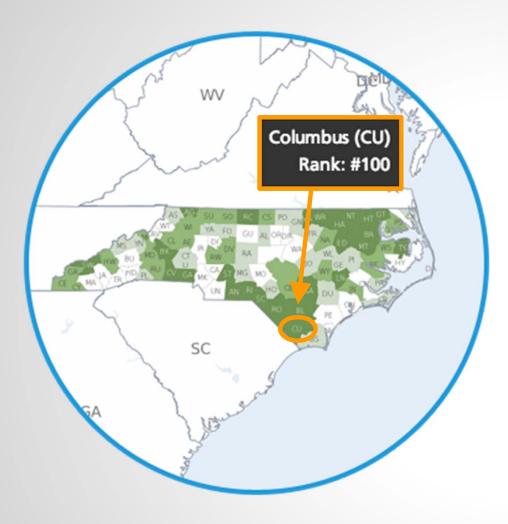
Columbus County, North Carolina

# "Eat smart. Move more."

This simple message is now shared in schools, churches, and county offices.

Even a call to the health department is greeted with a recording of Director Kimberly Smith reminding residents to take a brisk 30minute walk every day and to eat more fruits and vegetables.

But it wasn't always this way... So, why the change?



**Columbus County Ranks Last in North Carolina Health**. Source: County Health Rankings, March 2010, University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation.

### Columbus County Ranked Last in NC Health

The *County Health Rankings* look at multiple factors that affect health, including:

- Access to care
- Smoking and other unhealthy behaviors
- Air quality
- Socio-economic factors such as poverty

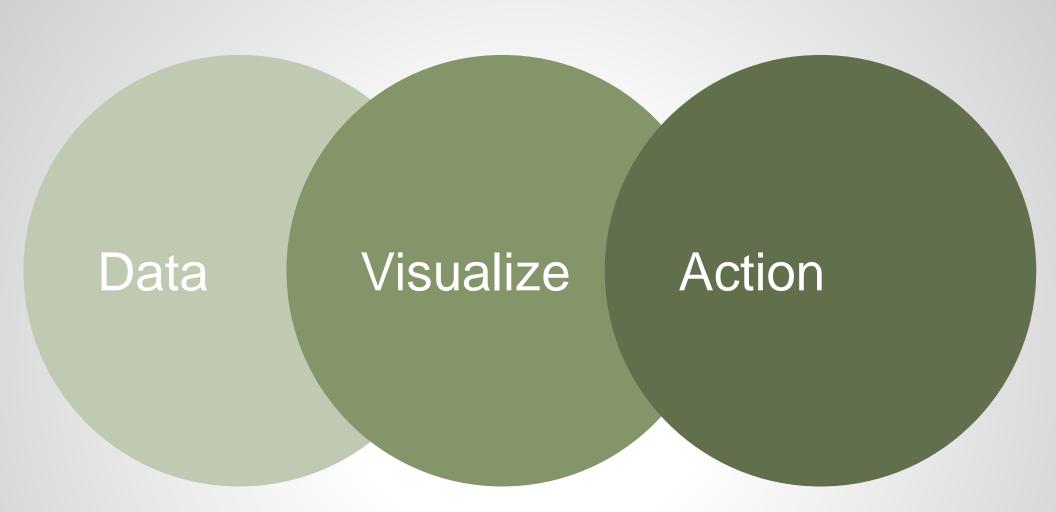
The results prompted the health department to initiate a public education campaign to call attention to the issue and improve community health by focusing on the basics.

66

We're seeing more activity now... People are making an effort." - Kimberly Smith,

Columbus County Health Director

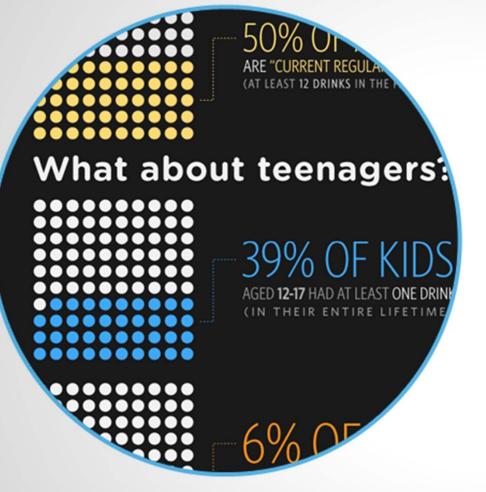
- Smoking was banned in county buildings.
- A van began bringing fruits and vegetables to residents in rural areas.
- About 20 county employees joined a local version of "The Biggest Loser" weight-loss competition for eight weeks.
  County commissioners showed their support by weighing-in at each meeting.
- Smith and her colleagues have relentlessly promoted the "Eat smart; Move more" message to schools, churches, hospital groups, civic clubs, and other county offices.



#### **Columbus County Uses Visually Engaging Data in New Campaign**

It's all part of the county's plan to turn its ranking around by getting more people engaged in physical activity and healthier eating habits.

# 2. How to Present Data Visually: Toolkit



Speak with Numbers

Highlight key facts and figures with style and brevity

"Keep it simple."

Your role is to translate often incredibly complex data into simple messages. By selecting the right numbers that best tell your story, and using appropriate typography techniques to highlight these figures, you'll join the ranks of simple data presentation leaders.

Source: "Visualizing Alcohol Use" by Phlebotomist.net.

	Media Webinars & Resources	
A Healthier Nation.	Roadmaps County by County	Search fo
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Health Outcomes		
MORTALITY		
Premature death	6,12	8 :
MORBIDITY		
Poor or fair health	18	6
Poor physical health days	3	7
Poor mental health days	3	6
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Source: Compare Counties in California, County Health Rankings, Robert Wood Johnson Foundation.

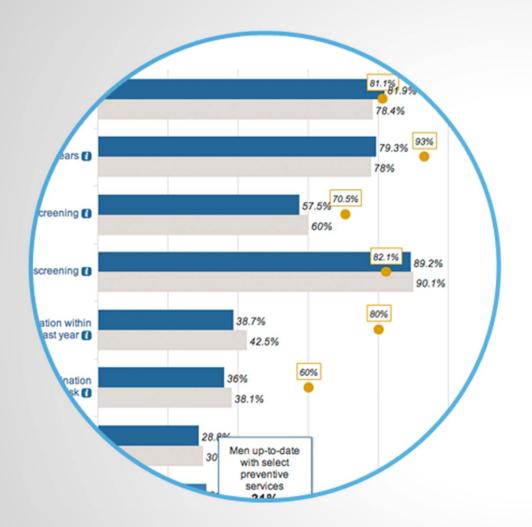
### **Tables & Rankings**

Present multiple data points in digestible way

Tables are useful when presenting data sliced by multiple variables (such as diabetes screenings by race and gender)

Tips:

- Leave plenty of white space between figures and highlight major numbers and sections, as in this County Health Rankings example
- Clearly label columns. Make sure they are "frozen" when users scroll vertically
- Avoid using too many columns, which will force users to scroll horizontally
- Provide links or tooltips to additional information about the measures



Source: Use of Preventive Services Among People 50-64 years of age, California vs. US national average, AARP.

### **Bar Charts**

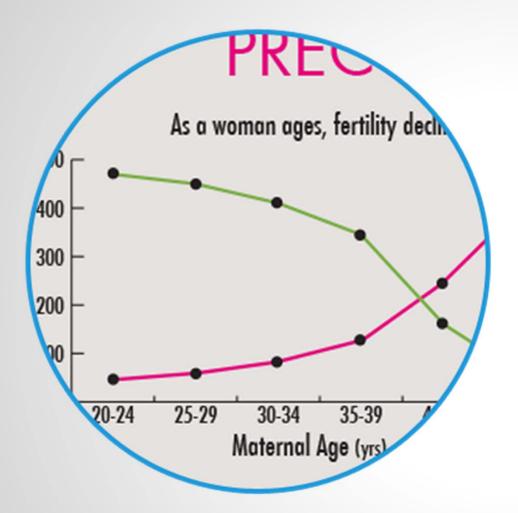
Highlight independent elements and compare values

- An excellent choice for highlighting disparities
- Horizontal bars allow for the inclusion of more metrics
- Bar charts play on humans' inherent ability to draw quicker conclusions based on side-by-side lengths

#### **AARP Chart: Why It Works**

This stacked chart allows the eyes to easily compare state and national averages.

Bright orange dots showing federal targets offer another access point, clearly indicating the differences in usage rates and target goals.

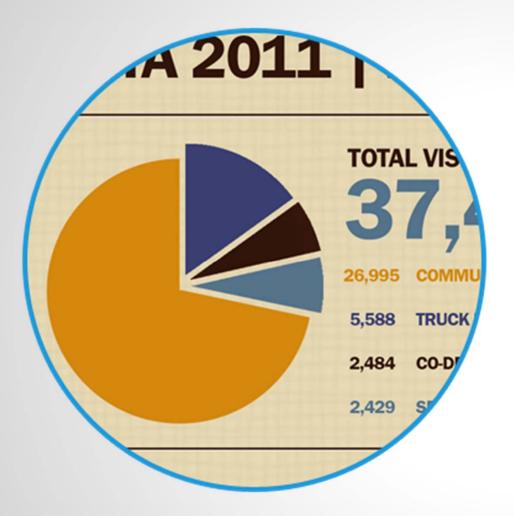


Source: Fertility Rates Decline With Age, Shady Grove Fertility.

### **Line Graphs**

Connect time and trends

- A simple line graph cleanly plots specific values
- Demonstrates trends over time
- This line graph expertly uses dots and colored lines to show that as women age, fertility rates decrease
- Avoid confusion by using less than five lines



Source: East African Health Clinic Visits by Traveling Worker, "East Africa Health Care That Moves," North Star Alliance.

### **Pie Charts**

Display proportional segments of a whole

This pie chart uses four slices and contrasting colors to highlight the percentage of visits various traveling workers made to clinics.

It can be difficult for readers to differentiate among similarly sized slices. So consider alternatives to pie charts, such as a stacked bar chart (see next page). If you use a pie chart, consider:

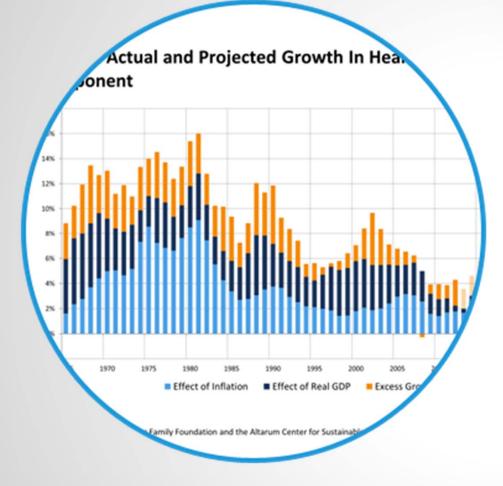
#### Tips:

- Use five or fewer slices (segments of data)
- Pie charts work well when presenting large differences among data
- Smaller slices are difficult to read and slight differences are difficult to discern
- Don't compare data sets with side-by-side pie charts

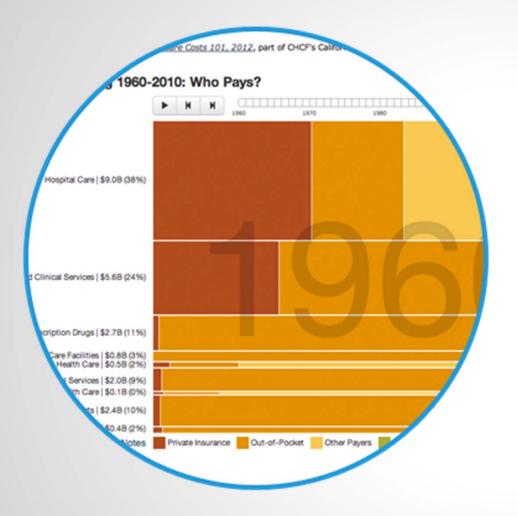
### **Stacked Bar Charts**

Highlight variation; Another way to show parts of a whole

- Stacked charts are optimal for comparing multiple instances and/or variations of the same part of the whole (e.g. over time)
- For example, this stacked bar chart from the Kaiser Family Foundation displays multiple components of health spending
- Three sets of colored bars show historical growth in health spending by year, that are then broken down further by GDP, inflation, and "excess" health spending growth



Source: Historical Growth in Health Spending, Kaiser Family Foundation.



Source: US Health Care Spending 1960-2011: Who Pays? California HealthCare Foundation.

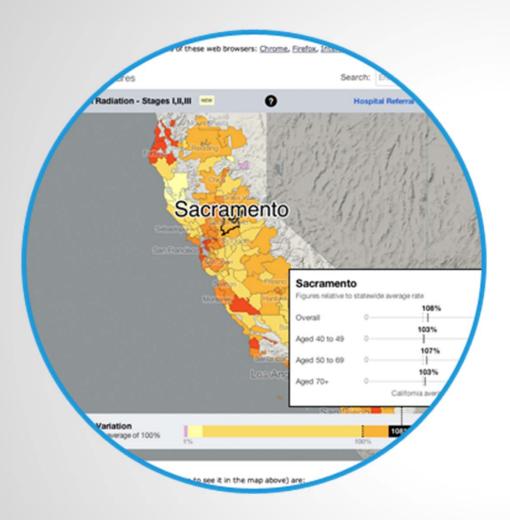
### **Tree Maps**

Demonstrate relativity

- Use for abstract or hard to grasp concepts, including budgets/spending by category
- Good for presenting the relative importance or size of two or more items organized hierarchically
- This tree map from the California HealthCare Foundation shows who has paid for what share of medical services over time and how much these services cost

"We often read or hear reports of 'billions spent on this, billions spent on that,' but we don't have the innate ability to process numbers that large..."

-- Data journalist David McCandless

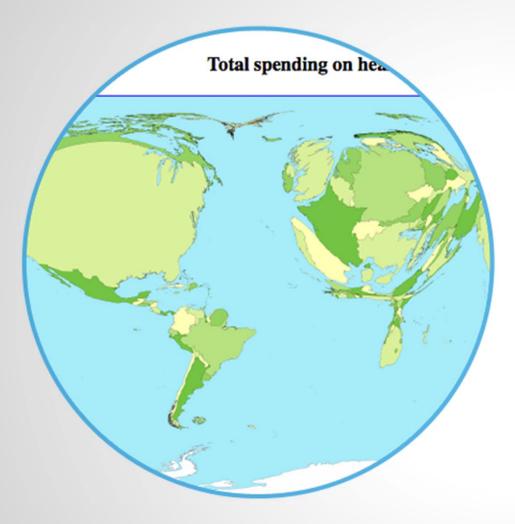


Source: All Over the Map: Elective Procedure Rates in California Vary Widely, California HealthCare Foundation.

### **Chloropleth Maps**

Define and compare geographic areas

- Also known as "heat maps," these allow quick comparison of data geographically to show relative performance
- Color can divide areas into two or more categories
- Instead of using different colors, more subtle gradients of the same color also can show key differences, as shown by this density map on varying rates of elective procedures in California

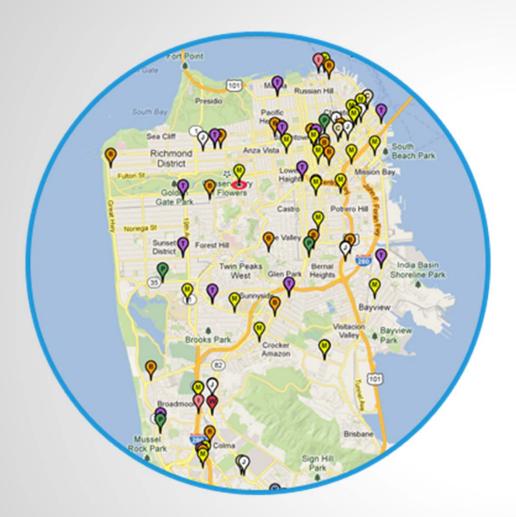


Source: Total Spending on Health Care, Images of the Social and Economic World by M.E.J. Newman, University of Michigan.

### Cartograms

Statistics displayed on maps

- Cartograms distort the area of a map based on data (in most cases, population data)
- Redefine land mass as alternate data point
- Data are all equally represented on the screen or page, but due to its unique design, the cartogram can make regions unrecognizable
- This world map distorts the size of the countries to demonstrate total health care spending

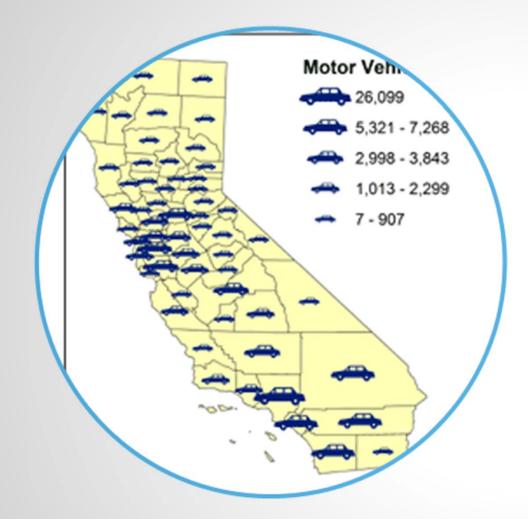


Source: Mapping Fast Food Clusters in San Francisco, FastFoodMaps.com.

### **Pinpoint Maps**

Identify clusters or trends within a geographic region

- Pinpoint maps have become popular as more data sources include exact coordinates. Google maps and GPS devices commonly use this type of map to pinpoint exact locations. Geo-coded social content, such as tweets and Instagram photos, are also commonly mapped this way.
- In health care, pinpoint maps work well to show clusters of disease, uncover food deserts, and find health service delivery locations
- Consider layering a heat map with a pinpoint map to see where and how a health issue (such as obesity) relates to service locations (such as fast food outlets)

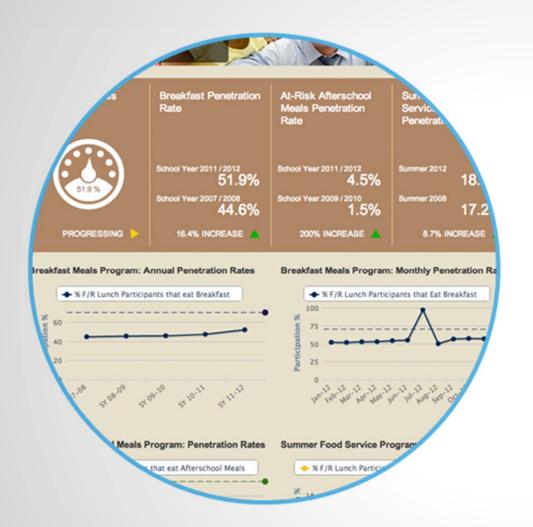


Source: Motor Vehicle Deaths by California County, Pennsylvania State University Geography Department.

### Proportional Symbol Maps

Compare statistics through symbols on maps

- Similar to chloropleth maps, proportional symbol maps typically use bubbles or other iconography (such as the cars in this map) plotted in the middle of each geographic region
- Proportional symbols: The size of each shape is determined by the data, allowing users to compare quantitative differences in geographic areas
- Sometimes these maps are difficult to interpret because of overlapping symbols in smaller geographic regions. This can be addressed by ensuring scale and appropriate size and translucence



Source: Maryland StateStat, Goals for Ending Childhood Hunger.

### Dashboards

Summarize key data points on one page

- Valuable in communicating quick snapshots of key figures on a single page
- Contain tables, charts, graphs, and other data visualizations
- Odometers are a popular dashboard style. For example, this dashboard uses an odometer with clear percentages to detail progress in ending childhood hunger in Maryland
- Less is more: Create clean designs with limited data points
- Use minimal visualizations to avoid confusion and force focus



Explore the obesity trends in the United States by interacting with the visualization below. Each tee in the mat represents the percentage of population in the particular state that is obese". The darker the red and the larger the tee, the more obese a state in that particular year.

PICK A YEAR									
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Source: Infographic on the Obesity Epidemic, based on data from CDC's Behavioral Risk Factor Surveillance System, by MIX Online.

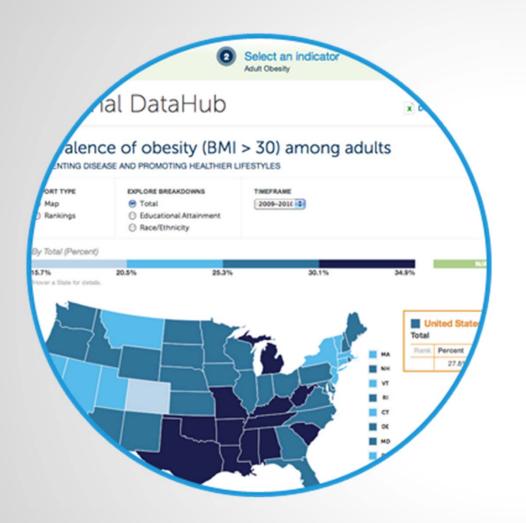
### Infographics

Tell compelling stories with data using unique design elements

Infographics come in many forms:

- Static or interactive
- Long form
- Digital postcards
- Illustrations, photos or icons

Interactive example: Red t-shirts are used to highlight the growth of the obesity epidemic over several decades

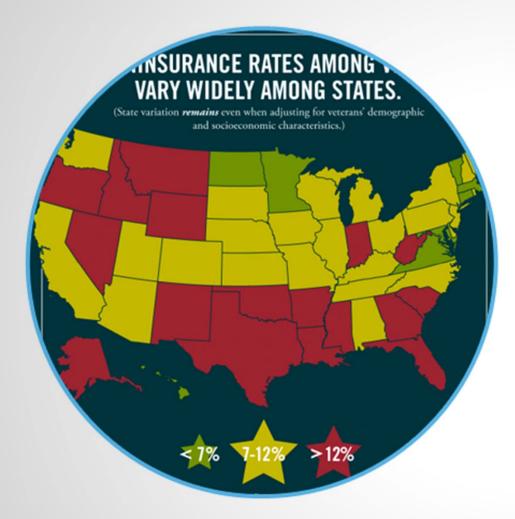


Source: Obesity Prevalence Among Adults, DataHub, Robert Wood Johnson Foundation.

### Animated Visualizations

Demonstrate changes over time

- Can incorporate icons and other visualization options
- This example shows obesity rates in a chloropleth map
- The movement in animated graphics is more engaging to viewers
- Users can roll the data back to 2000 and play the animation to view changes in the map and data through 2010



Source: Uninsurance Rates Vary Widely Among US Veterans, Robert Wood Johnson Foundation.

### Static Visualizations

Require the least effort and expertise to create

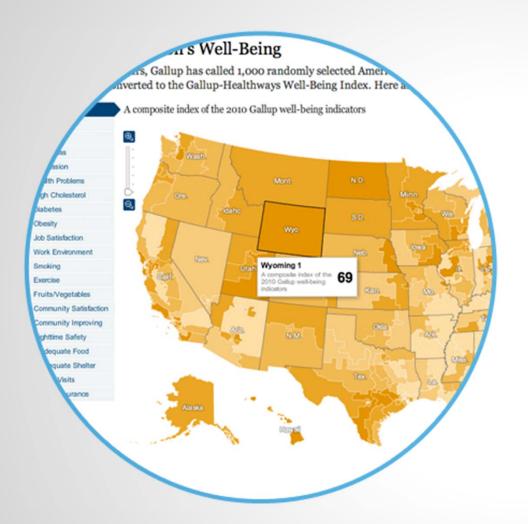
Static presentations of bar, line, and trend graphs, as well as maps, summarize and display data as interesting visuals in ways that are easy to share. Static visualizations can include numbers, charts, maps, and iconography.

#### **Benefits:**

**Ease of use**. With no moving parts or user interactions, static visualizations represent the least amount of effort and technical expertise.

**Simple tools**, including pencil and paper, Excel, Photoshop, and Google charts.

Here, the RWJF visualization uses numbers, iconography, a chloropleth map, and text to tell the story of uninsured veterans



Source: Gallup-Healthways Well-Being Index Scores by state and congressional district, *The New York Times*.

### Interactive Visualizations

Require a higher level of effort and expertise

Interactive visualizations are attractive because they capture users' attention. This chloropleth map, for example, allows users to hover over states for detailed data on various quality of life indicators.

Here are some software tools to produce interactive visualizations:

- Without advanced programming knowledge: Google Charts & Maps (Google Fusion Tables), Tableau Public, Mapbox, Datawrapper, Infogram, Many Eyes, iCharts
- With advanced programming (coding frameworks, map tile producers, and Javascript libraries): High Charts, TileMill, D3.js, FLOT, Fusion Charts, OpenLayers, and JSMap

3. How to Get Started Visualizing Data

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### **Take Inventory**

What data are available? What is missing?

### Create an inventory spreadsheet with the data source's:

Name, description, owner, frequency of updates, topics covered, geographic depth(city, county, country specific), format (API, CSV, XLS, PDF, widget, query tool)

#### Key questions to consider:

- What data do we have and where?
- What is the scope?
- What is the quality?
- What are constraints and limitations?
- Are the data statistically significant?
- Are the data private in any way?
- Does the dataset include test data?



#### Filter by media format:

- CSV (139)
- Query Tool (104)
- API (32)
- XLS (17)
- \_empty\_ (16)
- Widget (15)
- Text (13)
- XML (11)
- Feed (9)
- RDF (4)

### Consider Data Format

What format is your data in?

Some formats lend themselves to interactive tools better than others. For example, data in a PDF or a report is hard to extract, repurpose, and segment. **Tip: Go back to the original source (like an Excel sheet if available) for easier extraction**.

- Data that are packaged in an API or spreadsheet are often easier to dynamically update and incorporate into tools and displays
- Look for ways to store data in flexible formats, such as Excel. Data should not "live" in the report only



Source: DashBurst.

### **Analyze the Data**

What message are you trying to convey?

Determine which data are the most useful information and central to this message

Determine conclusions users will make when they view the data visualization

Consider these characteristics of strong data visualizations:

- Personalization and storytelling
- Relevance and timeliness
- Connections and comparisons



## Have a Maintenance Strategy

How will you update and maintain the data and the visualization?

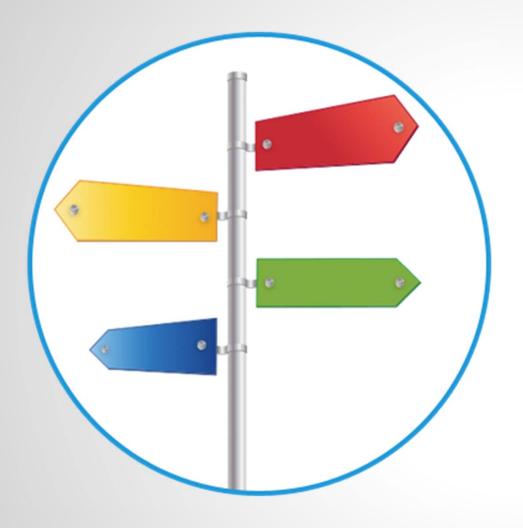
### When data are updated regularly, people are much more likely to use the information.

#### **Questions to consider:**

- How often will the data be updated?
- Who will update it?
- How long will it take to update?
- Do you need to gather new data?
- How regularly?
- Where will you store your data?
- Is it easy to access?
- Do you have resources to do this?

#### Be sure to record your process for

analyzing, creating a visualization, releasing, marketing, and updating your data.



### Determine a Presentation Approach

#### Key elements of getting started:

- Know your level of expertise and resources at your disposal in crafting a visualization, as well as the level of effort needed to create a display
- 2. Determine what visualization methods best achieve your goals
- 3. Review the various types of presentations in section 2 of this publication
- 4. Consider whether you can and should make the visualization either static or interactive

# 4. Strategies for Sharing Your Data

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•	vernment site HealthCare.gov gives ffers helpful ways to interact and

erson with Disability

Young Adult (under 26)

munity programs meet your n

II help you find the health insurance best suited to your needs, whether it's private or individuals, families, and small businesses, or public programs that may work for i to help consumers under the health insurance reform law, the Affordable Care Act.

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s get started. (Just two quick steps)

-- Choose State ---

Views Increase user interaction

**Create Customized** 

Custom views call for more planning and strategy.

Give users an opportunity to personalize their view into the data by providing:

- Query tools that lead a user through a series of questions or selections before presenting the results
- Comparison tools that allow users to select multiple criteria and compare results side-by-side
- Widgets that allow users to select criteria and to embed them on other sites, making them very portable

It is vital to understand the target audience's needs. Have a clear vision of the goals, and create a design that is intuitive and useful.

### CLICK TO VIEW

Which best describes Family / Children you? Healthy Individual (Select one.) Individual with Medical Condition Pregnant Woman

Which state do you live

in?

STEP 1 of 2 - Please Answer All Questions



Source: US Geographic Distribution of AIDS by New Diagnoses and Prevalence Rates, AIDSVu.

### **Give the Raw Data**

Creating a stunning data query tool or visualization isn't enough...

Sharing raw data will advance user interaction by making valuable data available to others to create their own data visualizations.

- Provide a machine readable download option (such as an Excel spreadsheet)
- If possible, provide an API for web developers

This chloropleth map shows geographic clusters of AIDS patients. It allows users to embed the map on another website.

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Alabama Alaska Arizona Arkansas California Colorado Connecticut	4,783 712 6,533 2,911 37,544 5,016 3,518	612 123 1,105 510 7,369 779 273 83	12.8 17.3 16.9 17.5 19.6 15.5 7.8	1.33 1.21 1.25 0.47 0.97 0.68 0.83	589 5,428 2,402 30,174 4,237 3,245 823	82.7 83.1 82.5 80.4 84.5 92.2 90.9	1.33 1.21 1.25 0.47 0.97 0.68	3,143 440 3,851 1,607 21,642 3,387 2,628 639	61.8 58.9 55.2 57.6 67.5 74.7 70.6	1.91 1.75 1.87 0.64 1.30 1.17	407 3,420 1,371 18,467 2,892 2,332 534	57.2 52.4 47.1 49.2 57.7 66.3	1.96 1.77 1.89 0.66 1.37 1.29 1.55	34 408 235 3,274 467 351 76	4.8 6.2 8.1 9.3 10.3 8.4	0.77 0.76 0.97 0.35 0.74 0.80	1
Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of	4,783 712 6,533 2,911 37,544 5,036 3,518 905	612 123 1,105 510 7,309 779 273 83 50	12.8 17.3 16.9 17.5 19.6 15.5 7.8 9.1 8.1	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71	589 5,428 2,402 30,174 4,237 3,245 823 574	82.7 83.1 82.5 80.4 84.5 92.2 90.9 91.9	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71	3,143 440 3,851 1,607 21,642 3,387 2,628 639 408	61.8 58.9 55.2 57.6 67.5 74.7 70.6 65.3	1.91 1.75 1.87 0.64 1.30 1.17 1.47 1.58	407 3,420 1,371 18,467 2,892 2,332 534 354	57.2 52.4 47.1 49.2 57.7 66.3 63.4	1.96 1.77 1.89 0.66 1.37 1.29 1.55 1.59	34 408 235 3,274 467 361 76 55	4.8 6.2 8.1 9.3 10.3 8.4 8.9	0.77 0.76 0.97 0.35 0.74 0.80 0.89	1
Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Dolumbia	4,783 712 6,533 2,911 37,544 5,016 3,518 905 625	612 123 1,105 510 7,369 779 273 83 50 3,766	12.8 17.3 16.9 17.5 19.6 15.5 7.8 9.1 8.1 19.8	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72	589 5,428 2,402 30,174 4,237 3,245 823 574 15,237	82.7 83.1 82.5 80.4 84.5 92.2 90.9 91.9 80.2	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72	3,143 640 3,851 1,607 21,642 3,387 2,628 639 408 10,899	61.8 58.9 55.2 57.6 67.5 74.7 70.6 65.3 57.1	1.91 1.75 1.87 0.64 1.30 1.17 1.47 1.58 0.97	407 3,420 1,371 18,467 2,892 2,332 534 354 9,147	57.2 52.4 47.1 49.2 57.7 66.3 63.4 56.7	1.96 1.77 1.89 0.66 1.37 1.29 1.55 1.59 0.98	34 408 235 3,274 467 361 76 55 1,780	4.8 6.2 8.1 8.7 9.3 10.3 8.4 8.9 9.4	0.77 0.76 0.97 0.35 0.74 0.80 0.89	1
Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Dolumbia	4,783 722 6,533 2,911 37,544 5,016 3,518 905 625 19,003	612 123 1,105 510 7,369 779 273 83 50 3,766 1,840	12.8 17.3 16.9 17.5 19.6 15.5 7.8 9.1 8.1 19.8	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72 0.98	589 5,428 2,402 30,174 4,237 3,245 823 574 15,237 7,899	82.7 83.1 82.5 80.4 84.5 92.2 90.9 91.9 80.2 81.1	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72 0.98	3,143 440 3,851 1,607 21,642 3,387 2,628 639 408 10,859 5,721	61.8 58.9 55.2 57.6 67.5 74.7 70.6 65.3 57.1 58.8	1.91 1.75 1.87 0.64 1.30 1.17 1.47 1.58 0.97	407 3,420 1,371 18,467 2,892 2,332 5,34 354 9,147 5,004	57.2 52.4 47.1 49.2 57.7 66.3 63.4 56.7 48.1	1.96 1.77 1.89 0.66 1.37 1.55 1.55 1.59 0.98 1.37	34 408 235 3,274 467 361 76 55 55 1,780 659	4.8 6.2 8.1 8.7 9.3 10.3 8.4 8.9 9.4	0.77 0.76 0.97 0.35 0.74 0.80 0.89	1
Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Dolumbia	4,783 722 6,533 2,911 37,544 5,016 3,518 905 625 19,003 9,729	612 123 1,105 510 7,369 779 273 83 50 3,766 1,840 101	12.8 17.3 16.9 17.5 19.6 15.5 7.8 9.1 8.1 19.8 18.9	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72 0.96 0.67	589 5,428 2,402 30,174 4,237 3,245 823 574 15,237 7,889 1,240	82.7 83.1 82.5 80.4 84.5 92.2 90.9 91.9 80.2 81.1 92.5	1.33 1.21 1.25 0.47 0.97 0.68 0.83 0.71 0.72 0.98 0.67	3,143 440 3,851 1,607 21,642 3,387 2,628 639 408 10,859 5,721 917	61.8 58.9 55.2 57.6 67.5 74.7 70.6 65.3 57.1 58.8 68.4	1.91 1.75 1.87 0.64 1.30 1.17 1.47 1.58 0.97 1.37 1.43	407 3,420 1,371 18,467 2,892 2,332 5,34 354 9,147 5,084 846	57.2 52.4 47.1 49.2 57.7 66.3 63.4 56.7 48.1 52.3	1.96 1.77 1.99 0.66 1.37 1.29 1.55 1.59 0.98 1.37 1.46	34 408 235 3,274 467 361 76 55 1,780 659	4.8 6.2 8.1 8.7 9.3 10.3 8.4 8.9 9.4	0.77 0.76 0.97 0.35 0.74 0.80 0.89	1
Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware District of Dolumbia	4,783 722 6,533 2,911 37,544 5,016 3,518 905 625 19,003 9,729 1,341	612 123 1,105 510 7,309 779 273 83 50 3,766 1,840 101 272	12.8 17.3 16.9 17.5 19.6 15.5 7.8 9.1 8.1 19.8 18.9 7.5 17.3	1.33 1.21 1.25 0.47 0.68 0.83 0.71 0.72 0.96 0.67 1.28	589 5,428 2,402 30,174 4,237 3,245 823 574 15,237 7,889 1,240 1,298	82.7 83.1 82.5 80.4 84.5 92.2 90.9 91.9 80.2 81.1 92.5 82.7	1.33 1.21 1.25 0.47 0.97 0.68 0.71 0.72 0.96 0.67 1.28	3,143 440 3,851 1,607 21,642 3,387 2,628 639 408 10,859 5,721 917 1,011	61.8 58.9 55.2 57.6 67.5 74.7 70.6 65.3 57.1 58.8 68.4 64.4	1.91 1.75 1.87 0.64 1.30 1.17 1.47 1.58 0.97 1.37 1.37 1.79	407 3,420 1,371 18,467 2,892 2,332 5,34 354 9,147 5,084 846 802	57.2 52.4 47.1 49.2 57.7 66.3 63.4 56.7 48.1 52.3 63.0	1.96 1.77 1.89 0.66 1.37 1.29 1.55 1.59 0.98 1.37 1.46 1.87	34 408 235 3,274 467 361 76 55 1,780 659	4.8 6.2 8.1 8.7 9.3 10.3 8.4 8.9 9.4	0.77 0.76 0.97 0.35 0.74 0.80 0.89	1

Source: Health Insurance Coverage Estimates, Shadac.org.

### Download Approaches

Offer machine-readable formats

- Researchers like Excel or CSV files, which allow them to grab the data for their own analysis
- Break down large data sets into smaller files to enable people to select distinct data pieces, achieve a quicker download and avoid network disruptions

This chart on health insurance coverage estimates allows users to export tables into Excel and PDF formats.



/	o s		ate Populanty		
	Category Company Medical Data Format Date	÷ .	Protocols / Styles		
Filter This List	109 APIs		revious <mark>1</mark> Next ⊨ ⊨		
API	Description	Category	Updated		
Access Plans USA	Health care insurance directory service	Medical	2013-02-04		
Aetna CarePass	Health and drug information portal	Medical	2012-06-05		
AIDSinfo	Government info on HIV/AIDS treatme	nt Medical	2011-07-26		
llen Brain Atlas	Neuroscience information resource directory	Medical	2012-04-05		
	Pharmaceutical research service catalog	g Medical	2012-08-17		
ay Depot			2012-12-19		
say Depot	Sleep monitoring service	Medical	2012-12-19		
	Sleep monitoring service Health data graphing service	Medical Medical	2012-12-19		
	Health data graphing service Library of Medicine text extractor and	Medical	2013-02-04		
	Health data graphing service Library of Medicine text extractor and indexing engine	Medical Medical	2013-02-04 2011-12-23		
	Health data graphing service Library of Medicine text extractor and indexing engine Biomedical data analysis service	Medical Medical Medical	2013-02-04 2011-12-23 2012-02		

Source: Programmableweb.com.

#### Valuable Developer Tool

APIs – application programming interfaces enable developers to easily and automatically "tap into" the data and create their own visualizations, mashups, or apps that integrate data.

#### **Publish Data More Easily**

APIs allow data published in one location to be dynamically updated and posted in multiple applications around the web.

The federal government site HealthData.gov offers a number of APIs and adds more regularly.



## Create a Marketing Plan

Consider how will you drive traffic

**Before publishing the data**, consider how you will alert critical stakeholders. This is a "must do" for reaching a wide audience.

How will you promote your new visualization, drive traffic to your site and encourage people to download and use the data?

- Post it on your home page and blog
- Send an email blast
- Share via social media
- Post it on popular industry blogs or sites
- If your data visualization is especially beautiful, upload it to sites like Visual.ly.

If your product may be newsworthy, develop a robust marketing and public relations plan, including a written press release, embargoed/coordinated release timing, and placement with new outlets.

# 5. Resources & Inspiration

### Creative IDEAS: Data Visualization Blogs













**Information aesthetics.** Where form follows data.

Information is Beautiful ideas, issues, knowledge, data – visualized!

visual complexity

### storytelling with data



### **Data Visualization Tools**

### **Tools for Everyone**

- Google Charts & Maps
- Tableau Public
- Mapbox
- Infogram
- Many Eyes
- iCharts
- Datawrapper

### **Tools for Developers**

- High Charts
- TileMill
- D3.js
- FLOT
- Fusion Charts
- OpenLayers
- JSMap

### So what will you do?



### Eat smart. Move more.

That's what they are doing today in Columbus County, NC

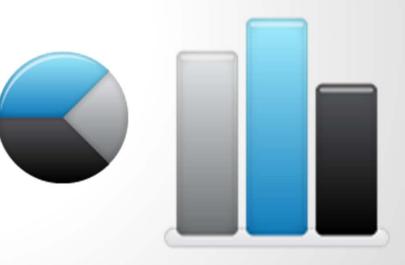
Health data visualization can be quite powerful.

Remember Columbus County's story.





Be data-smart. Visualize more. Tell stories.





California HealthCare Foundation I www.chcf.org

### About

This presentation was developed by Forum One Communications under a grant from the California HealthCare Foundation under its Free the Data initiative.

Forum One is a web strategy, user experience and design, and development firm focused on helping clients make progress on health policy issues. For more information, visit www.forumone.com.

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