

Chronic Disease Evaluation Series

Lesson 4

Data Visualization and Reporting

Dr. Virginia Dick, Deputy Epidemiology Director & Chief Evaluator

CSTE

May 14, 2015

2pm – 3pm Eastern



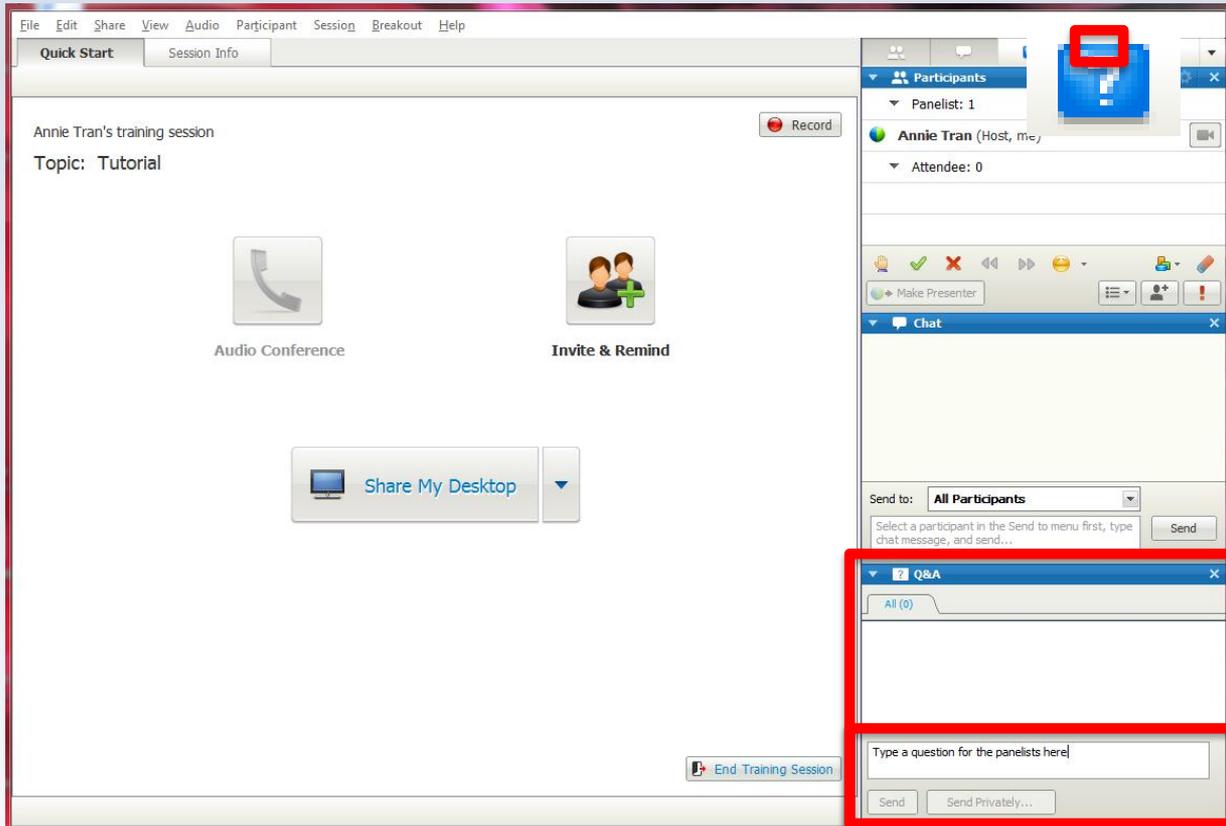
**COUNCIL OF STATE AND
TERRITORIAL EPIDEMIOLOGISTS**

Webinar Housekeeping

- Please note that today's webinar is being **recorded**
 - The presentation slides and recording will be available on the CSTE website in the Webinar Library (<http://www.cste.org/?page=WebinarLibrary>)
- All phone lines have been placed on **mute**.
 - To hear the audio, Dial in number: **877-668-4490**; Access code: **797 214 704**
- After the speakers' remarks, there will be a question-and-answer period
 - To ask a question, please use the **Q&A box** on the **right side of your screen**
- When the webinar ends, you will be redirected to an evaluation
 - Please complete the evaluation!

To Ask a Question

- Open the Q&A box on the right side panel on your screen
- Type a question
- Send it to All Panelists
- Questions will be answered during the Q&A period



Discussion Boards

- Discussion board
 - <http://cste.freeforums.net/>
 - Create account
 - References, Resources, Discussions
- Purpose of the series
 - Provide a BROAD overview of evaluation

Objectives

- **Examine different methods for visualizing data**
- **Discuss the different data visualization methods for qualitative and quantitative data**
- **Understand how to determine the best types of reports for different stakeholders**
- **How to select the most powerful reporting tools for different needs/audiences**

Lesson 4 Overview

Data Visualizations

- Types of data
- Communication needs
- Target audience
- Create the full story

Report considerations

- Audience
- Project/Evaluation type
- Purpose of the report
- Communication objectives

What to include? What to report?

Project/Program Background

Process Evaluation

Outcome Evaluation

Recommendations

Poll

True or False –

A single evaluation may need several different report types.

Visualization in Evaluation

- **Planning**
 - Logic models
 - Decision trees
- **Monitoring and implementation**
 - GIS mapping
 - Demonstrating current status, baseline
 - Showing change over time

Data Visualization

- **Difference between data visualization and data analysis**
- **Visualizations should tell the story**
- **Know the goal of your visualization – standalone or supportive**
- **Approachable to target audience**
- **Easily understood and explained**
- **Appropriate for the type of data**

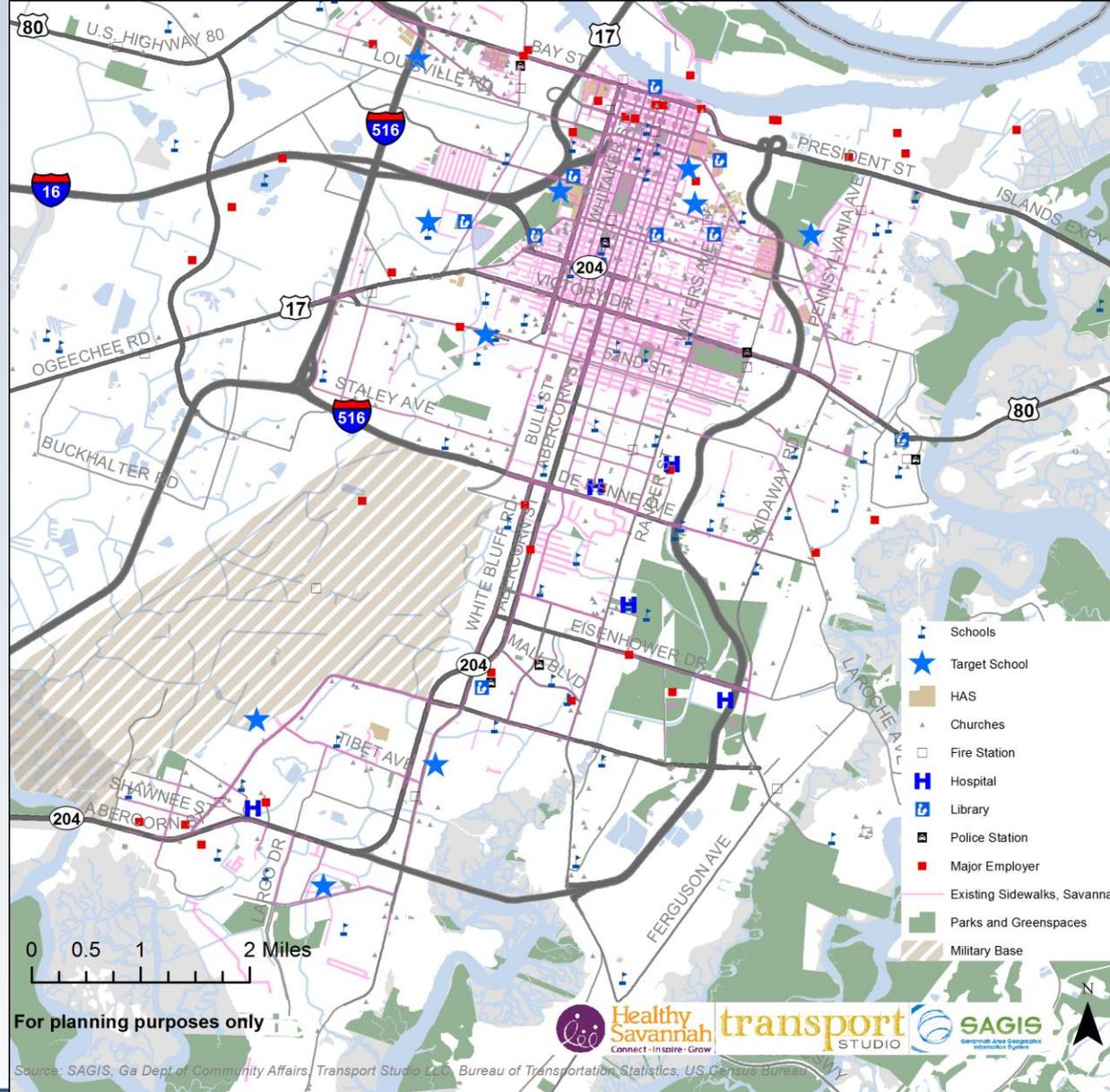
Data Visualization

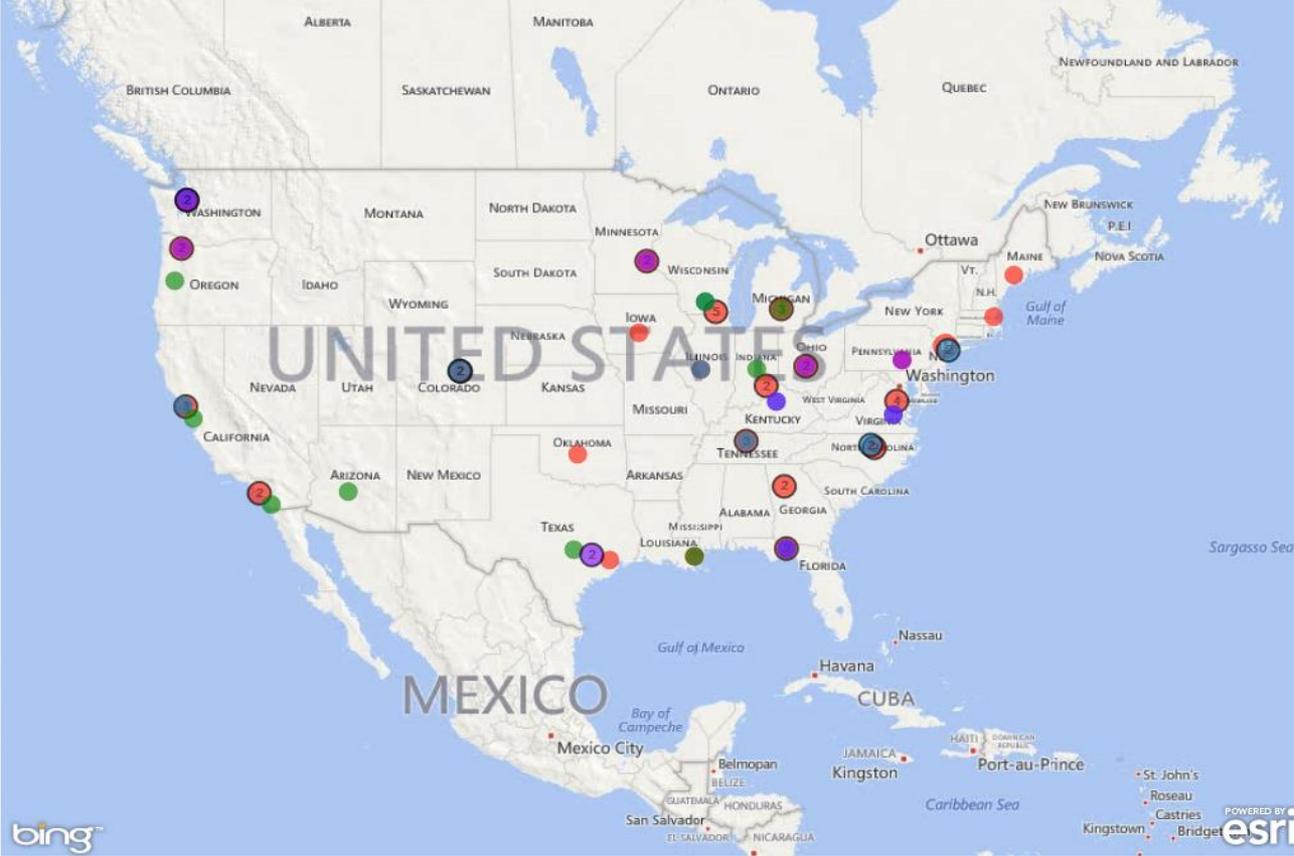
What are you trying to convey?

- Current status
- Progress made to date
- Solicit ideas, recommendations, or feedback
- Convince your audience
- Relay final outcomes

Keeping it Clear

- Logical presentation of data
- Legend and label of information
- Use of color
- Using with Text
- Showing relationships
- Combining data to tell the full story





Subject of Placement

	All fellows	
	N	%
Chronic Disease	15	7%
Infectious Disease	66	33%
Birth Defects & Developmental Disabilities	5	2%
Environmental Health	26	13%
Maternal & Child Health	34	17%
Influenza	1	0%
Injury	7	3%
Quarantine	15	7%
Substance Abuse	4	2%
HAI	24	12%
Occupational Health	3	1%
Food Safety	2	1%

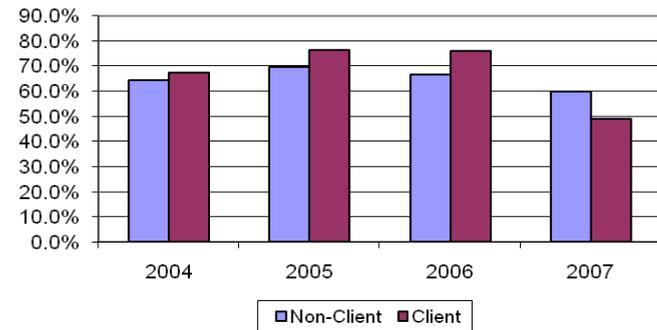
Data Visualization

Where and to whom will the information be presented

- **Conference presentation – Poster or Paper**
- **Final written report to project leads or funders**
- **Briefing summary for policy/decision makers**
- **Community meeting**
- **Formal scientific/peer-reviewed publication**
- **Annual report for organization/agency**
- **One-page project summary**



Black Non-Hispanics Receiving At Least Adequate Prenatal Care Based on the Kotelchuck Index



The proportion of membership that represents local public health agencies has increased over the past year and a half from September 2013 through July 2014. The number of local epidemiologists involved with CSTE has risen from 100 to 165 in the past year.



Data Visualization

- **Find ways to incorporate qualitative and quantitative**
 - **Types of graphs**
 - **Wordles**
 - **Pictures**
 - **Maps**
- **Utilize data to tell the story**
- **Data visualization should convey the story**
- **Visualization should be tailored to purpose**

Poll

- **Is a Wordle a:**
 - **Data analysis tool**
 - **Data visualization tool**
 - **Neither of the above**

Report considerations

Types of reports

One page summaries

Executive summaries

Briefing reports

Conference presentations

Community meetings

End of project reports

Annual reports

Planning documents

Conference posters

Marketing materials

Looking Long-Term: How to Utilize a Decade of Applied Epidemiology Fellowship Data to Evaluate Effectiveness

American Evaluation Association Annual Conference 2013 – October 2013

Background

The CDC/CSTE Applied Epidemiology Fellowship (AEF) was created in 2003 to strengthen the workforce in applied epidemiology at state and local health agencies. CSTE, in collaboration with CDC, HRSA, and ASPPH, established the two year program to give recent graduates from public health programs rigorous preparation and advanced training for successful careers as state or local applied epidemiologists.

The fellowship uses a mentorship model. Host health agencies must demonstrate capacity to provide an AEF fellow with technical training, research opportunities, and practical experience in the application of epidemiologic methods at the state and local level.

Program areas include Chronic Disease, Injury, Substance Abuse, Environmental Health, Maternal and Child Health, Infectious Diseases, and Occupational Health.

There have been 11 classes of fellows who have participated in the fellowship, with over 240 fellows. Recently CSTE began an intensive evaluation process to assess the long-term impact of the program on the state and local public health capacity and on the individual participants. Longitudinal employment data and professional development data has been analyzed for over 90 of the alumni.



Dr. Virginia Dick, PhD
Evaluation Coordinator
vdick@cste.org

Amanda Masters, MPH
Director of Workforce Development
amasters@cste.org

Methodology

This internal utilization focused evaluation uses a mixed methods design. The evaluation relies on the engagement of alumni, staff, and host site participants to inform the evaluation and the interpretation of data findings. Data is gathered on an ongoing basis from alumni, staff, and mentors; as well as current fellows.

The evaluation is designed to address several questions including: Is the program implemented as planned? How geographically broad is the impact of the program? Does the fellowship increase applied epidemiology capacity at state/local/and tribal public health agencies.

Data is gathered through a variety of mechanisms including: Fellowship applications, Surveys of fellows/alumni/and mentors; Progress reports from fellows throughout participation; Training evaluations, Interviews with fellows/alumni and mentors; and record review.

The evaluator works with fellowship administrative staff to collect data through all of the above mentioned mechanisms. Data is then consolidated into a large database which has recently been developed to allow for longitudinal analysis of all fellow outcomes over time. Data is analyzed using basic statistical analysis (frequencies, chi-squares, t-tests) for quantitative analysis, and theme analysis of qualitative data. Geographic data for fellowship placements and career placements is done using the geographic analysis capacity in Epi Info 7.0.

Periodic reports are prepared and reviewed with fellowship administration to allow for ongoing improvement and adjustments to the fellowship and the evaluation.

This presentation is based on the geographic analysis and career placement analysis for all of the alumni for whom data is currently available.

Results

Fellows have been placed all over the United States during the past 10 years. Larger dots indicate more fellow placements. It is interesting to note that even after 10 years, there are a few states that have not had a fellow placed there yet. The fellowship is working to identify mechanisms to increase participation into those states.

Map 1: Fellow placement 2003-2012



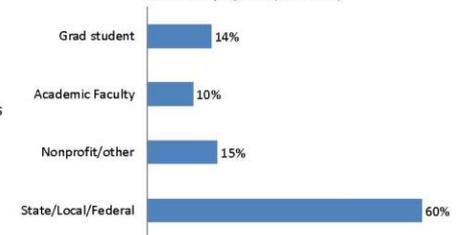
Map 2: Fellow employment 2003-2011



Over the past 10 years, almost every state has been impacted by fellows as they transition into careers. This map shows all of the places where fellowship alumni have been employed after the fellowship. Again, larger dots indicate a larger number of fellows working in that area.

Job placement data is obtained through surveys with graduating alumni, ongoing check-in communication and surveys of alumni, through CSTE member records, and through web-based searches of public data. This information is then coded and analyzed for type of employment. As seen in the graph, the majority of fellows work in state/local/or federal public health agencies. Many of the alumni who are graduate students or faculty spent at least some time working in state or local public health agencies.

Current Employment (as of 2013)



Of the 137 alumni for whom full data was available:

- 120 (88%) had worked in a state/local/federal public health environment for at least a year
- provided an average of 3 years of services to a state/local/or federal public health agency (range of 0 to 9)
- Published over 160 peer reviewed articles

Recommendations & Next Steps

Fellowship is having a broad, national impact. CSTE needs to examine opportunities to encourage and maintain alumni engagement in organization.

Continue gathering post-fellowship data on alumni (Surveys, public records, interviews) to provide in-depth understanding of impact on fellows and agency capacity.

Develop, publishing, and utilize annual reports, dashboards, and storyboards for communication with all stakeholders.

Virginia Dick, PhD/Evaluation Coordinator/vdick@cste.org

Amanda Masters, MPH/Director of Workforce Development/amasters@cste.org

Report considerations

Audience

- Policy makers
- Funders
- Community members
- Project directors
- Program planners
- Participants
- Others (replication)

Evaluation type

- Strategy
- Project
- Process
- Outcome
- Interim or Final report
- Pilot/Demonstration
- Multi-site

Report considerations

Purposes of Report

Convey key findings

Dashboards for monitoring

Build community support

Increase knowledge about field

Educating stakeholders

Funding requirements

Program improvement

Develop plans for replication

Evidence for best practices

Demonstrating impact

Healthy Savannah – Healthy Community Kids Campaign

The attendees at the community meetings at the 10 Title I Schools were asked to discuss and rank the challenges that they faced in being more active in their community. One of the top 3 challenges that was mentioned at each school were crime/safety related issues. In addition, traffic/calming responses included comments about enforcement of speeding and traffic violations. There were 748 responses from 301 cards completed by those who participated in the meetings and provided rankings of the challenges. The average rank shows the perceived level of importance. The higher the rank the more important the theme was to participants.

THEMES	#	%	Avg. Rank
Pedestrian infrastructure	165	21.8%	2.1
Traffic/calming	157	20.7%	2.0
Crime safety	100	13.2%	2.3
Community engagement/school	97	12.8%	2.2
Lighting/safety	70	9.2%	2.2
Other	66	8.7%	2.3
Bike infrastructure	58	7.7%	2.0
Physical activity access	35	4.6%	2.0

There were police representatives at each of the 10 Title I schools. Below is a breakdown of how many police representatives were present at each school.

School	# representatives
Shuman	4
Butler	3
Hodge	3
Brock	2
Hubert Middle	2
Gadsen/East Broad	1
Pulaski	1
White Bluff	1
Windsor Forest	1

The information presented in this summary was developed, collected, and are reported as part of the evaluation for the Healthcare Georgia Foundation Grant that Healthy Savannah received in 2014. Data is drawn from over 800 community surveys¹ and 238 audience response² from community meetings from August 2014 to February 2015. For more information about the grant, the evaluation, or Healthy Savannah please contact Paula Kreissler at paula@healthysavannah.org.

At each of the community meetings, attendees were asked to indicate what the biggest barriers were to becoming more active. At each of the schools, crime/safety concerns was ranked as the **biggest** barrier.

Respondents who indicated “crime/safety concerns” as the biggest barrier to being more active.

School	% respondents
Gadsen	73%
Hubert Middle	71%
Hodge	65%
Butler	63%
Brock	60%
White Bluff	59%
Shuman	55%
Windsor Forest	50%
Pulaski	29%

Quote from community surveys regarding crime/safety and health

Clean up the crime in the city so the kids can go out in the streets and play.

What to include?

Background information

- Description of the program, project or strategy
- Evaluation plan and implementation
- Data collection and analysis

Key findings

Implications

Recommendations

What to include?

Process evaluation specifically

- How was the program developed?
- Implementation data
- Output data
- Changes implemented based on data
- Recommendations and tips
- Ongoing reporting
- Feedback tools

What to include?

Outcome evaluation specifically

What happened?

Program description and background

Who was served/reached?

Describe target population and reached population

What happened?

The impacts and longitudinal analysis

Recommendations

What to include?

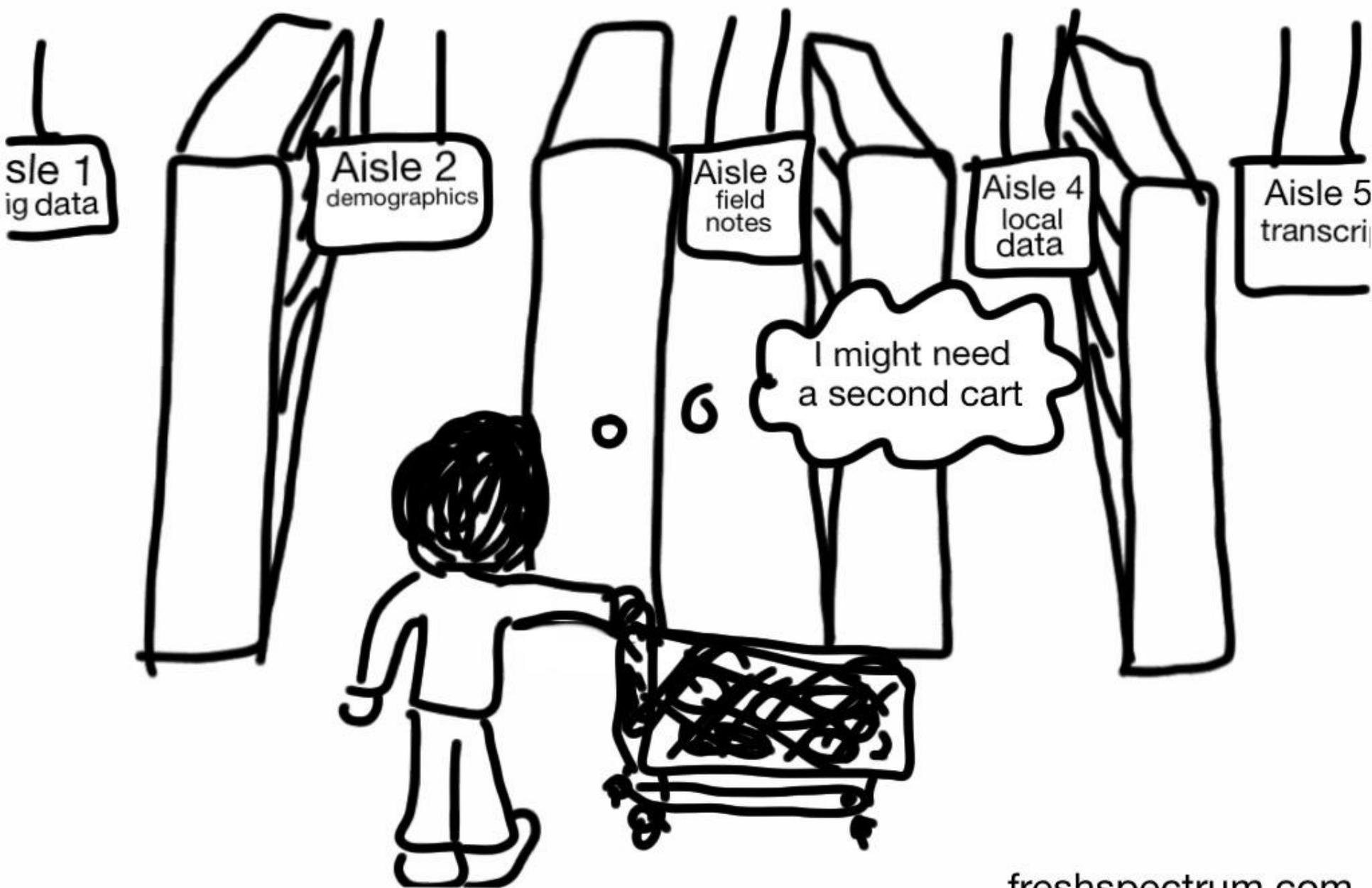
Recommendations

- **Utilize data to support recommendations**
- **Build foundation through the report**
- **Brief cites with recommendations**
- **Make them realistic**
- **Identify weaknesses or challenges**

Poll

What type of report mechanism do you use most frequently?

Like an evaluator in a data store



Additional Resources

Discussion Board - <http://cste.freeforums.net/>

- Relevant references and resources
- Discussion questions for group engagement between webinars
- Submission of 'assignments' for feedback/group discussion

Selected References

AEA Blog on low cost tools: <http://aea365.org/blog/susan-kistler-on-25-low-cost-no-cost-tech-tools-for-data-visualization-and-reporting/>

Potent Presentations: <http://p2i.eval.org/>

Dashboards: <http://www.dashboards.org/>

Stephanie Evergreen. Evergreen Evaluation. Stephanieevergreen.com/blog

**Thank you for participating in
today's call!**