

Delta Region Community Health Systems Development (DRCHSD) Program

Community Champion Learning Collaborative

The Center DRCHSD Team

April 23, 2019

DRCHSD Program Supported By:



Delta Regional Authority

U.S. Department of Health & Human Services



HRSA

Federal Office of Rural Health Policy

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U65RH31261, Delta Region Health Systems Development, \$4,000,000 (0% financed with nongovernmental sources). This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.



Learning Collaborative Objectives

- To provide knowledge and build skills on data collection to communicate participating organizations' impact on the community
- To provide understanding of Community Champion's expectations in measuring impact



Need For Program Evaluation

- Mandated in the federal program guidance
- Show value of the program on communities
- Determine efficiency and effectiveness of activities to:
 - Demonstrate good stewardship of limited resources
 - Improve program services and delivery of technical assistance
 - Showcase hospital /clinic projects to share successful strategies

Community Champion's Expectations

- Participate in DRCHSD program evaluation activities by:
 - Assisting Team in post-project follow-up activities to include data collection and tracking, and reporting of measurable outcomes
 - Identifying community care coordination (CCC)-related project metric(s) to track for measuring impact
 - Communicating with Center staff to share selected CCC project metric(s) and progress



How to Tell a Meaningful Story with Data

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Overall Goal

Communicate with Data

I have a story to tell

- In Jefferson County, AR 7% of the population is uninsured with an unemployment rate of 5.2% and 81% graduating from high school. 42% of adults are obese, 22% of adults smoke, and 18% of the population have diabetes. Average life expectancy is 73.1 years old.

What information did you gather from this story that allows you to derive knowledge for decision-making?

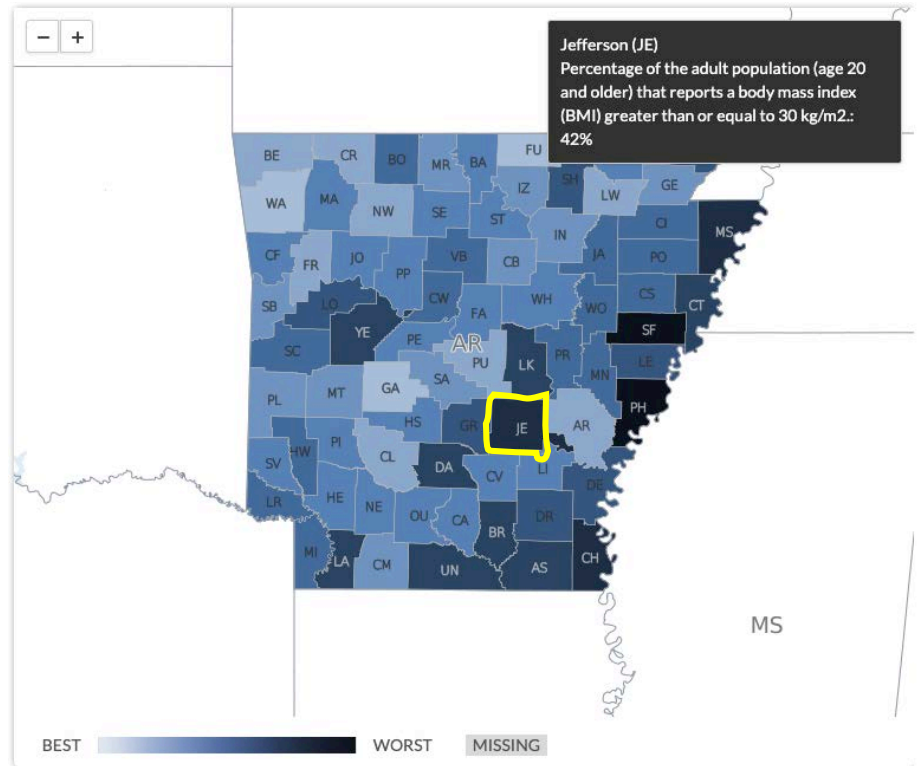
My story is flawed

- What is the objective of my story?
- How does Jefferson County compare to other counties?
- Was there a more meaningful way I could present this data?

Let's Try Again

Investigate whether there is a need for a Diabetes Education Program in Jefferson County, AR

	Jefferson County	State Rank Out of 75	State	Top US Performer
Diabetes Prevalence	18%	1 st	13%	9%
Adult Obesity	42%	4 th	35%	26%
Uninsured Rate	7%	70 th	9%	6%



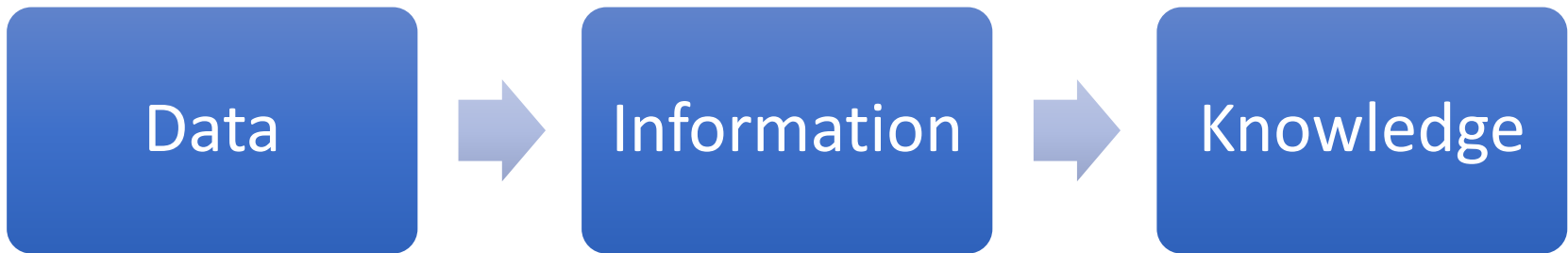
Communicate with a Story

- You should strive to tell a story with your data
- Don't just measure something for the sake of measuring something. There should be a clear purpose!
- There should be a clear start and end
- Data visualization helps communicate a story effectively
- Here's a good example: <https://youtu.be/6xsvGYIxJok>



Communicating with Data

The foundation of decision making is rooted from data



Data

- The lowest level
- Bits of something, but without context
- Examples:
 - 4.21 (just a number)
 - 4.21 Liters (of what?)
- General idea – data has no relationship to anything else

Information

- A higher level than data
 - Data with context, meaning and potential
- “Mr. X had a forced vital capacity of 4.21Liters on January 21, 2016.”
- General idea – data that has relationships to other things

Knowledge

- A higher level than information
- Information put into practice or use

Mr. X's falling FVC levels may be indicative of a lung function problem."

- General idea – information that is internalized and generalized, to inform decisions or actions (and derive value)

How do we move along this continuum?

- As we move towards increased understanding of the “problem” we are moving along the continuum.
- We need to clearly determine who the “we” is!
- We need to identify the data and how we are going to use it

- **We need to create a story from that data that translates into something meaningful**
- **Data is a source of truth and the analysis of data allows us to progress along the continuum.**

Measurements

Data can lead to information and knowledge by
telling a story with measurements

Who cares!

- Telling a story with metrics can impact behavior
- Therefore, deciding what we measure and how we choose to measure it and communicate the results will impact decision making and outcomes
- Recognizing that all measurements are inherently flawed is a healthy place to start a discussion of what measures make sense and how to communicate results

 choose measurements with care

The same?

“smoker”

“smokes 1-3 cigarettes per day”

“previous smoker”

“smokes 1 pack per day”

“tobacco user”

☞ the underlying attributes associated with each of these could be very different

Measurement in healthcare

“Healthcare is a complex sociotechnical system where simple metrics can mislead because they do not adequately consider the context of human decisions at the time they are made.”

Karsh, et.al, 2010

We are going to discuss a 4 step for storytelling with data

1. Pose a *good* question
2. Define a *good* measures
3. Determine a *good* data source
4. Create a *meaningful* message

1) Create a question

- What question are you hoping to answer with your data?
 - Try to avoid complex questions
 - Keep in mind what you want to measure and compare and try to capture this in your question

Bad:

Are hospitals impacted by patients diagnosed with mental health disorders over time?

Good:

Is the percentage of patients admitted to the ED with mental health disorders different across the past 6 months?

2) Define what you want to measure

- Dependent variable
 - The thing being measured
 - E.g., Total cost of transports, # of ED patients with MH disorder
- Independent variable
 - The thing being compared
 - E.g., Months, pre-post treatment

The dependent variable can be compared across each level of the independent variable

Define what you want to measure

- E.g., Decrease # of Emergency Department Visits with a Behavioral Health Diagnosis in next 6 months
- **DV:** # of ED Visits
- **IV:** Months
- Considerations:
 - Define an ED visit
 - Define a behavioral health diagnosis
 - Is the count an appropriate metric? Should it be a proportion instead?

Define what you want to measure continued

- For proportions, define the following:

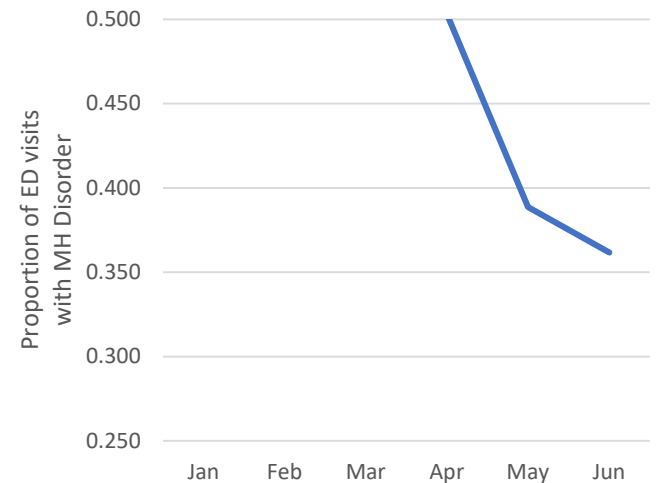
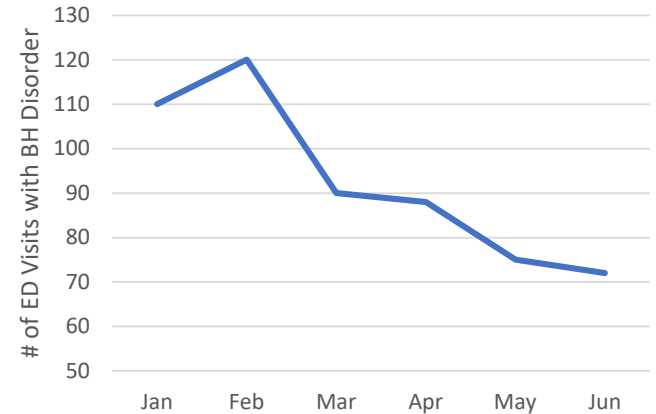
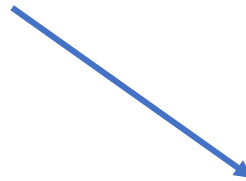
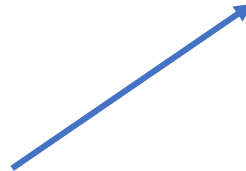
$$\frac{\text{Numerator}}{\text{Denominator}}$$

- Numerator= top number of a fraction
 - Total # of ED visits with a behavioral health diagnosis
- Denominator= bottom number of a fraction
 - Total # of ED visits

Define what you want to measure continued

**What story do
you want to tell?**

	ED Visits with BH	Total ED Visits	Proportion
Jan	60	150	0.400
Feb	65	165	0.394
Mar	70	172	0.407
Apr	72	175	0.411
May	78	193	0.404
Jun	79	199	0.397

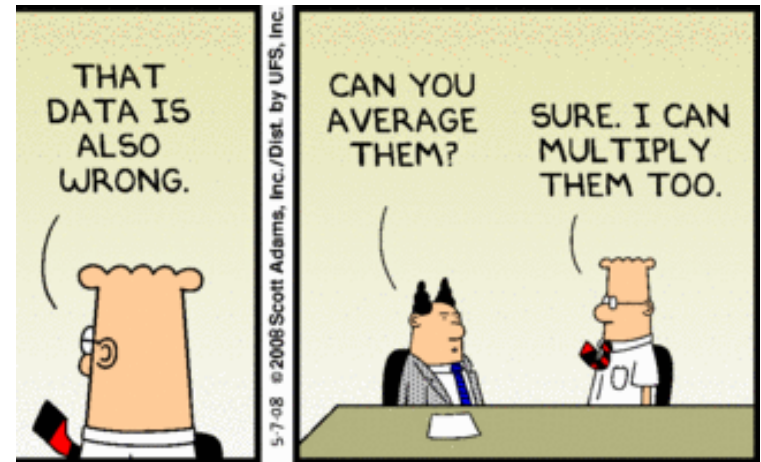


Determine what you're going to do with the measure

- Examine differences:
 - Over time
 - Pre and post intervention
 - Between groups (e.g., location A vs. location B)
- How will the differences be compared?
 - Average
 - Median
 - Percentage
 - Counts
- E.g., Decreased PHQ-9 Scores upon mental health follow-up
 - Compare average difference in PHQ-9 pre and post mental health treatment

Average isn't always to best way to describe the data!

- Such because you can, doesn't mean you should
- If it looks like a number, doesn't mean it is a number
 - Male = 1
 - Female = 2
- The average can be misleading if the data is skewed



Define what you want to be measure continued

- There's no need to reinvent the wheel. Often times, data or metrics are available and can be repurposed.
- Other times, you need to collect your own data and develop your own metrics.
- Knowing where the data resides, is a good a start!
- We will talk about both options...

3) Where is the data?

- Healthcare is complex and the data is complex
 1. Determine if the data you want is from an internal or external source
 2. Work closely with your IT department or community partners to provide you with data
 - Say what you want
 - When you get what you want, don't assume it is correct
 - Be critical of your data

Clinical Measures

A measure that evaluates the change in the health of an individual, group of people, or population that is attributable to an intervention or series of interventions – World Health Organization

- Rate or count of diagnoses
 - % of the patient population with Type II Diabetes
- Use of laboratory tests or the use of the results
 - % of patients with diabetes tested for HbA1c in last 12 months

Operational Measures

A measure that evaluates how an organizational unit is performing

- Patient wait times
 - Wait time from check-in to admission to ED
- Length of stay
 - Number of days a patient is in an inpatient setting
- Bed turnover
 - # of patient transitions in beds or rooms

Financial Measures

A measure evaluating the financial performance or impact of an organizational unit

- Treatment charges
 - Average amount of money a hospital is charged for a specific treatment
- Average Insurance Claim Processing Time
 - Average amount of time an organization spends processing insurance claims

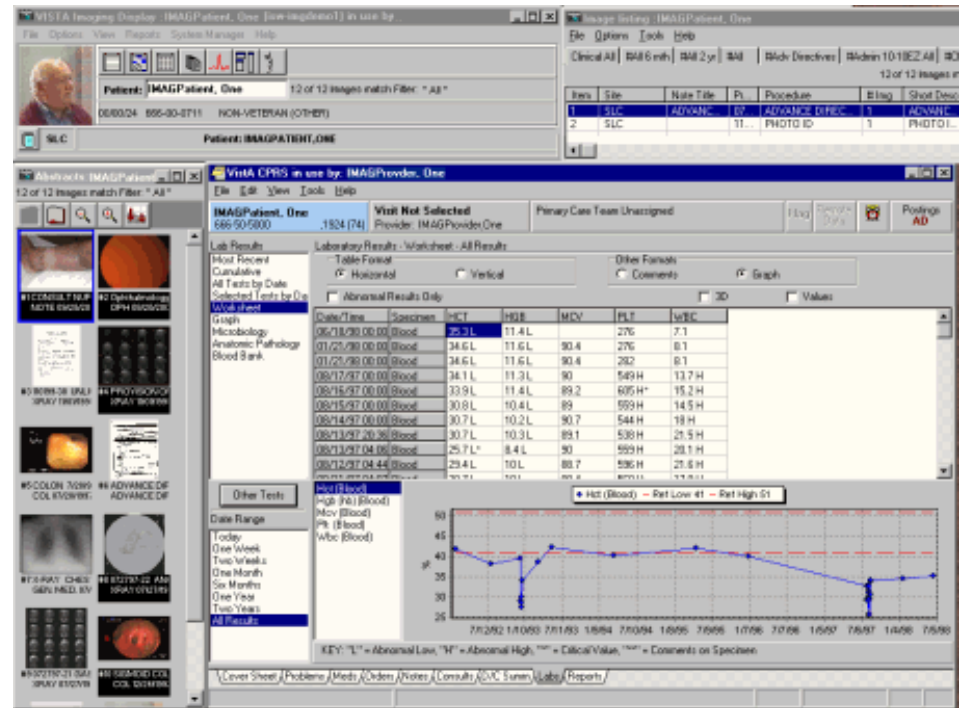
Where is the data?

Type of Measure/Data	Internal Data Source	External Data Source
Clinical	EHR, data warehouse	CMS, Department of Health, CDC, County Health Rankings
Operational	EHR, Practice management system (e.g., scheduler)	Agency for Healthcare Research and Quality (AHRQ), State reporting websites
Financial	EHR, claims/billing system, budgets, ledger	CMS, Agency for Healthcare Research and Quality (AHRQ)

This is not an exhaustive list

Electronic medical record data

- Demographics
- Medical history
- Medication and allergies
- Immunization status
- Lab results
- Radiology images
- Vital signs
- Personal data
- Billing information
- Scheduling

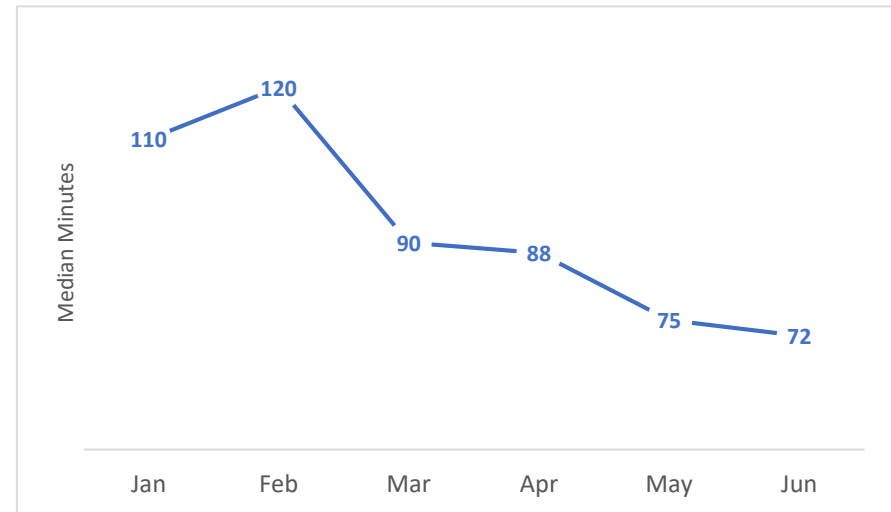


Reports generated from EHR data

- EHRs typically have standard reports that are built into the systems and can be the source of data
 - eCQM Dashboard
 - MIPS Dashboard
 - Appointment report
 - Billing Report
- EHRs can also support customized reports in an ad hoc fashion
 - Supports flexibility to access data that may not be available through standard reports

4) Translate data into meaningful information

- Know your purpose and audience
- Use the space wisely!
 - Most readers read the top left of a screen first, so make the important content span that part of the screen
- Make sure you understand what type of device the viewer will be using
 - This will impact the size of your dashboard
- Don't overcrowd the display
- Add interactivity to encourage exploration
- E.g., Median time spent in the ER prior to transfer to inpatient setting in past six months

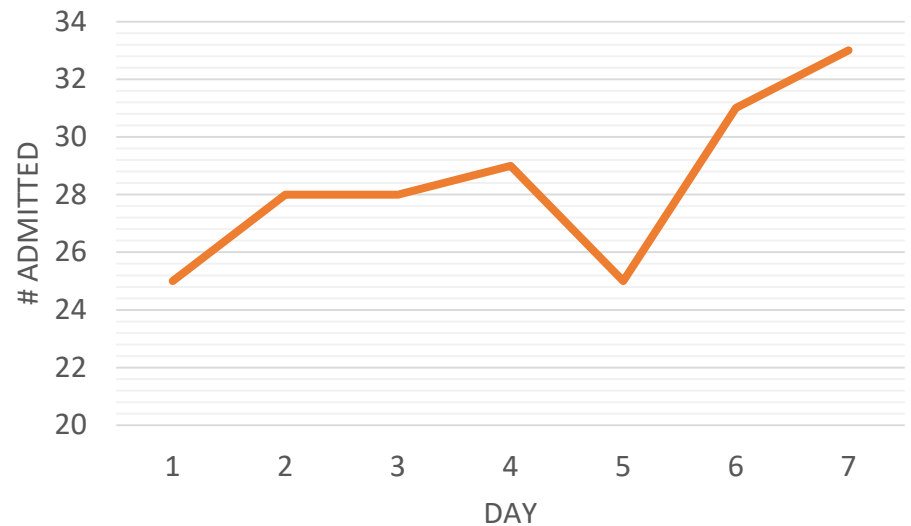


Is a picture always preferred?

- What is the general trend of the # admitted over time?
- What # was admitted on day 4?
- What day had the lowest # admitted?

Day	# Admitted
1	25
2	28
3	28
4	29
5	25
6	31
7	33

vs.



Don't ignore your intent!

- If you create a visualization that has nothing to do with your original intent, it won't be very meaningful
- Always ask yourself, “Why is this important and how does it relate back to what I'm doing?”
- E.g., If your intent is to improve provider awareness to improve referrals to mental health providers for care coordination, would you need to know the current number of referrals? Would you need to know incarceration rate?



Conclusions

- Clinical, operational, financial measures are common
- Asking a good question is critical!
- There are sources of both internal and external data
- Tell a story with your data through visualizations!



Questions?

Thank you!

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