



## Visually Communicating Public Health Data

**Niquette Kelcher**  
Visual Communications Director  
Washington State  
Department of Enterprise Services

**Vonda Witley**  
Information Design Specialist  
Washington State  
Department of Health

Washington State Department of Enterprise Services

Washington State Department of Health

hot topics in practice

Northwest Center FOR PUBLIC HEALTH PRACTICE

---

---

---

---

---

---

---

---



## STORY

---

---

---

---

---

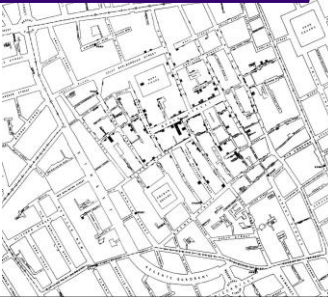
---

---

---

### London's 1854 Cholera Outbreak

- Public health example of storytelling with data
- The beginning of disease mapping and epidemiology



---

---

---

---

---

---

---

---

### Public Health's Role Today

- 10 Essential Public Health Services
- Data + Communication
- Serving many audiences



---

---

---

---

---

---

---

---

### Question for the Viewers

Who is your primary audience?

- A. Public health professionals
- B. Community leaders or policy makers
- C. Healthcare providers
- D. Public or special populations
- E. Other

---

---

---

---

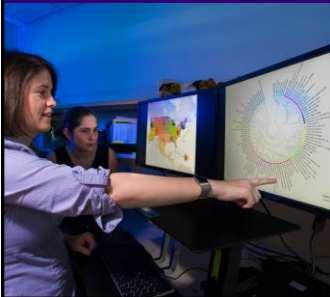
---

---

---

---

### Health Communication Defined



"...influence, engage, empower, and support individuals, communities, healthcare professionals, patients, policymakers, organizations, special groups, and the public so that they will champion, introduce, adopt, or sustain a health or social behavior, practice, or policy that will ultimately improve individual, community, and public health outcomes."

(Renata Schiavo, 2014)

---

---

---

---


---

---

---

---

### Information Design Defined



"[Information design] helps users understand complex data by **organizing and simplifying data and information in ways they can quickly grasp.**"

(Society for Experiential Graphic Design)

---

---

---

---

---

---

---


---

### Making Sense of Data

**"Data sensemaking** is what we do to make sense of data... Helping people understand the world based on data is important work. Without understanding, we often make bad decisions."

Successful data sensemaking requires **time** and **attention**.

(Stephen Few, 2019)



---

---

---

---


---

---

---

---

### Our Approach



- Know your Content
- Know your Audience
- Know your Purpose
- Show your Story

---

---

---

---

---

---

---

---

### Know Your Content

- Investigate
- Collaborate
- Iterate



---

---

---

---

---

---

---

---

### Know Your Audience

#### How well do you know the audience?

- Culture, geography, ethnicity, age, gender context
- Perceptions, beliefs, attitudes, behaviors
- Friendly? Apathetic? Uninformed? Hostile?

Continued...



---

---

---

---

---

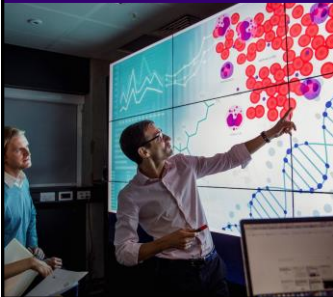
---

---

---

### Know Your Audience

- Familiarity – what do they already know about the topic?
- Time – how much time will they spend with the data?
- Preference – how do they like to receive information?
- Develop a persona for the target audience



---

---

---

---

---

---

---

---

### Know Your Purpose

#### So What?

Single Overriding Communication Objective (SOCO):

- Target, primary audience
- 1 key message
- 3 supporting facts

Continued...




---

---

---

---

---

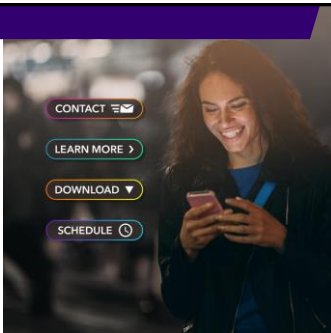
---

---

---

### Know Your Purpose

- What do you want people to DO?
- How do you want people to use the information you are delivering, and they are receiving?
- Is your call-to-action communicated clearly?




---

---

---

---

---

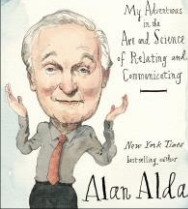
---

---

---

### Show Your Story

If I Understood You, Would I Have This Look on My Face?



"The person who is communicating something is **responsible** for how well the other person follows him...If I tell you something without making sure you got it, **did I really communicate anything?**"

(Alan Alda, 2017)

"An effective data presentation may look pretty, but the true goal is to **support audience cognition.**"

(Stephanie Evergreen, 2017)

---

---

---

---

---

---

---

---




---

---

---

---


---

---

---

---

**Visual Communication Definitions**



**Graphic Design**  
 Art with a purpose  
 Thoughtfully improving the appearance and function of messages and information

- **Information Design**  
 Discipline within graphic design  
 Efficient and effective display of concepts or information
- **Data Visualization**  
 Subset of information design  
 Graphical representation of data using visual elements like charts, graphs, and maps
- **Infographic**  
 Product of information design and data visualization  
 Includes data, copy, or both

---

---

---

---

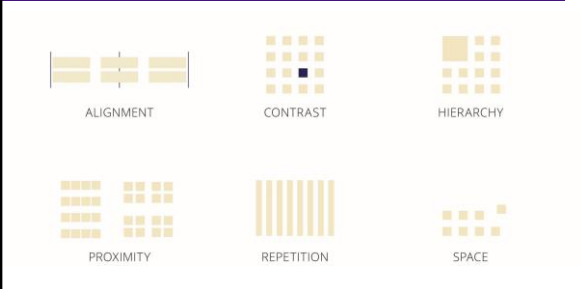
---

---

---

---

**Design Fundamentals**



ALIGNMENT      CONTRAST      HIERARCHY

PROXIMITY      REPETITION      SPACE

---

---

---

---

---

---

---

---

Data Visualization Function

- Explain
- Explore
- Experience



---

---

---

---

---

---

---

---

Data Visualization Form

75%

SINGLE NUMBER  
Text



COMPARISON  
Bar chart



TIME  
Line chart



GEOGRAPHY  
Map



PART-TO-WHOLE  
Pie chart



RELATIONSHIP  
Scatterplot

---

---

---

---

---

---

---

---

Question for the Viewers



How do you typically present your data?

- A. Live presentation (ex. PowerPoint)
- B. Online publication (ex. PDF)
- C. Printed report or data brief (ex. Paper)
- D. Online dashboard (ex. Tableau)
- E. Other

---

---

---

---

---

---

---

---

What is Changing



**Data is big**

- Access to data
- Creation tools
- Data literacy

---

---

---

---

---

---

---

---

What is Needed



**Effective data viz**

- Clear intention
- Critical thinking
- Good design —  
Form follows function

---

---

---

---

---

---

---

---

Emulate Modern Masters

**Three teachers, three angles**

- Alberto Cairo
- Stephanie Evergreen
- Cole Nussbaumer Knaflic

CAIRO

EVERGREEN DATA  
INTENTIONAL REPORTING & DATA VISUALIZATION

storytelling WITH data

---

---

---

---

---

---

---

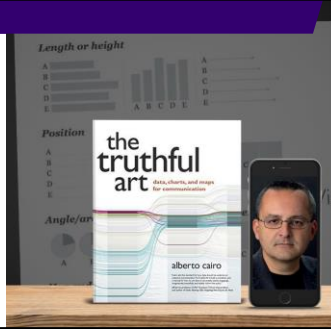
---



Alberto Cairo

**Four principles of good data visualization**

- Good visualizations are based on good data
- They attract your attention
- They represent the data accurately
- They show the right amount of data




---

---

---

---

---

---

---

---

Stephanie Evergreen

**Four step visualization process**

- What's the point?
- Who is the audience and how will it be delivered to them?
- What is the best chart type?
- How can you sharpen the point?




---

---

---

---

---

---

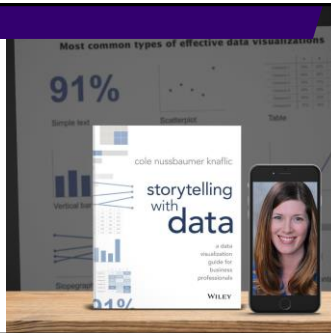
---

---

Cole Nussbaumer Knaflic

**Five key lessons**

- Understand the context
- Choose an appropriate visual display
- Eliminate clutter
- Focus attention where you want it
- Tell a story




---

---

---

---

---

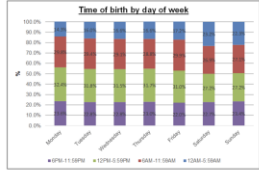
---

---

---

How Cole Eliminates Clutter

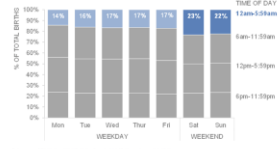
BEFORE



Data source: CDC National Vital Statistics Reports, Vol. 47, No. 1, January 21, 2019.

AFTER

When babies are born  
Weekend deliveries are more likely to be in early morning, compared to weekdays



Data source: CDC National Vital Statistics Reports, Vol. 47, No. 1, January 21, 2019.

(StorytellingWithData blog, 2019)

---

---

---

---

---

---

---

---

---

---

---

---

How We Do It



- Creative process**
- Consultation:  
Pre-design questions
  - Agreement:  
Creative brief or proposal
  - Creation:  
Collaboration and iteration
  - Review and approval
  - Audience testing
  - Publish or disseminate

---

---

---

---

---

---

---

---

---

---

---

---

Creative Process Q&A with Julie Pawlowicz

**Immunization Practices and Policies in Washington State Four Year Colleges and Universities 2016**

M. Patricia deHart, S.D.; Sara Jyoti Sanford, MPH, CHES; Leigh Wallis, MPH; Todd Faulstich, PhD

**Background**

**Methods**

**Survey Questions**

**Conclusions**

How do WA colleges do it?

But what? How what?

---

---

---

---

---

---

---

---

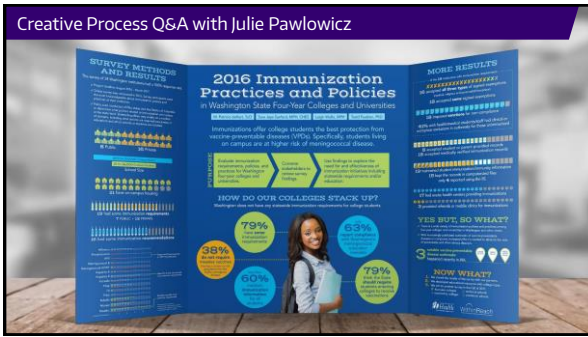
---

---

---

---

Creative Process Q&A with Julie Pawlowicz




---

---

---

---

---

---

---

---

---

---

What You Can Do

- **Look** for examples of good data visualization and good design
- **Learn** more about the ideas presented here today
- **Ask** for help in areas that are not your expertise
- **Know** your content, audience, purpose, and explore more
- **Practice** creating effective data visualization
- **Help** raise the bar for data visualization in public health



(Colours in Culture – Information is Beautiful, 2009)

---

---

---

---

---

---

---

---

---

---

Resources

- Renata Schiavo, *Health Communication: From Theory to Practice*, Second Edition, 2014
- Information Design, Society for Experiential Graphic Design: <https://seigd.org/what-information-design/>
- Stephen Few, 7/22/19 blog: <http://www.stephen-few.com/blog/2019/07/22/ethical-data-sensemaking/>
- SOCO template, CDC: <https://www.cdc.gov/healthywater/emergency/dwa-comm-toolbox/before/tools/SOCO-Worksheet.docx>
- Stephanie Evergreen, *Presenting Data Effectively: Communicating Your Findings for Maximum Impact*, Second Edition, 2017
- Alan Alda, *If I Understood You, Would I Have This Look on My Face? My Adventures in the Art and Science of Relating and Communicating*, 2017
- Storytelling With Data, 5/13/19 blog: <http://www.storytellingwithdata.com/blog/2019/5/13/declutter-and-question-defaults>
- Colours in Culture: <https://informationisbeautiful.net/visualizations/colours-in-cultures/>

---

---

---

---

---

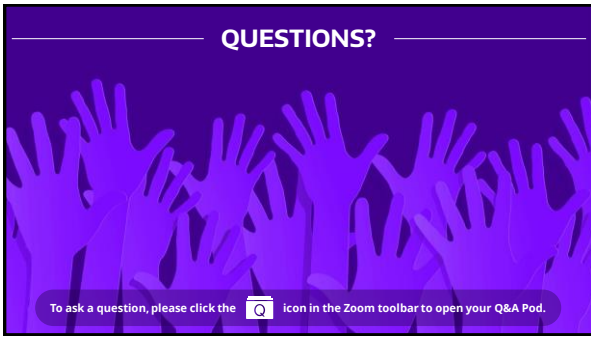
---

---

---

---

---



---

---

---

---

---

---

---

---