

Overview of Data Visualization



Turning Data into Art

The purpose of visualization is insight, not pictures.

- Henry D Hubbard

Visualizations act as a campfire around which we gather to tell stories.

- Al Shalloway

Above all else, show the data.

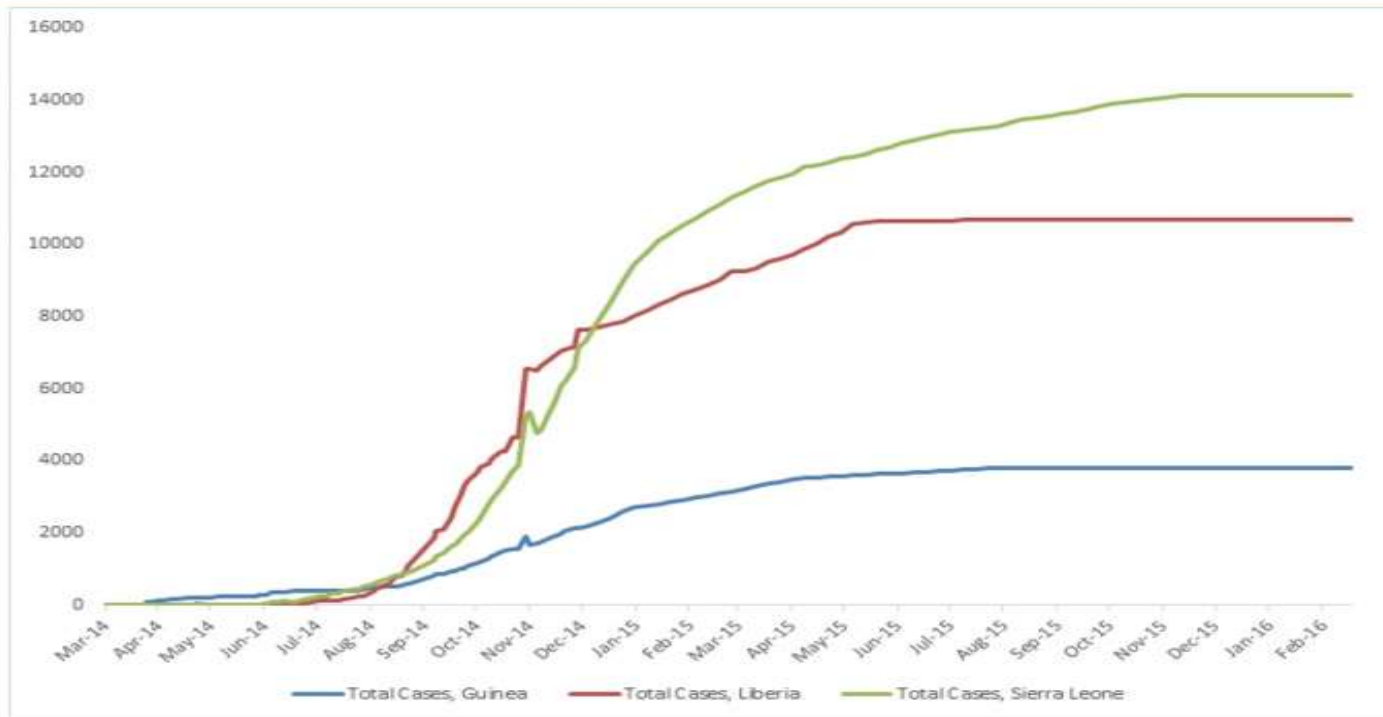
- Edward Tufte

Data from 2014 Ebola Outbreak

WHO report date	Total Cases, Guinea	Total Deaths, Guinea	Total Cases, Liberia	Total Deaths, Liberia	Total Cases, Sierra Leone	Total Deaths, Sierra Leone
7/24/14	415	314	224	127	454	219
7/28/14	427	319	249	129	525	224
7/31/14	460	339	329	156	533	233
8/3/14	472	346	391	227	574	252
8/4/14	485	358	486	255	646	273
8/8/14	495	367	554	294	717	298
8/12/14	506	373	599	323	730	315
8/13/14	510	377	670	355	783	334
8/15/14	519	380	786	348	810	348
8/19/14	543	394	834	466	848	365
8/21/14	579	396	972	576	907	374
8/22/14	607	406	1082	624	910	392
8/28/14	648	430	1378	694	1026	422
9/6/14	812	517	1871	1089	1261	491
9/8/14	862	555	2046	1224	1361	509
9/12/14	861	557	2081	1137	1424	524
9/16/14	936	595	2407	1296	1620	562
9/18/14	942	601	2710	1459	1673	562
9/22/14	1008	632	3022	1578	1813	593
9/24/14	1022	635	3280	1677	1940	597
9/26/14	1074	648	3458	1830	2021	605
10/1/14	1157	710	3696	1998	2304	622
10/3/14	1199	739	3834	2069	2437	623
10/8/14	1298	768	3924	2210	2789	879
10/10/14	1350	778	4076	2316	2950	930
10/15/14	1472	843	4249	2458	3252	1183

Line Graph

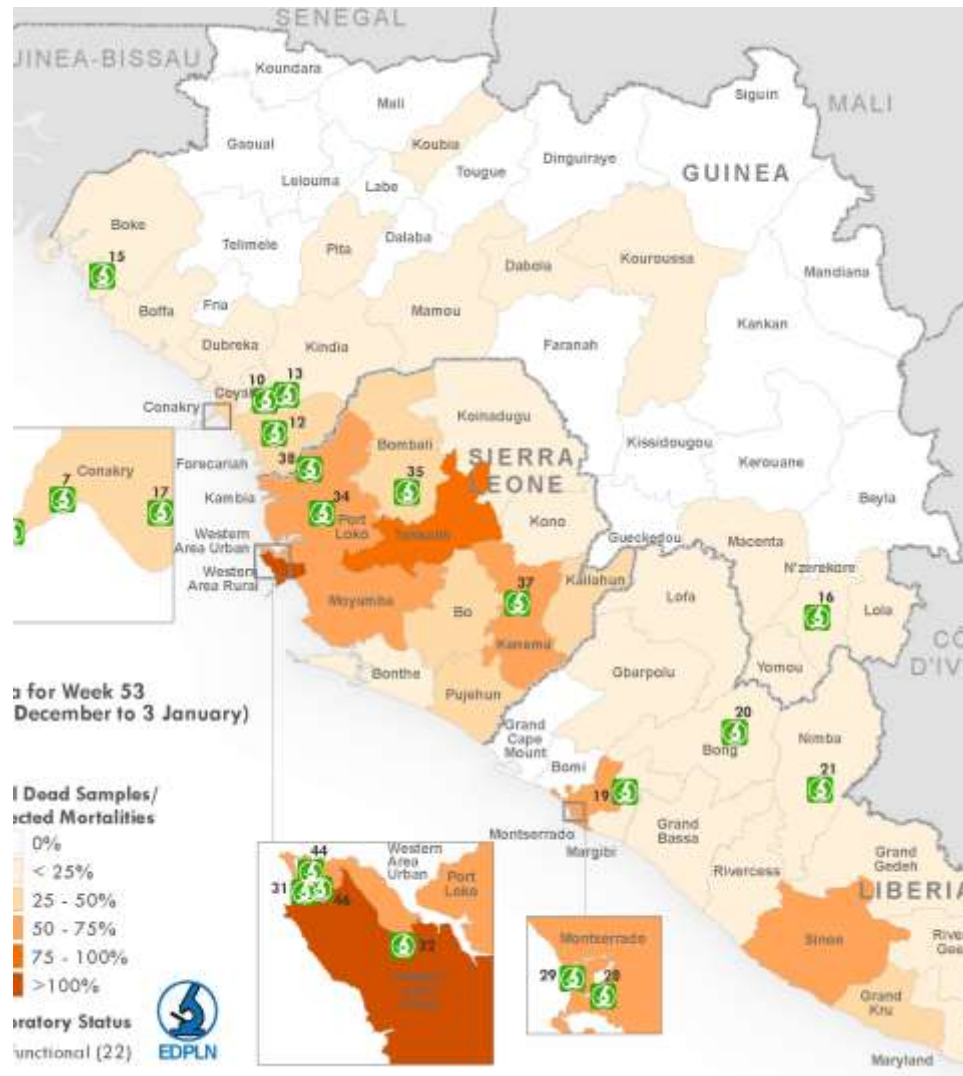
Graph 1: Total suspected, probable, and confirmed cases of Ebola virus disease in Guinea, Liberia, and Sierra Leone, March 25, 2014 – February 14, 2016, by date of WHO Situation Report, n=28603



Graph 1 shows the total reported suspected, probable, and confirmed cases in Guinea, Liberia, and Sierra Leone provided in [WHO situation reports](#) beginning on March 25, 2014 through the most recent situation report on February 17, 2016.

[Reported suspected, probable, and confirmed cases in Guinea, Liberia, and Sierra Leone](#) [CSV - 1 page]

Map



Infographic

Contact tracing is finding everyone who comes in direct contact with a sick Ebola patient. Contacts are watched for signs of illness for 21 days from the last day they came in contact with the Ebola patient. If the contact develops a fever or other Ebola symptoms, they are immediately isolated, tested, provided care, and the cycle starts again—all of the new patient's contacts are found and watched for 21 days. **Even one missed contact can keep the outbreak going.**



Data Visualization

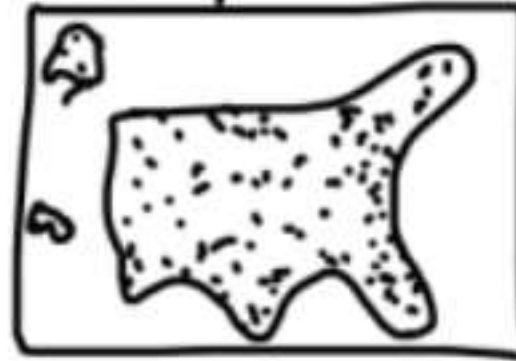
- Data Visualization helps to **visually represent** data
- Helps **tell the story**
- Great **tool** for advocacy and decision making
- Aids **visual perception** and **cognitive thinking**

Traditional Designs

Scatter plot



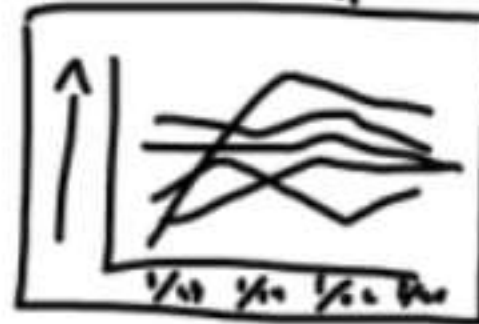
Map



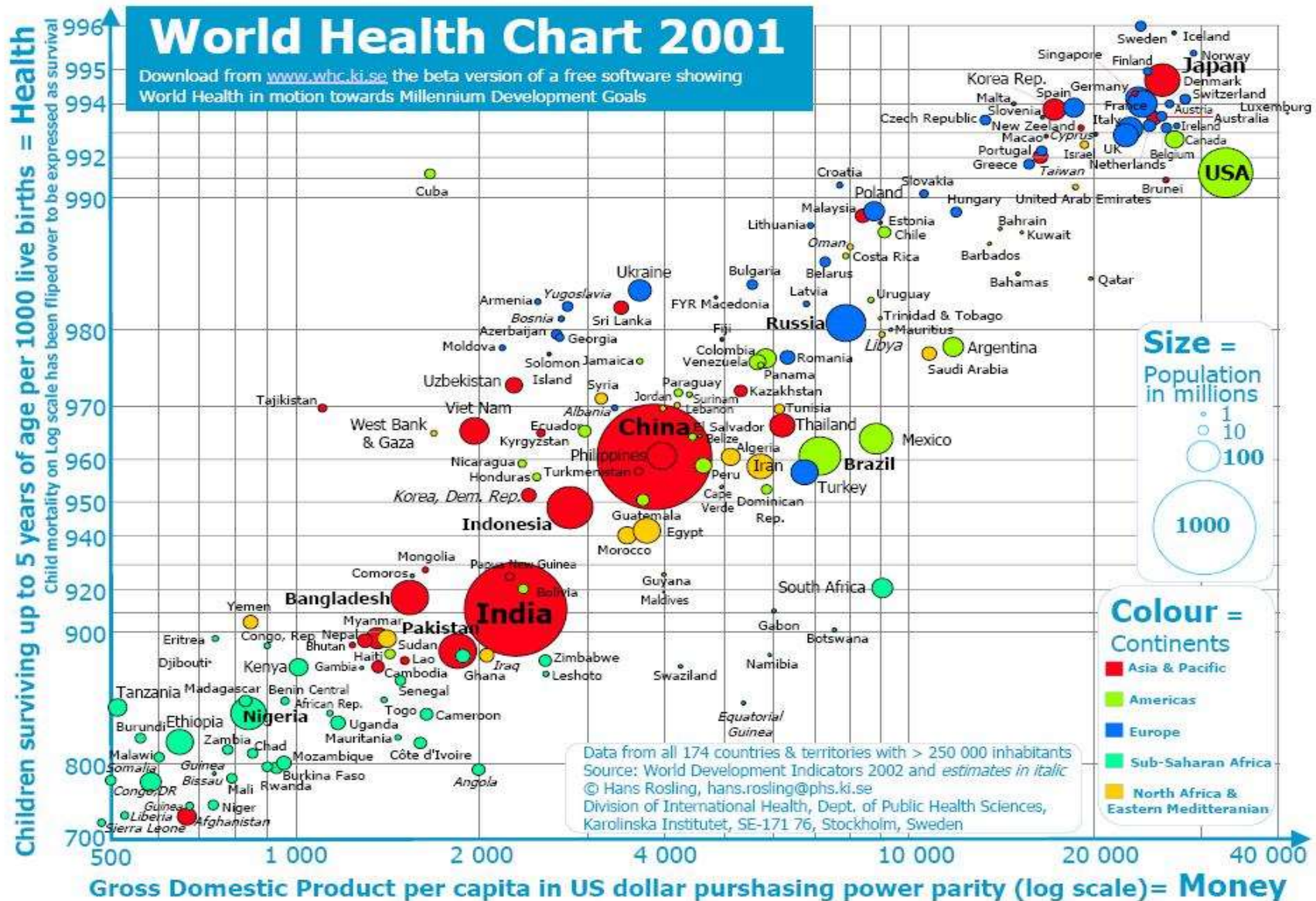
Dot Plot



Line Graph



More Examples

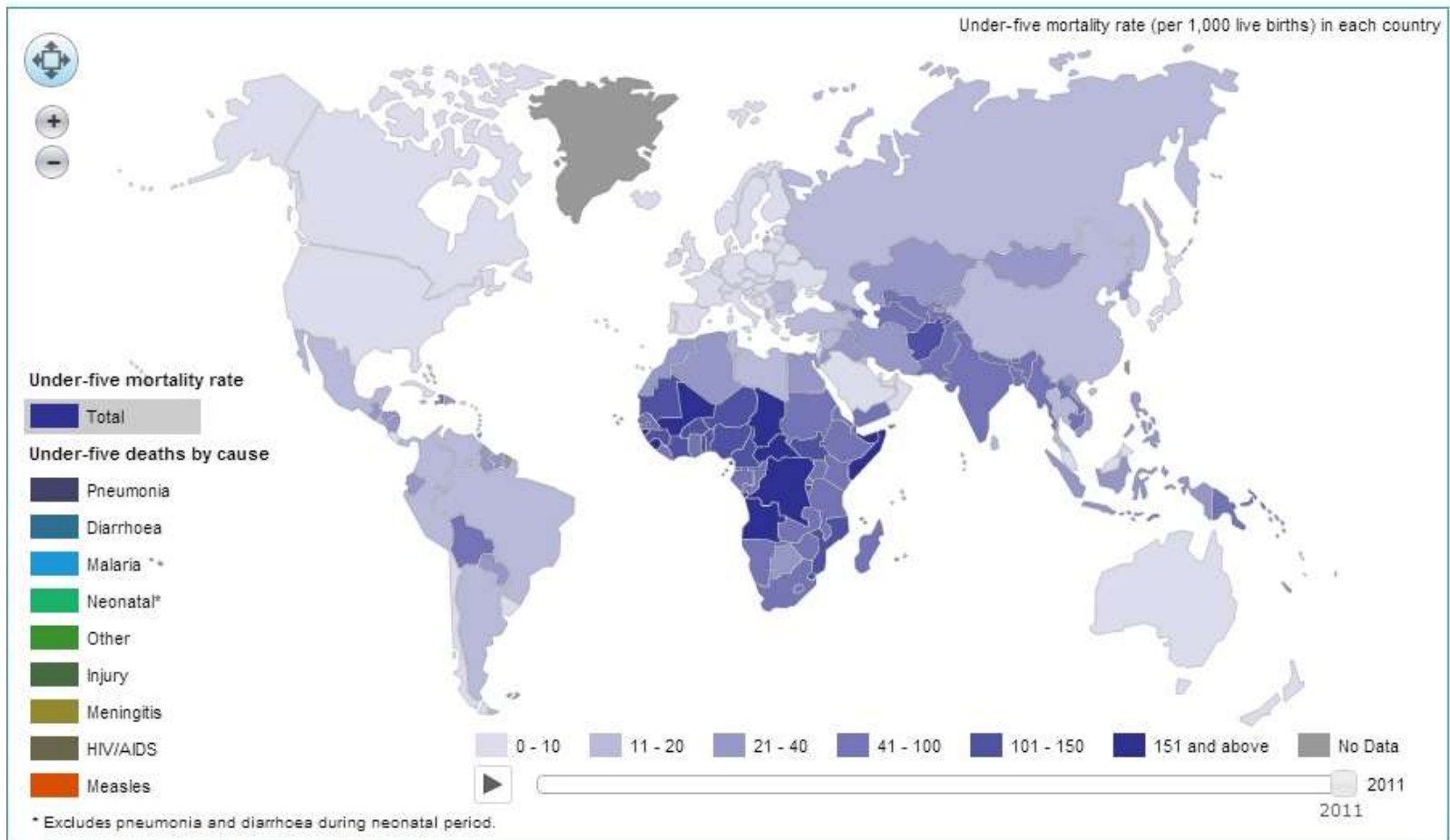


Infographics and Dashboards

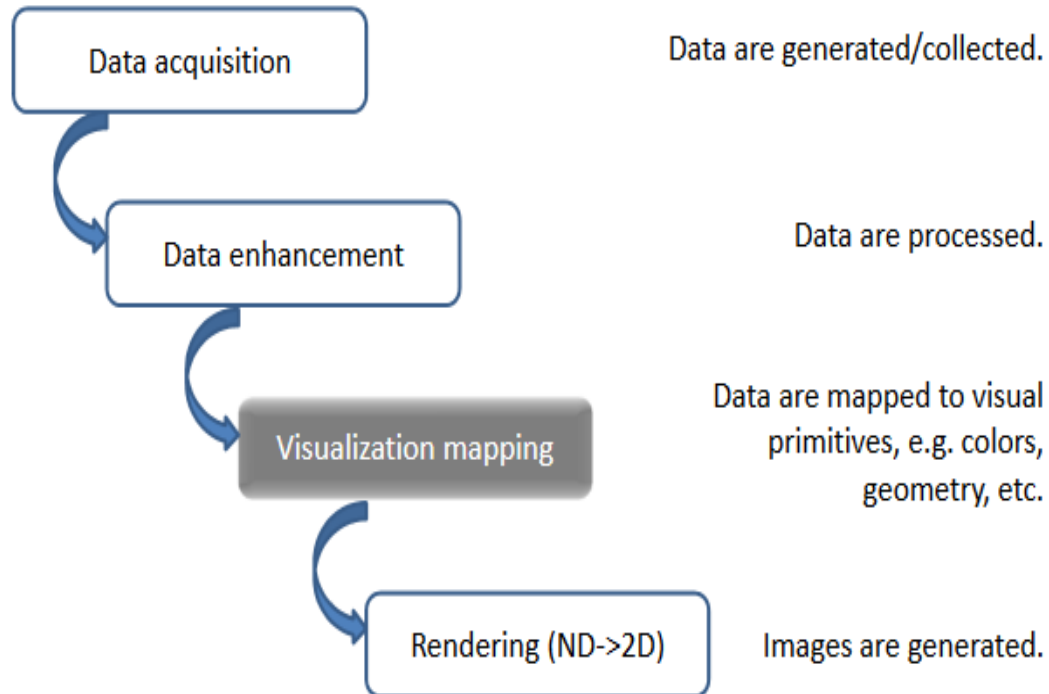


Select country: ▼

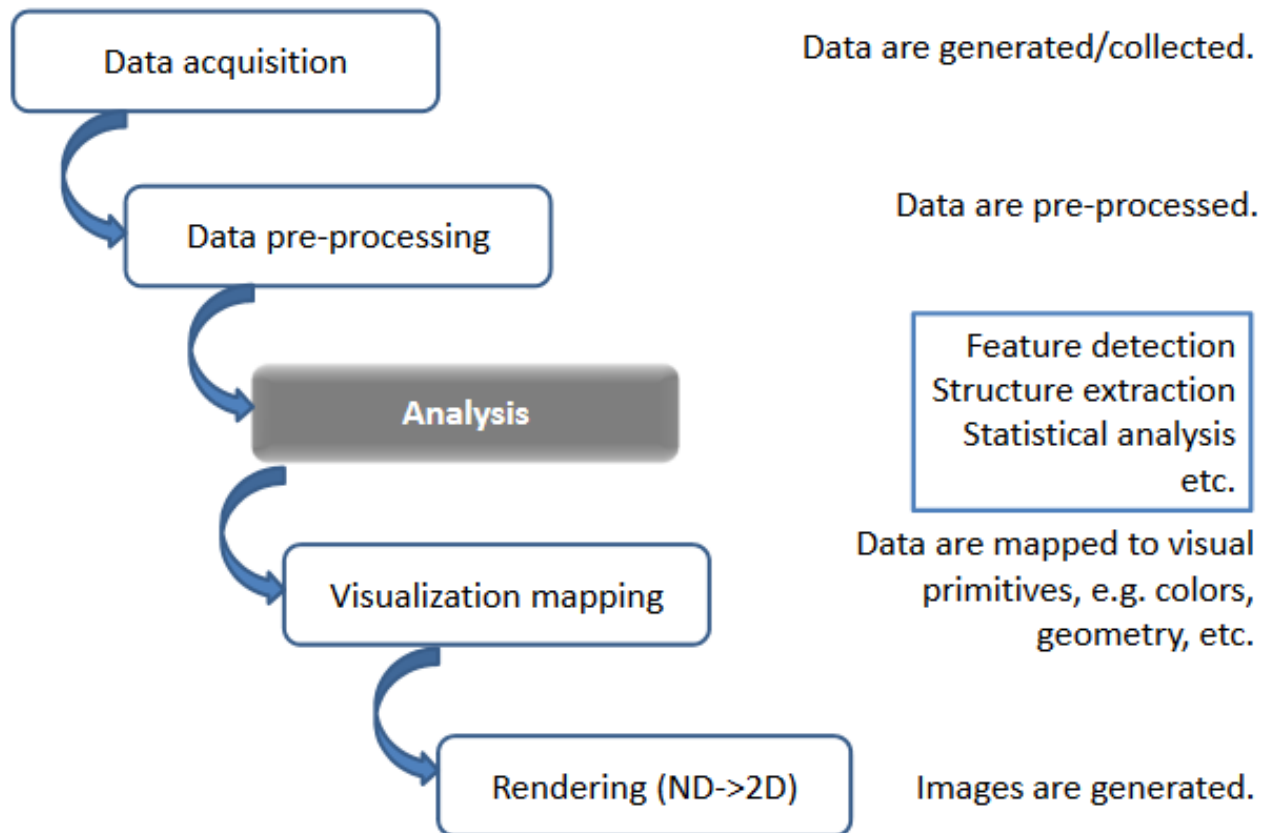
UNDER-FIVE MORTALITY RATE IN EACH COUNTRY



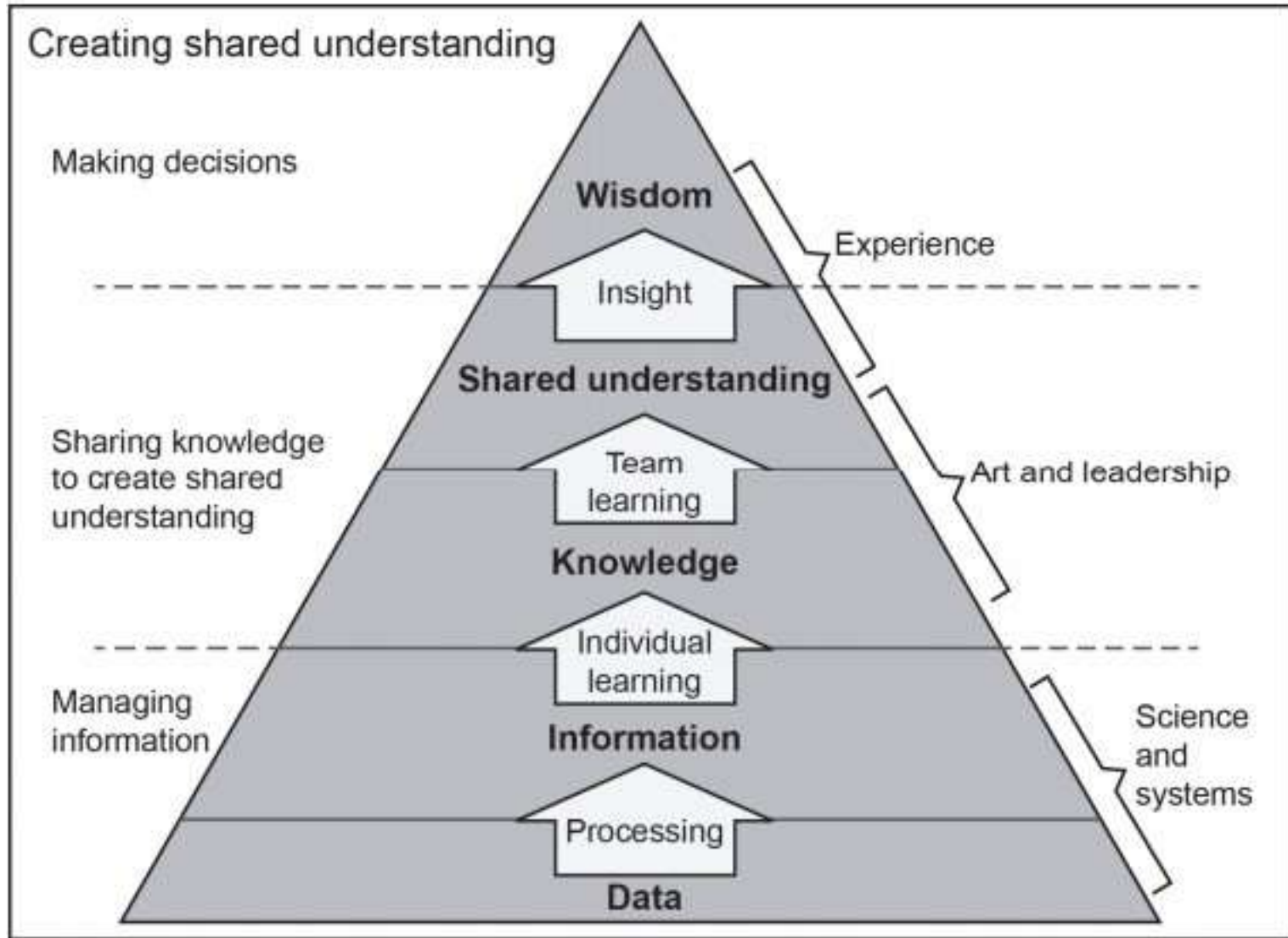
A Visualization Pipeline



Data Visual Analytic Pipeline



Reality to People's Brains



Important Steps



1. Identify your audience & context

- Who are the stakeholders?
- What do they need to know?



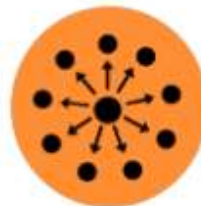
2. Find the story in your data

- What information do you have?
- Are there identifiable patterns, trends, surprises, relationships, successes or failures?



3. Build your Visualization

- Sketch first!
- Choose the right type of chart for your data
- Simplify
- Use pre-attentive attributes to highlight your story



4. Disseminate, share, and use!

- How will this visualization be used?
- What is the ideal format?
- Good data visualization ensures that data are read, understood, and used for evidence-based decision-making.

Know your Audience

- Align data visualizations with the **goals** of your stakeholders
- Consider their **literacy**
- Don't assume everyone is comfortable with **technology**
- Think about how your audience will **use** the visualizations

Find your Story

- Look for patterns, trends, and surprises
- Compare and contrast
- Avoid cherry picking
- Avoid exaggeration



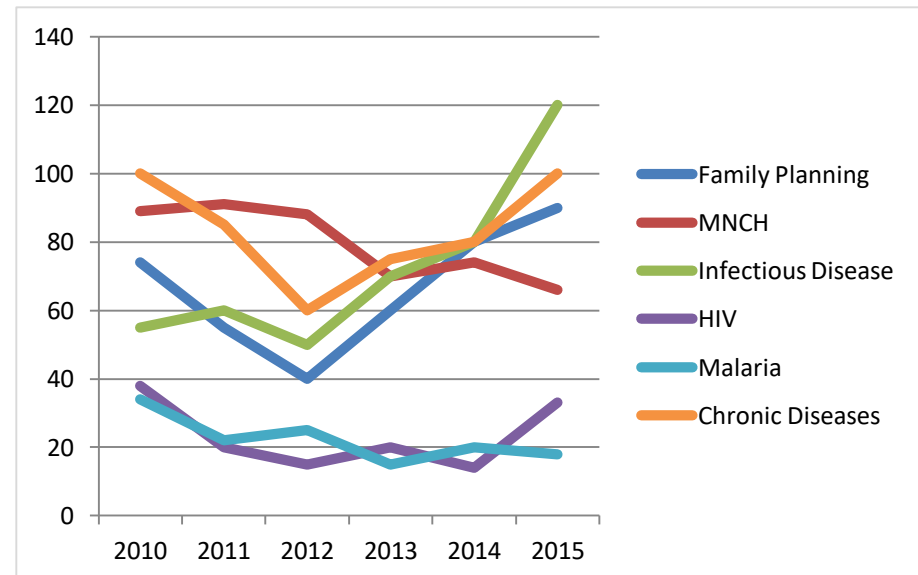
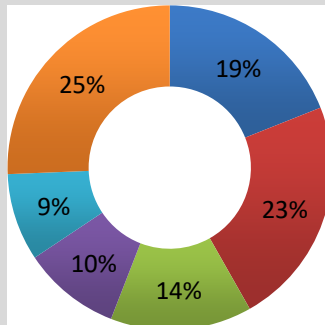
Consider design



- Choose the right image to represent your data
- Try sketching on paper to brainstorm

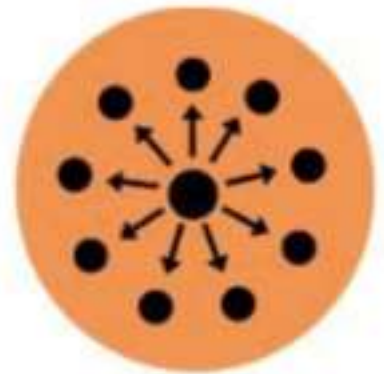
In-Service Training Needs of all Nurses in X District

Family Planning MNCH Infectious Diseases
HIV Malaria Chronic Diseases



Share and Communicate

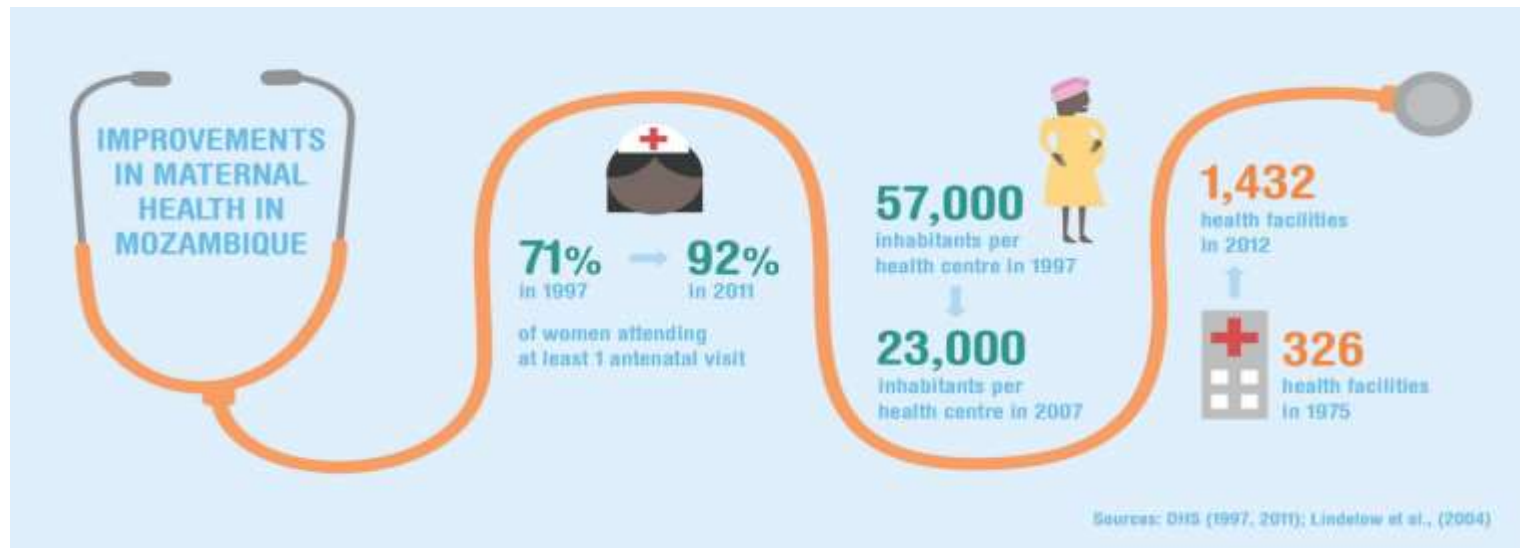
- Obtain input and **feedback** from your colleagues
- Sharing data visualization can help **improve awareness and use of data**
- Consider sharing through **social media**



Build with Tools You Know



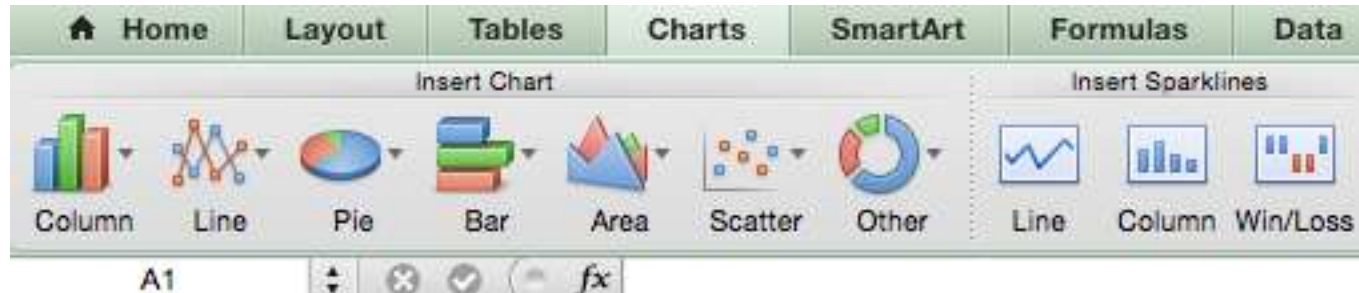
- Maintain focus for your target audience
- Simple images
- Keep data focused
- Ensure it is easy to read
- Include a great headline
- Make sure the information flows
- Cite your sources



Build with Tools You Know



- Use Excel to Create Pie Charts, Line Graphs, Scatter Plots and more



- Helpful tip is to use the Filter to help identify data you want to use. This can help you identify the counts you need for making charts.

