

Use of R for Visual Display of Public Health Data

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Data



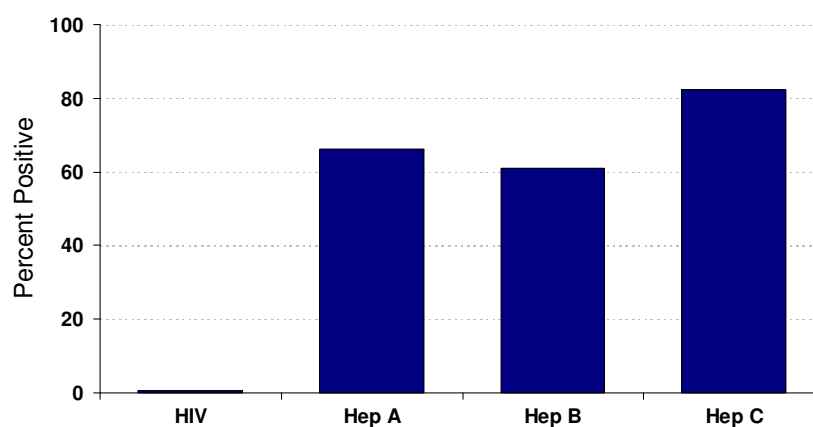
Action

- Program
 - New program
 - Revised program priorities
- New guidelines
- New policy
- New hypothesis (may lead to new action)
- More (or less) money!

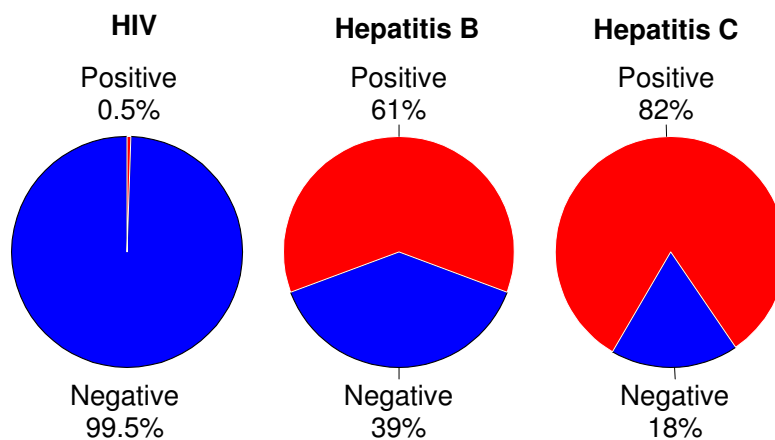
HIV and Hepatitis among Injection Drug Users New Mexico, 1997

	<u>N tested</u>	<u>% Positive</u>	<u>95% C.I.</u>
HIV	1002	0.5	.16-1.6
Hep A	696	66.1	62.4-69.6
Hep B	950	61.1	57.9-64.2
Hep C	945	82.2	79.6-84.6

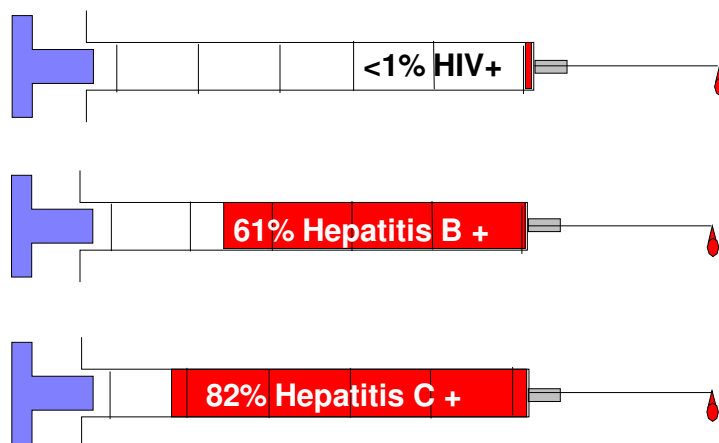
HIV and Hepatitis Among Injection Drug Users New Mexico, 1997

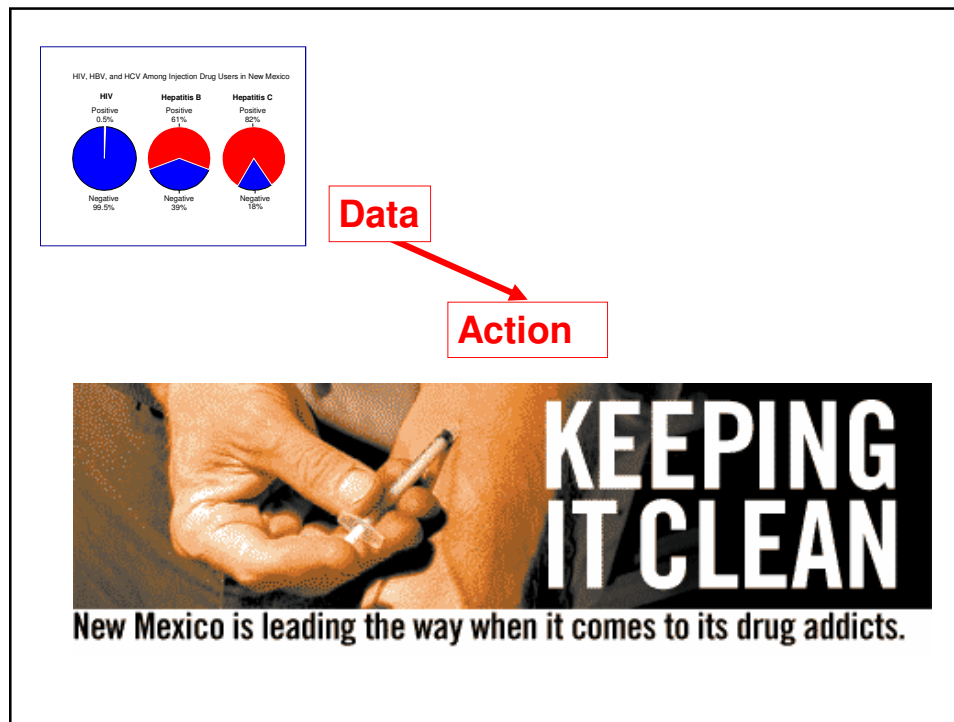


HIV, HBV, and HCV Among Injection Drug Users in New Mexico



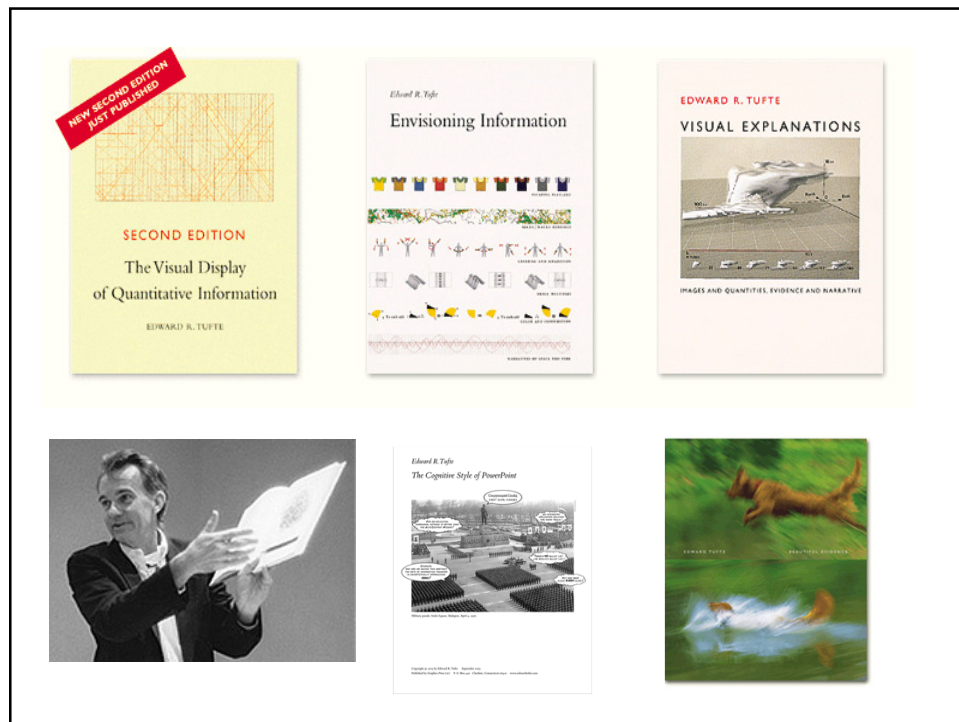
HIV, Hepatitis B, and Hepatitis C New Mexico Street Based Injection Drug User Studies





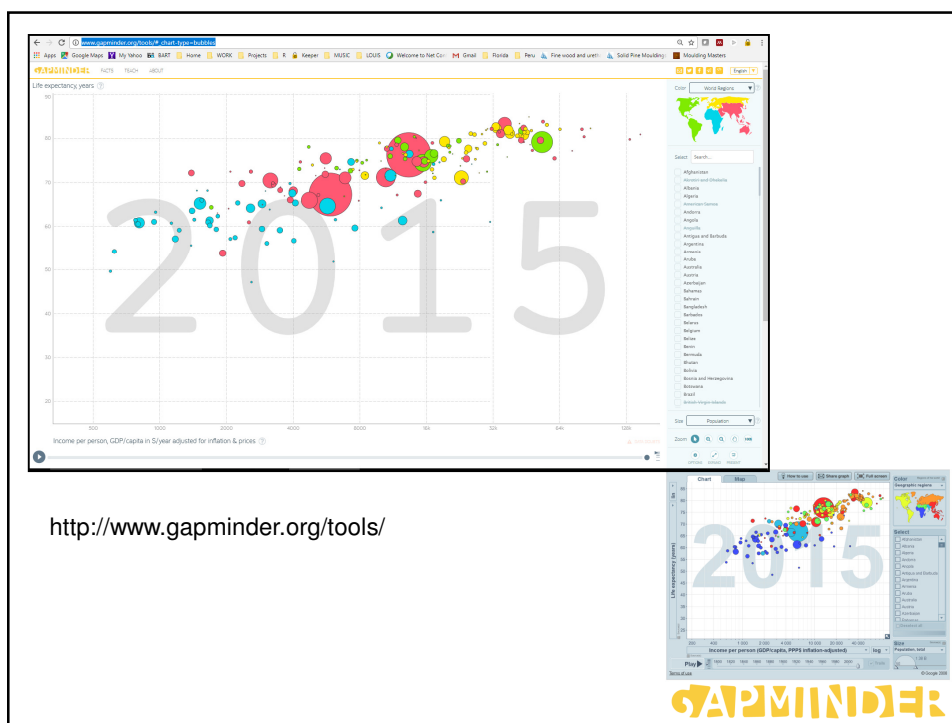
Guidelines for Effective Visual Display

- Complexity is good, and...
- Keep it simple, stupid
- Know your audience
- Data integrity
- Clear labels and annotations
- Use appropriate scale(s)
- Use appropriate type of chart
- Pay attention to details
- Less is more
- Avoid extraneous “Chart Junk”



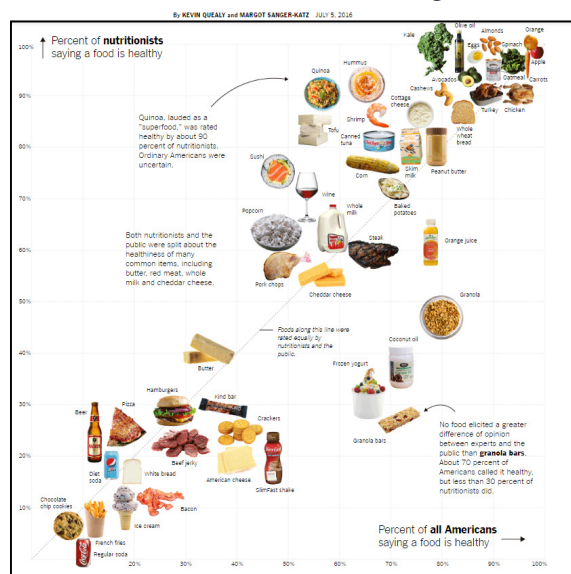
Visual Display 2.0 Issues

- Formats:
 - Reports / Manuscripts / Presentations
 - Interactive Web Sites
 - Slice and dice on-demand
- More data more quickly
 - Open Data
 - Science / Professional
 - Media / Public
- Accountability / performance metrics

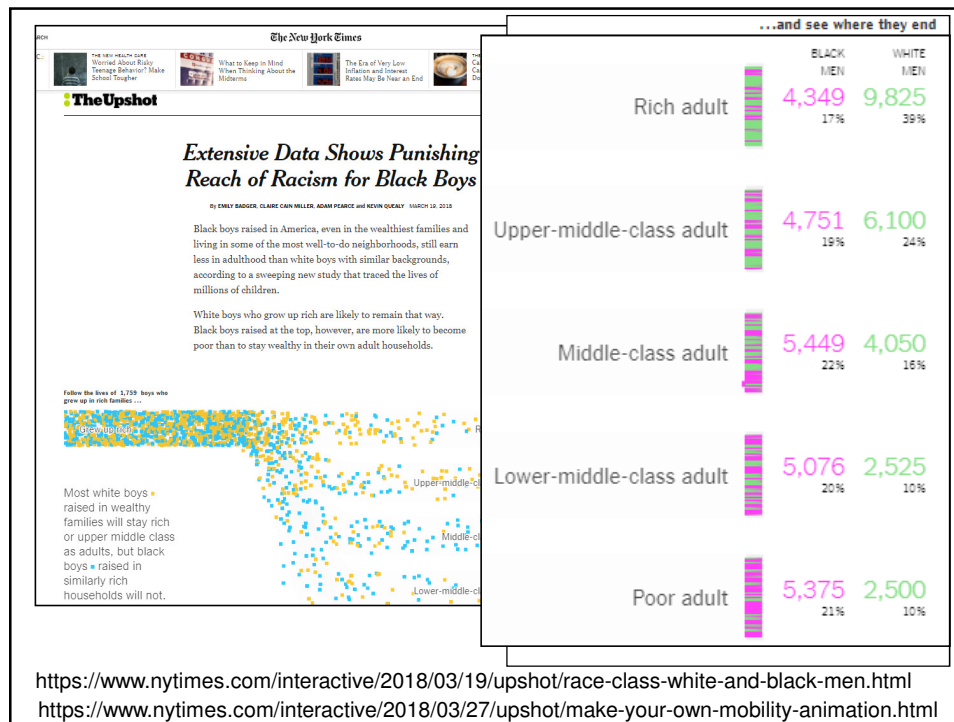


Is Sushi 'Healthy'? What About Granola? Where Americans and Nutritionists Disagree

The New York Times

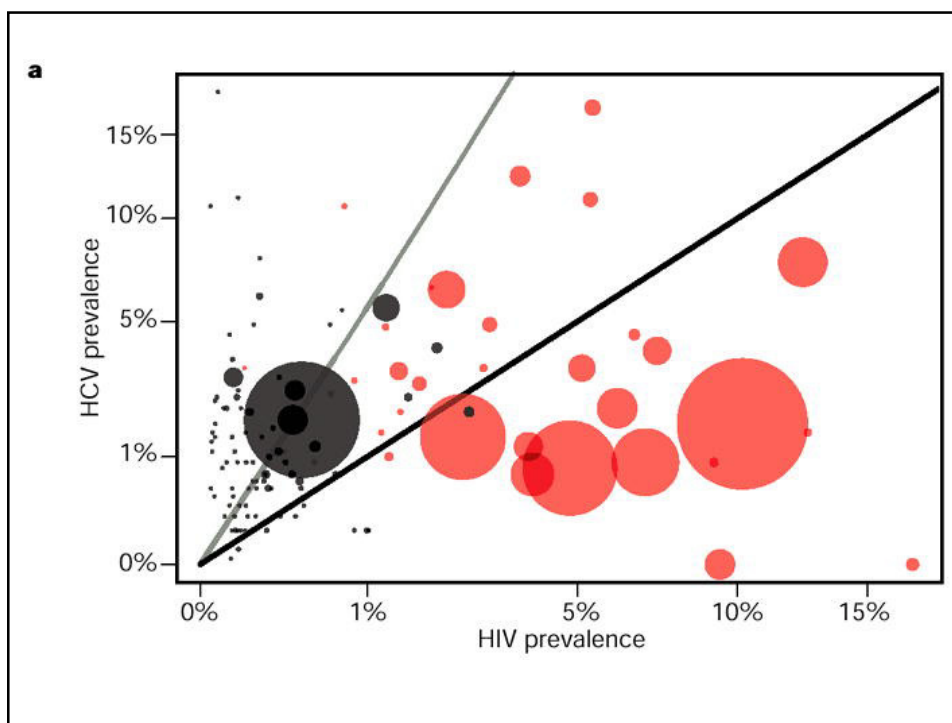


<http://www.nytimes.com/interactive/2016/07/05/upshot/is-sushi-healthy-what-about-granola-where-americans-and-nutritionists-disagree.html>



Display Types

- Tables
- Charts
 - Line (simple, multiple)
 - Bar (simple, clustered, stacked, 100%; vertical, horizontal)
 - Pie
- Plots
 - Histograms
 - Box
 - Scatter
 - Regression-related
- Maps
- And many others including combinations the above

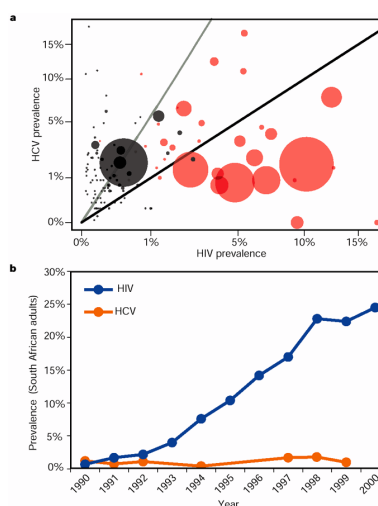


Nature 422, 679 (17 April 2003)

Epidemiology: Sexual transmission of HIV in Africa

Polly R. Walker, Michael Worobey, Andrew Rambaut, Edward C. Holmes and Oliver G. Pybus

Figure 1 Comparison of epidemic histories of human immunodeficiency virus (HIV) and hepatitis C virus (HCV) in different countries, and in South Africa during the 1990s. **a**, HCV and HIV prevalence in the general population (including children) of every country for which data are available. The arcsine square-root transformation for proportions was used because the original distribution of points was strongly L-shaped. Sub-Saharan African countries are represented by red circles; other countries are represented by black circles; the radius of each circle is proportional to the number of HIV infected individuals in that country. Countries below the black line have a higher prevalence of HIV than HCV; the opposite is true for countries above the black line. The grey line represents an HCV:HIV prevalence ratio of 6, which indicates the relative parenteral transmissibility of the two pathogens [3](#). All prevalence figures apart from five HCV values were obtained from World Health Organization sources. **b**, HIV and HCV prevalence in South African adults from 1990 to 2000 (estimates for HIV from ref. [6](#); estimates for HCV from sources listed in supplementary information).

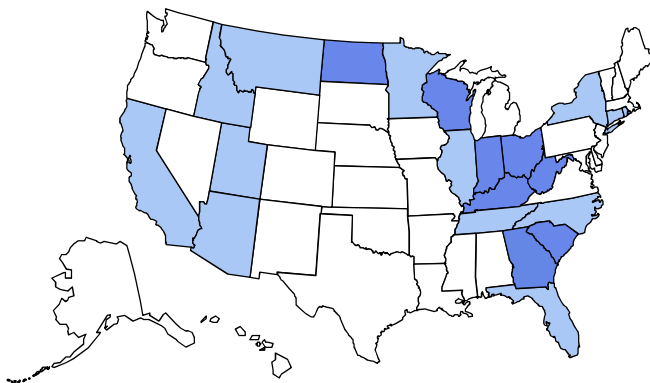


NATURE | VOL 422 | 17 APRIL 2003 | www.nature.com

Obesity Trends* Among U.S. Adults

BRFSS, 1985

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)

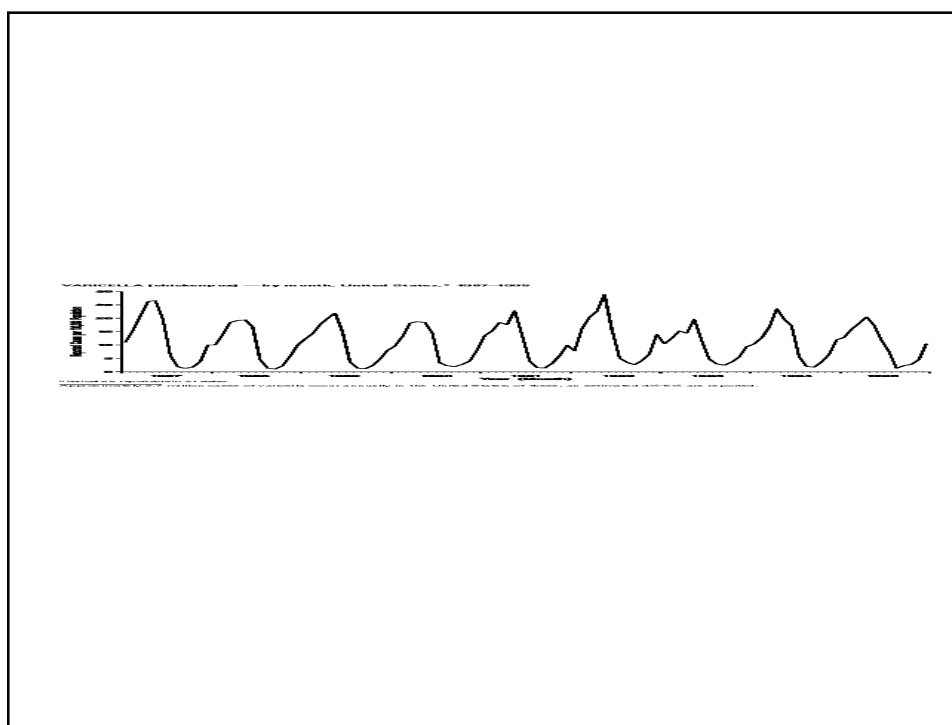
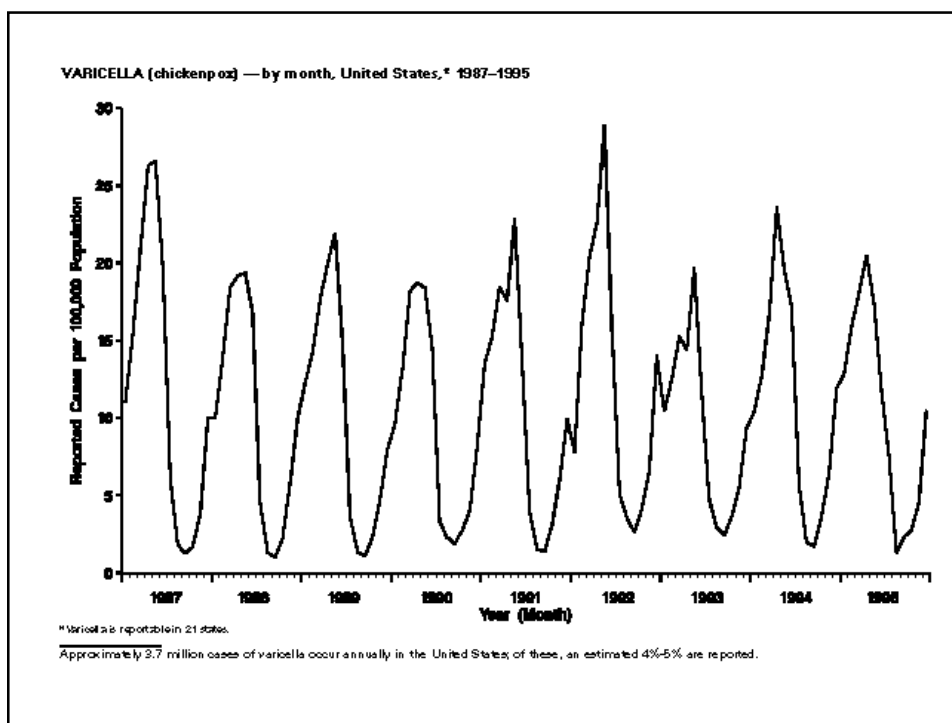


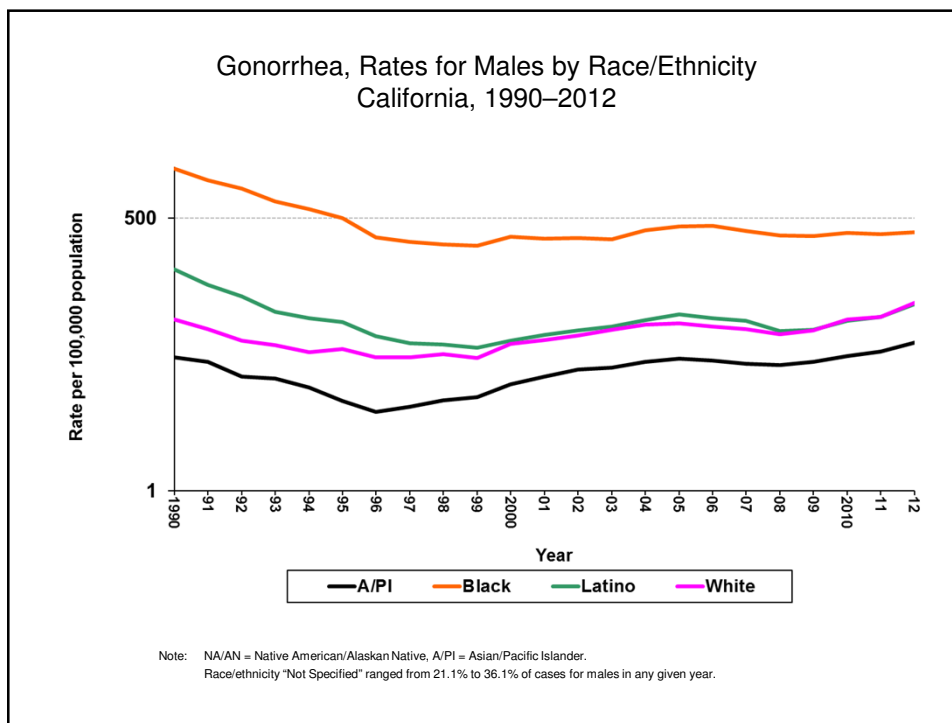
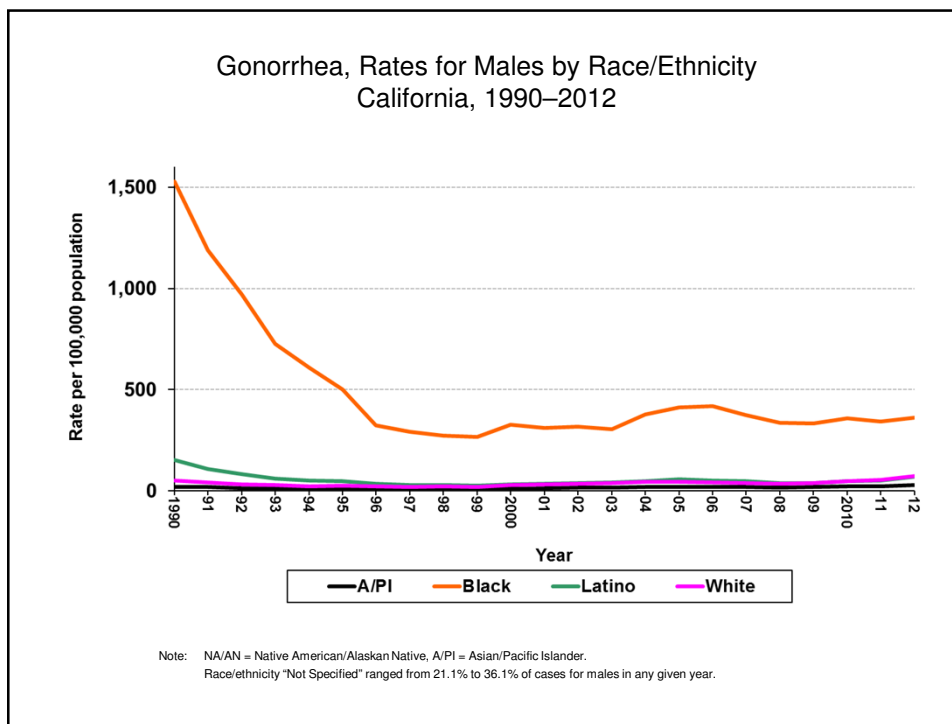
[Slides](#)

<http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/>

“Nut and Bolts”

- Scale and Proportion
- Labels and Legends
- Grid Lines
- Color
- Animation/“PowerPoint”
- Font
- 3D
- Production/Reproduction
- Chart Junk
- Software





For More Information:



Part 1 "General Concepts"

Part 1a: http://youtu.be/1c41eMOjt_U

Part 1b: <http://youtu.be/XIKA2hgg-rY>

Part 2 "Nuts and Bolts"

Part 2a: <http://youtu.be/pUDcGlulfW8>

Part 2b: <http://youtu.be/YCRyVPpz-yk>

Week 2

Why Use R for Visual Display

- Data, calculations/statistics, text and any other information can be placed with code anywhere on any type of visual display
- Mind-blowing array of plotting functionality from core program and contributed packages
- Flexible system for getting data “in”
- Powerful system for organizing, processing, formatting and analyzing data
- Flexible system for getting visual displays out

