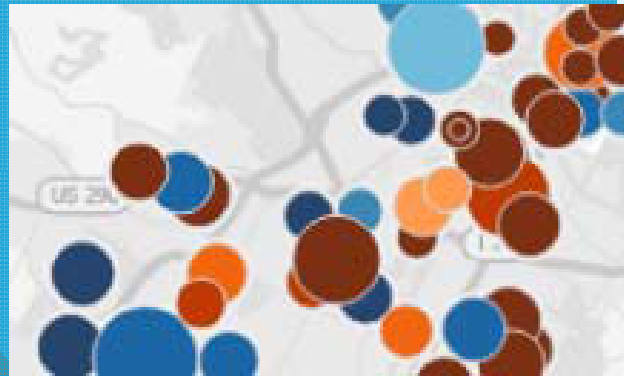
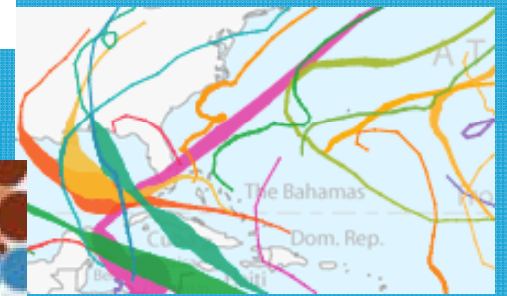
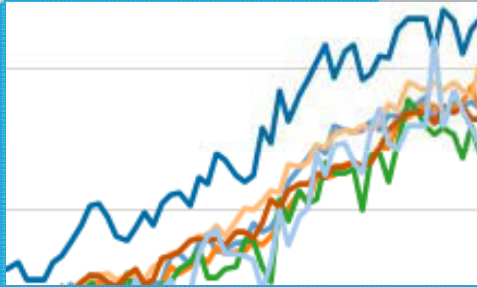


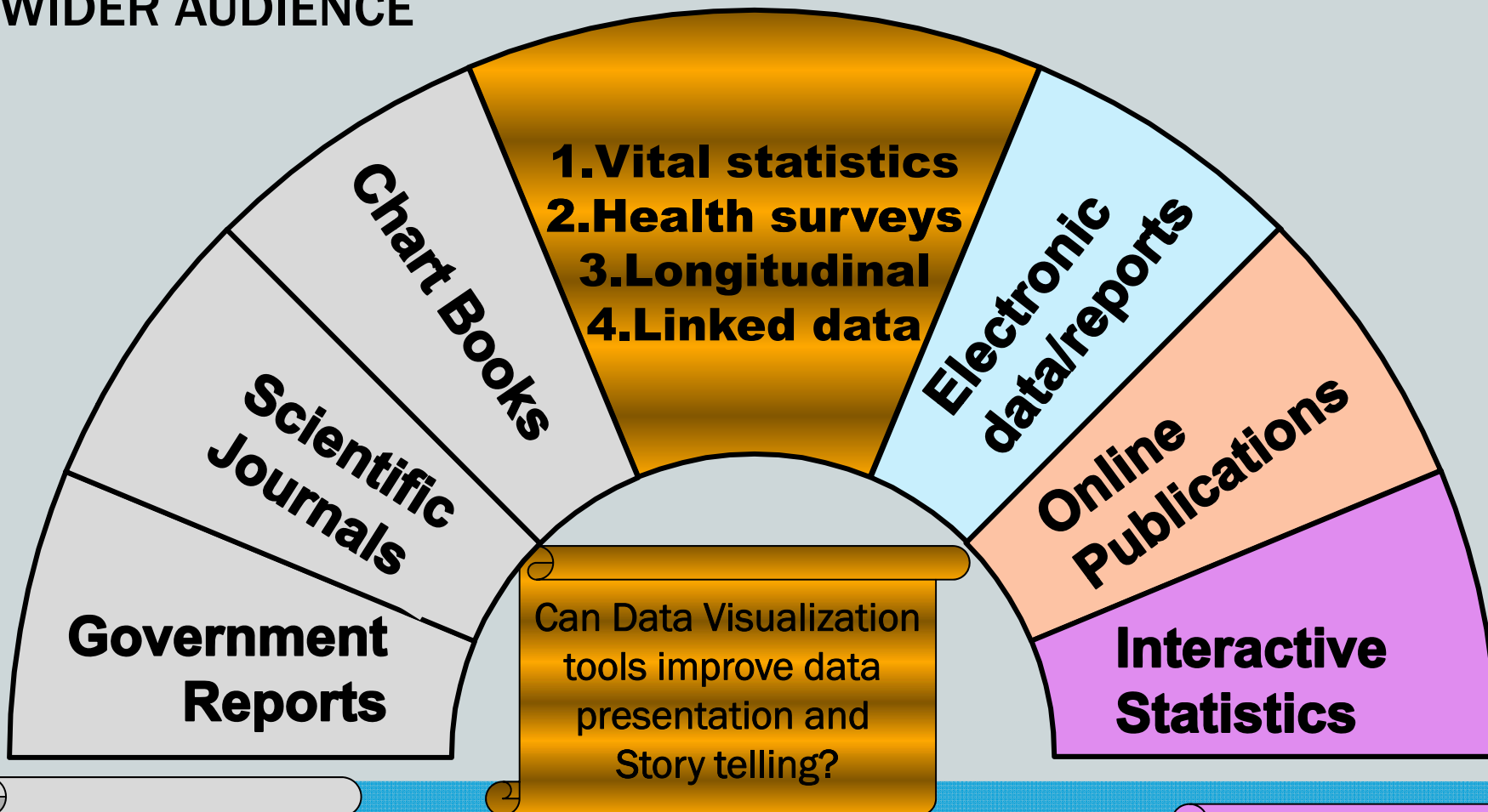
Data Visualization for Discovery and Insight

AN EXPLORATION OF NEW TECHNOLOGY



July-Dec, 2014

WHO AND WHY? MAKE THE GOLD MINE AVAILABLE FOR WIDER AUDIENCE



Print version:

- Government reports
- Peer reviewed journals
- Chart books

Electronic files:

- Data downloads
- PDF files
- Excel tables

Online publication:

- Health E Stats
- Data Briefs
- Quick Stats

Interactive stats:

- Beyond 2020
- HIW
- DOCQ
- CDC Wonder

WHAT IS OUT THERE?

MUCH MORE ADVANCED TECHNOLOGY

[HTTP://SELECTION.DATAVISUALIZATION.CH/](http://SELECTION.DATAVISUALIZATION.CH/)

+ DATAVISUALIZATION.CH SELECTED TOOLS

Search...

All

Maps

Charts

Data

Color

Code? ✓ X



Arbor.js

A library of force-directed layout algorithms plus abstractions for graph organization and refresh handling.



CartoDB

A web service for mapping, analyzing and building applications with data.

<http://cartodb.com>



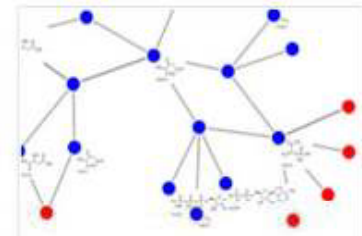
Chroma.js

Interactive color space explorer that allows to preview a set of linear interpolated equidistant colors.



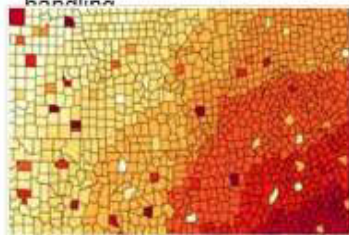
Circos

A software package for visualizing data in a circular layout.



Cola.js

A library for arranging networks using constraint-based optimization techniques.



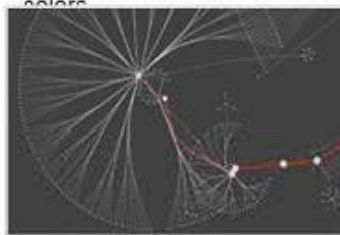
ColorBrewer

A web tool for selecting colors for maps.



Cubism.js

A library for creating interactive time series and horizon graphs based on D3.js.



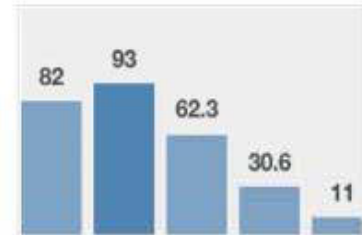
Cytoscape

An application for visualizing complex networks and integrating these with any type of attribute data.



D3.js

An small, flexible and efficient library to create and manipulate interactive documents based on data.



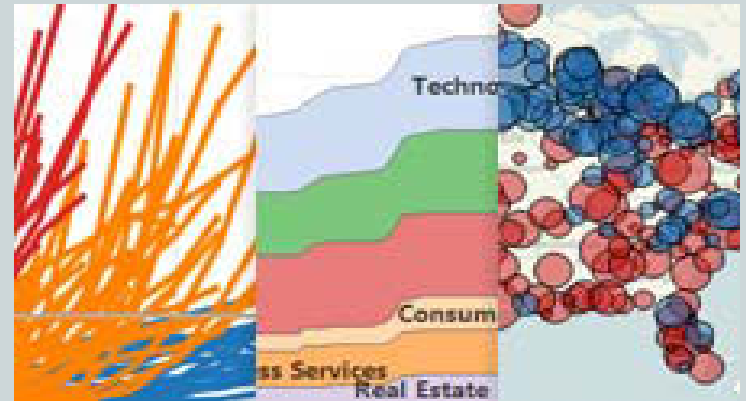
Dance.js

A simple data-driven visualization framework based on Data.js and Underscore.js.

SEARCH FOR THE TOOL

GARTNER'S MAGIC QUADRANT FOR BI PLATFORMS





SEARCH FOR TOOLS

A lot to choose from – which one fits NCHS the best?

Started with Tableau
R-Shinny, added SAS VA

Considerations and constraints:

- Costs: end of the fiscal – no spending
- IT platform requirements
- Software deployment complexity
- Database construction
- Learning curve and user friendliness
- CDC approved software

MAP OUT THE EXPEDITION

TABLUAU: Sept-Nov

Turn massive data tables into
Mortality Dashboard

TABLEAU: Nov-Dec

Story Board:
Uninsured in the US
NCHS' role
How Americans Die

SAS VA: Oct-Dec

HIS: visual explorations
For analysts

SAS VA: Oct-Dec

NHANES: Data Briefs
reorganized

R-Shinny: Oct-Nov

HIS/NHANES
User interactions

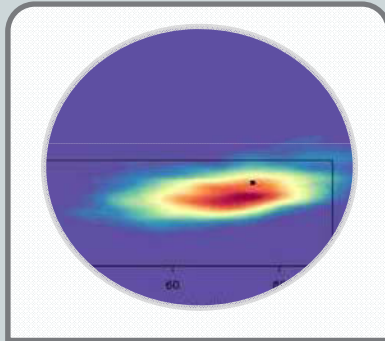
INFLUENZA: MMWR TABLES VS R-SHINNY CHARTS

[HTTPS://ORM-SRSDS.SHINYAPPS.IO/FLUSHOTFINAL_APP/](https://orm-srds.shinyapps.io/flushotfinal_app/)

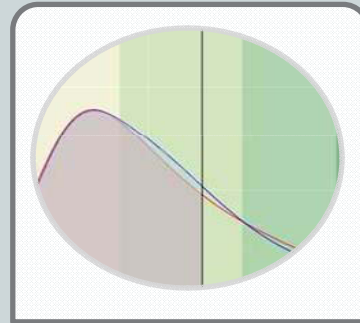
The screenshot displays the R Shiny application interface. The top-left pane shows the R source code for a Shiny app. The code uses `shinyUI` to create a fluid layout with a title panel, a main content area with a `fluidRow` and `column` structure, and a `distchart` plot. The code includes interactive elements like `selectInput` for 'Group' and 'Panel', and a `sliderInput` for 'Year'. The top-right pane shows the 'Workspace' and 'History' tabs, with 'Data' containing 25 observations of 2 variables and 'df.null' containing 0 observations of 0 variables. The bottom-left pane shows the console output, including the creation of variables like `groupvar`, `panelvar`, `inputvars`, `inputvars$groupvar`, `inputvars$panelvar`, `legendtitle`, and `df.null`. The bottom-right pane shows a line chart titled 'Received a Flu Shot in Past 12 Months'. The chart plots 'Percent' (y-axis, 0.2 to 0.6) against 'Year' (x-axis, 2004 to 2013). The legend indicates four education levels: Graduate Degree (green), College Degree (orange), HS Diploma (purple), and No HS Diploma (pink). The Graduate Degree line shows the highest percentage, starting at approximately 0.41 in 2004 and rising to about 0.58 in 2013. The other lines show lower percentages, generally increasing over time.

| Year | Graduate Degree | College Degree | HS Diploma | No HS Diploma |
|------|-----------------|----------------|------------|---------------|
| 2004 | 0.41 | 0.31 | 0.28 | 0.27 |
| 2005 | 0.27 | 0.25 | 0.20 | 0.22 |
| 2006 | 0.39 | 0.28 | 0.25 | 0.26 |
| 2007 | 0.39 | 0.31 | 0.28 | 0.29 |
| 2008 | 0.46 | 0.34 | 0.30 | 0.31 |
| 2009 | 0.50 | 0.37 | 0.32 | 0.33 |
| 2010 | 0.50 | 0.38 | 0.31 | 0.32 |
| 2011 | 0.53 | 0.38 | 0.35 | 0.34 |
| 2012 | 0.50 | 0.40 | 0.33 | 0.33 |
| 2013 | 0.58 | 0.44 | 0.36 | 0.35 |

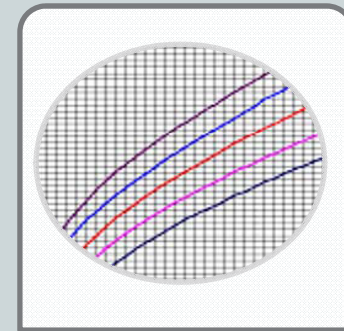
INTERACT WITH NHANES USING R-SHINNY



BP Heat
map



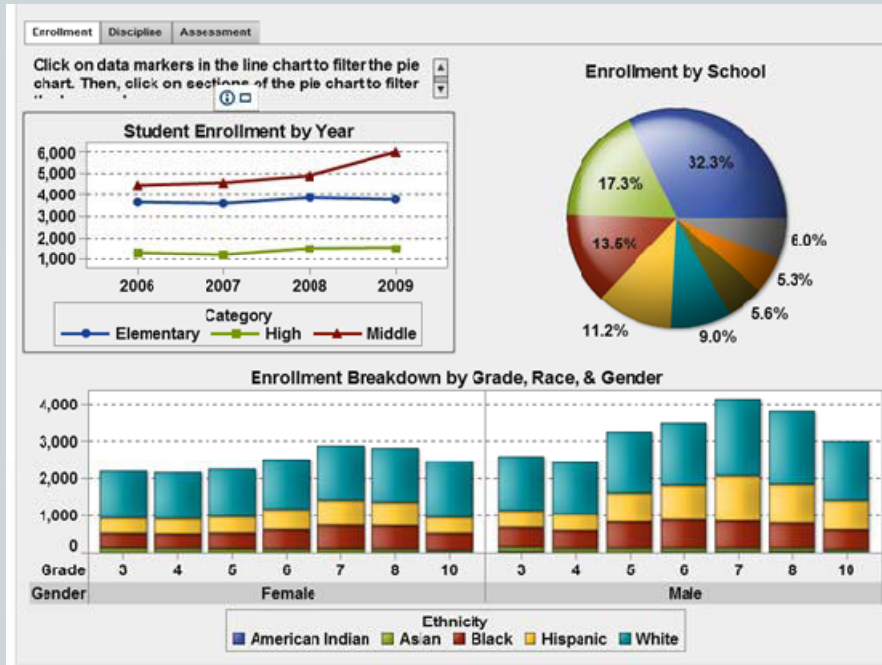
BMI
distribution



Growth
Chart

If you can think it, you can visualize it
One stop shop, and free
But you speak R

SAS VISUAL ANALYTICS: ANALYSTS EXPLORATION IN VISUAL

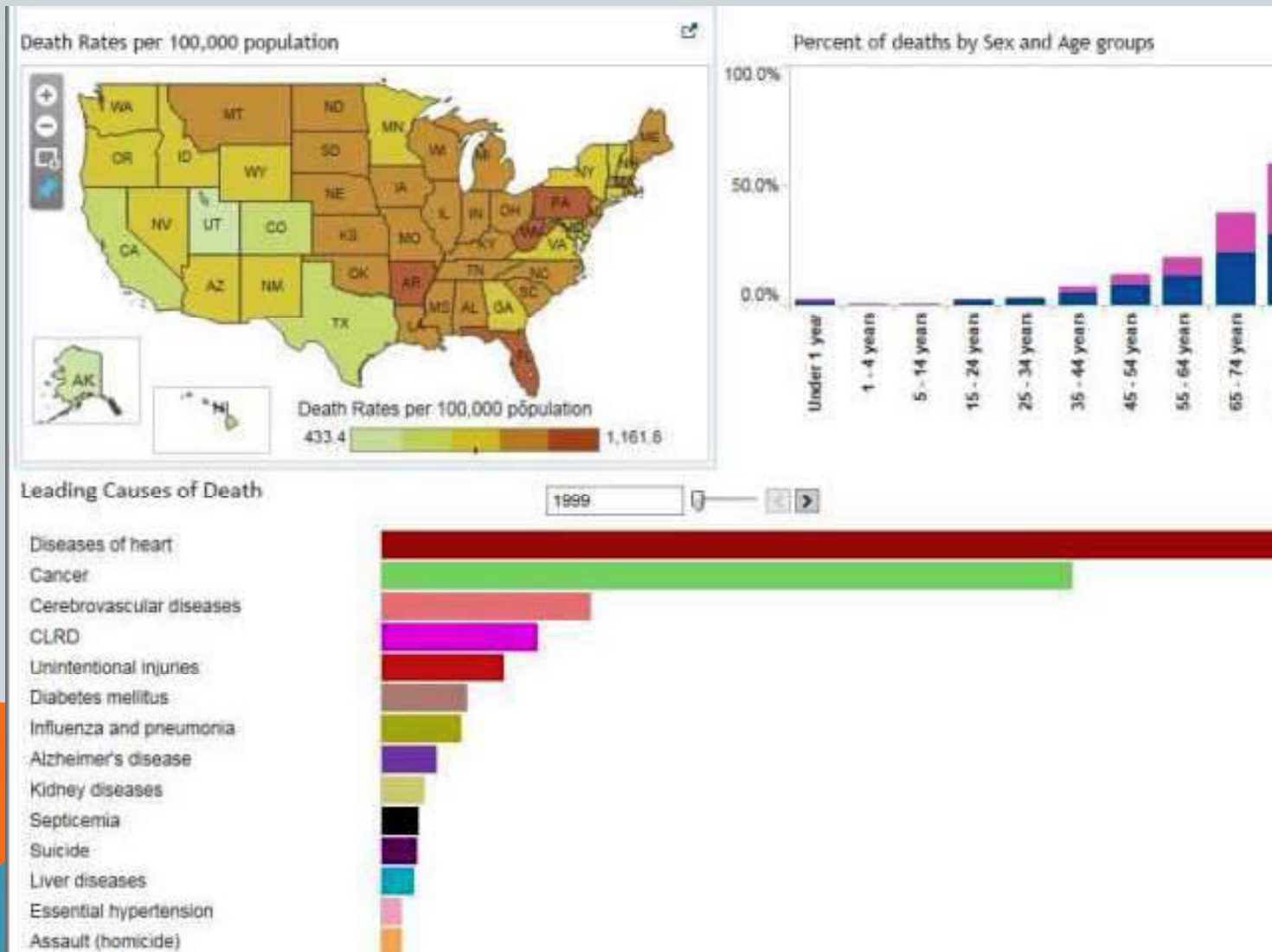


- SAS data loaded directly
- More statistical tools
- Designs logical and orderly
- Large data with ease
- More IT footprint

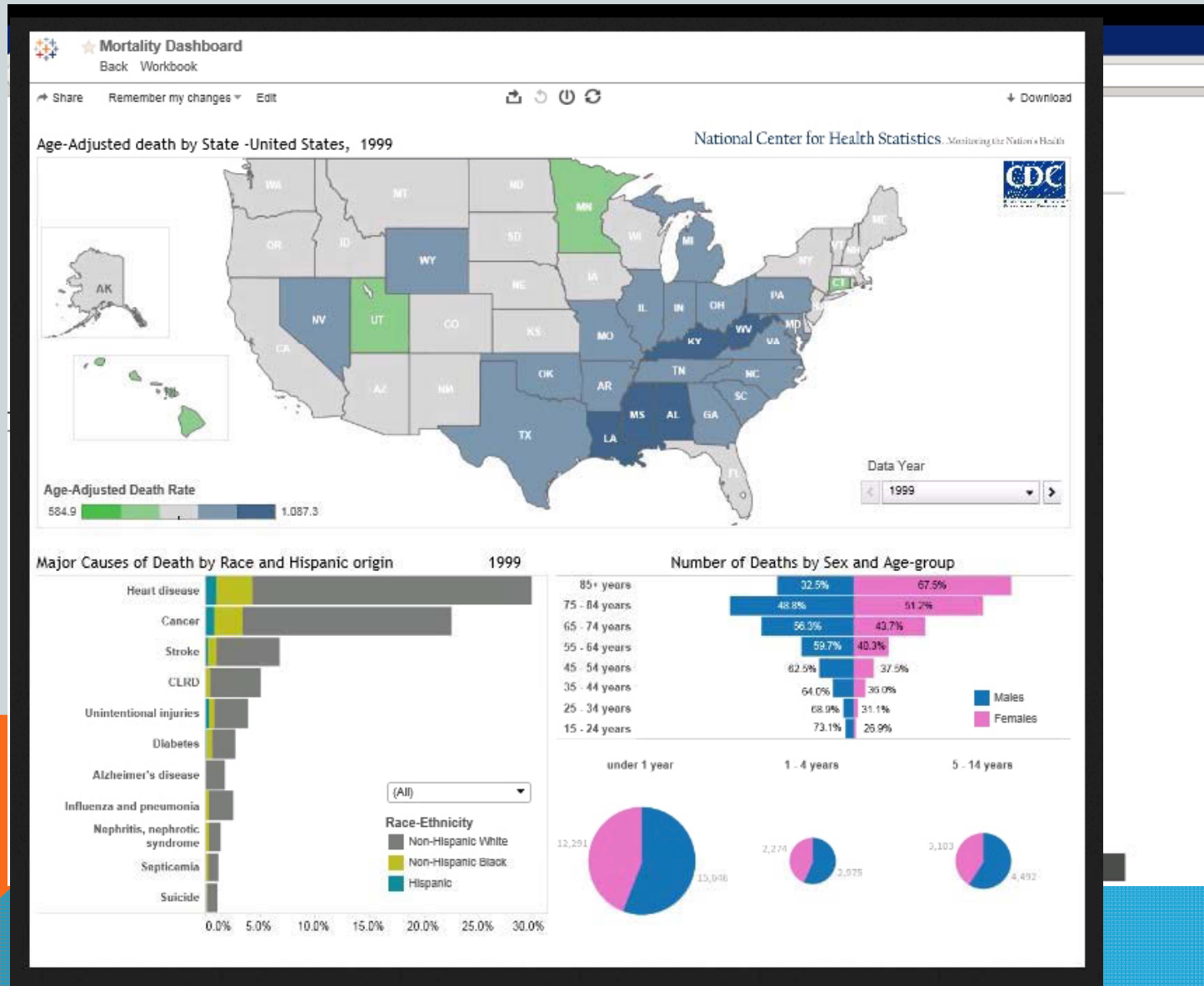
- Access to SAS VA free trial
- Not able to from CDC
- 2-day training
- Work in team with SAS team

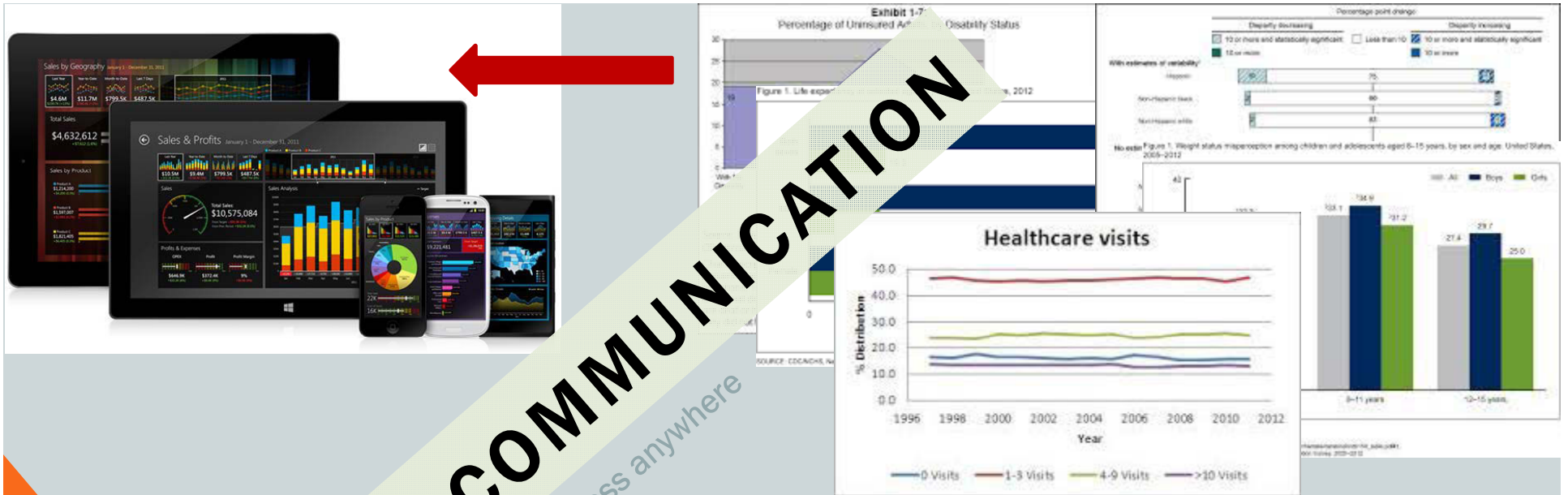


TABLEAU EXAMPLES: A NEW WAY TO ORGANIZE DATA AND GRAPHICS



PUBLISHING DATA TO THE WEB





VISUAL COMMUNICATION

Instant publication = access anywhere

Integrated, Interactive, Automated:

- Combine multiple data sources in one dashboard – easy to find info
- Dynamic: allow filtering, highlighting, and drilling down
- Let end users in driver's seat – fast creation of charts of interest
- Automated updates with new data
- Easy sharing with support for existing security

WHAT CAN VISUALIZATION TOOLS DO?

Mega data integration
In sizes & formats

Analyses and graphics
rendering combined

Dynamic and
interactive user
interface

Automated
real time reporting

Instant publication and
sharing



MOVING FORWARD

What it takes to deploy the tools

**Infrastructure &
Organizational
Culture
For innovation**



TABLEAU
Betzaid/Leo
Ginny/La-Tonya

SAS VA
Te-ching/Marian
Lily (HIW)

R-SHINNY
Erin/Chris

IT/WEB
John/Tom
Elom/Sarah

IT/AV/Training
Maria/Adonikka/Danna
James/Jakki/Corey
Rick/Lori