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Strategies for Communicating Successes with Stakeholders

David Marc, PhD, CHDA
The College of St. Scholastica
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Agenda

- What is data?
- Translating data from information to knowledge
- Data visualization
- Creating a story with your data

What is Information?

Let's take a minute to talk about this…

- The communication or reception of knowledge or intelligence (Dictionary.com)
- Knowledge obtained from investigation, study or instruction; factual data (Dictionary.com)
- A reduction in uncertainty
- Information is care (Leao, 2007)

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)
  - 3.21 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 4.21 Liters on January 21, 2016
- General idea – data has no 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 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

4-Step Process Discussion

- Pose a question
- Define your measure
- Define the data source
- 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., Readmission rate, # of patients screened for depression
- Independent Variable
  - The thing being compared
  - E.g., Months, pre-post treatment, geography

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

Define What you Want to Measure

Question: In the past 6 months, has there been an increase in the number of patients with an ED visit that were screened for depression?

- **DV:** # of ED Visits
- **IV:** Months

- **Considerations:**
  - Define an ED visit
  - Determine the screening method for depression
  - Is the count an appropriate metric? Should it be a proportion instead?

Define what You Want to Measure

For proportions, define the following:

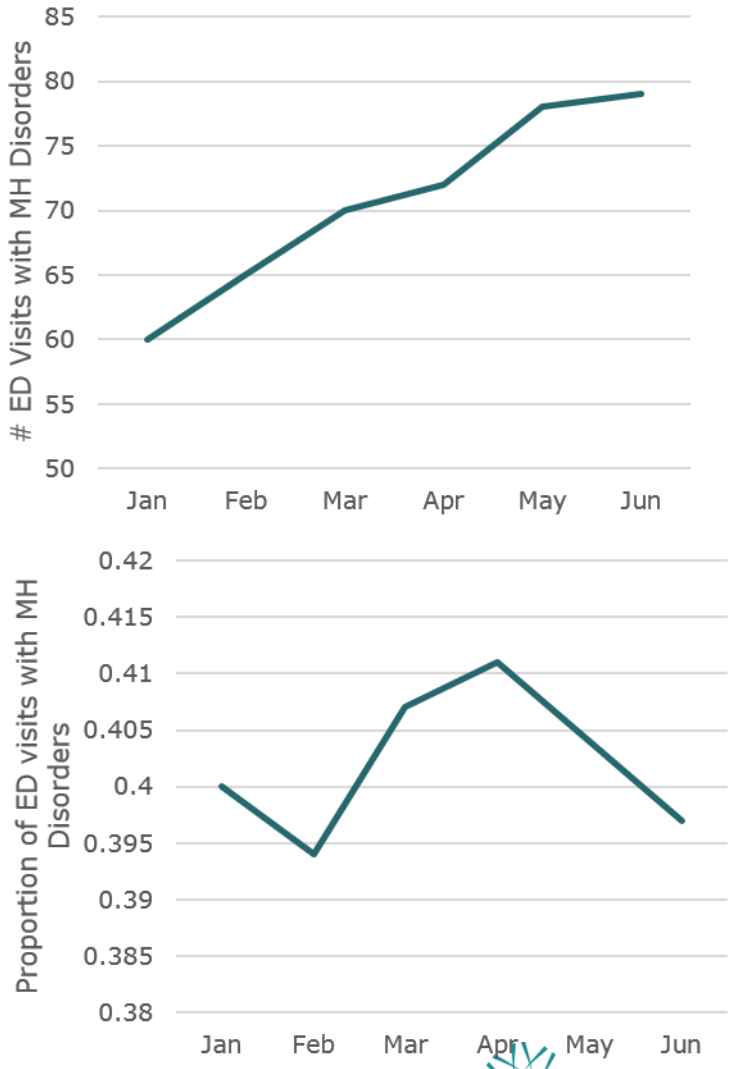
$$\frac{\textbf{Numerator}}{\textbf{Denominator}}$$

- Numerator = top number of a fraction
  - Total # of ED visits where a patient received a depression screening
- Denominator = bottom number of a fraction
  - Total # of ED visits
- Considerations = should a patient be screened with every ED visit? What if the patient is seen twice in the past week?

Define What you Want to Measure

What story do you want to tell?

	ED Visits with depression screening	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



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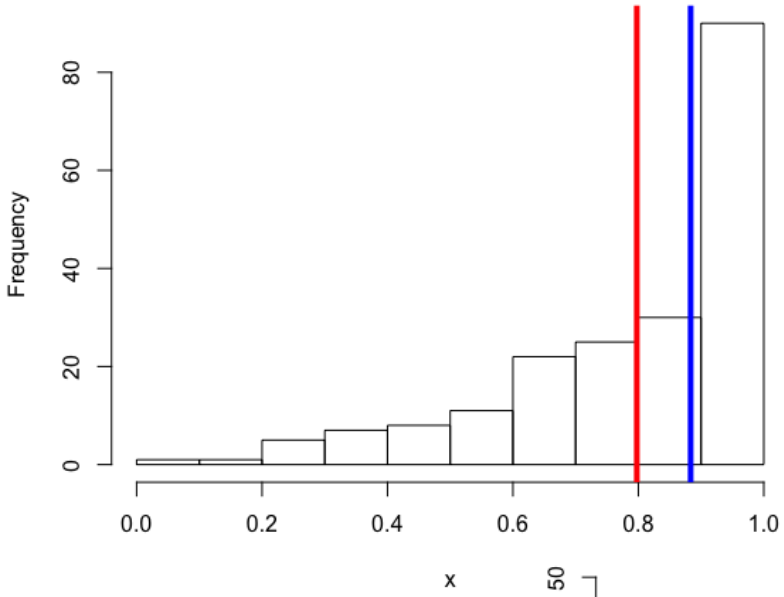
Determine What You're Going to do With the Measure

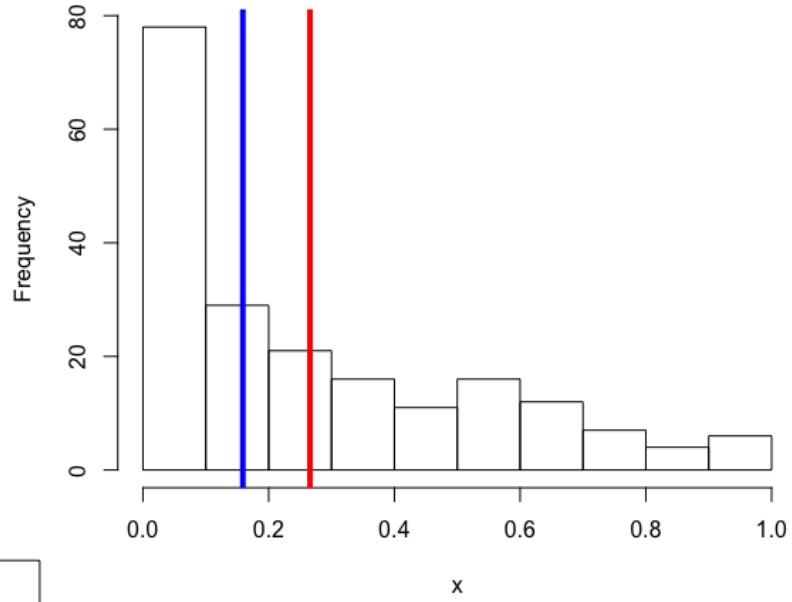
- Examine differences
  - Over time
  - Pre and post intervention
  - Between groups (e.g., location A vs. location B)
- How will the differences be compared?
  - Average
  - Median
  - Percentage
  - Counts
- E.g., Compare HbA1c in patients with DMII before and after implementing telehealth services
  - Compare average difference in HbA1c pre and post telehealth

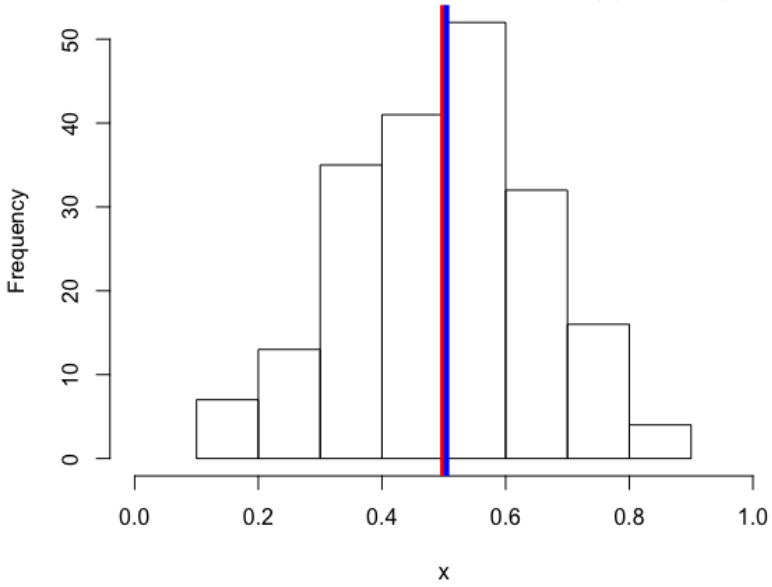
Average Isn't Always the Best way to Describe Data

- Just 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

Skewness on Graphs







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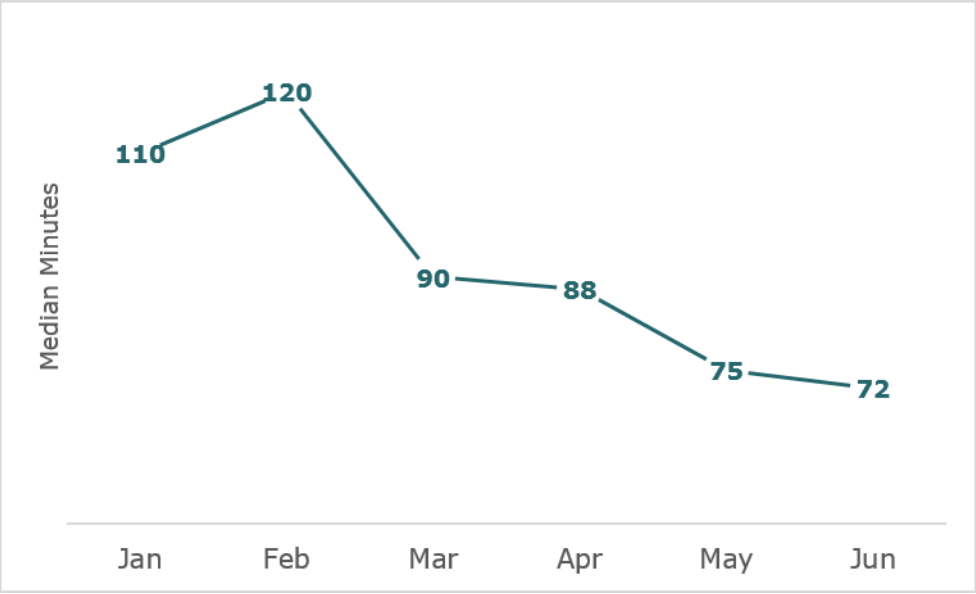
3. Where is the Data?

Health care is complex and the data is complex.

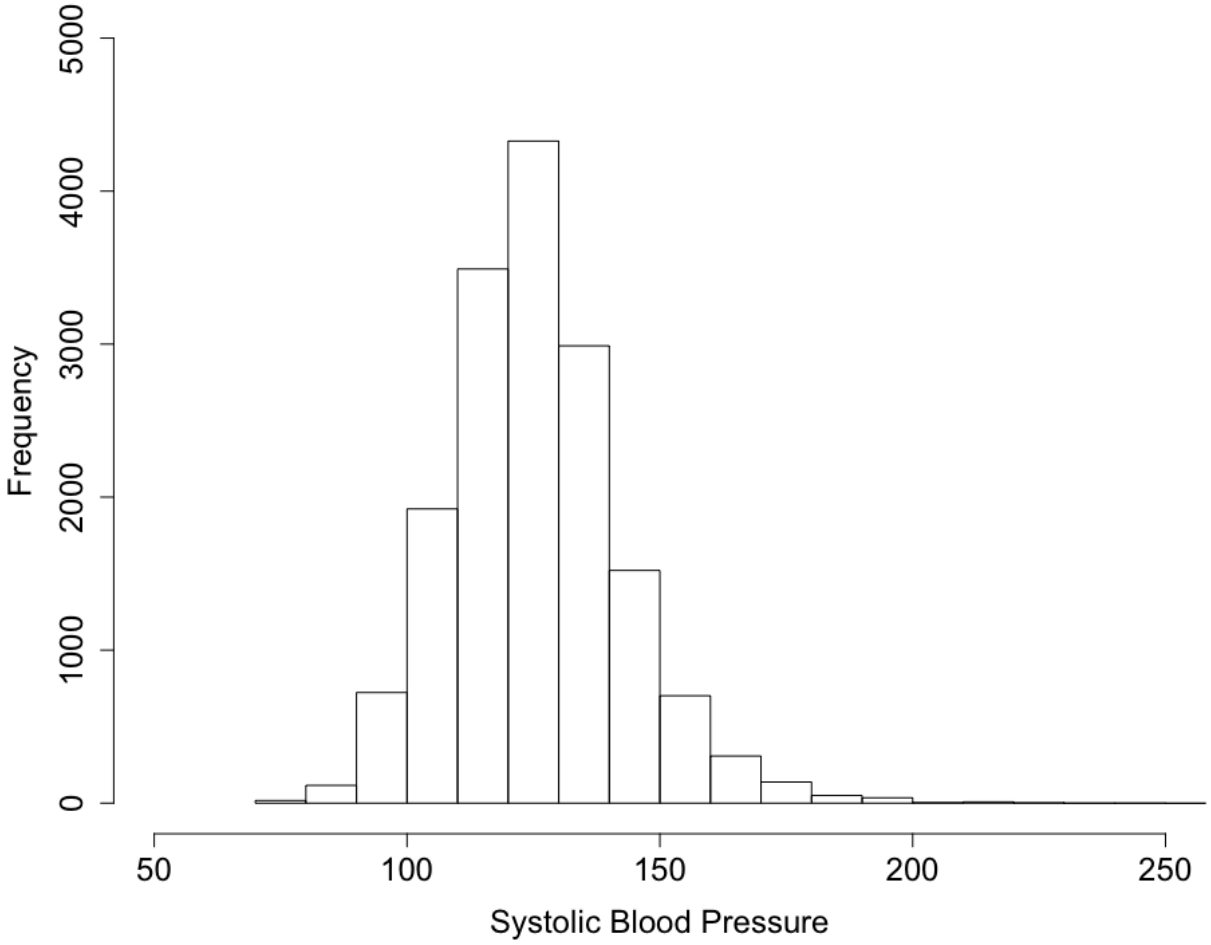
1. Work closely with your IT and HIM departments to extract data from your EHR
   a. Say what you want
   b. When you get what you want, don't assume it is correct
   c. Be critical of your data
2. Obtain the data through observation
   a. Collect your own data

4. Translate Data Into Meaningful Information

- Who is your audience?
- Visualization is key!
- Keep it simple!
- E.g., Median time spent in the ER prior to transfer to inpatient setting in the past six months



Choosing a Graph



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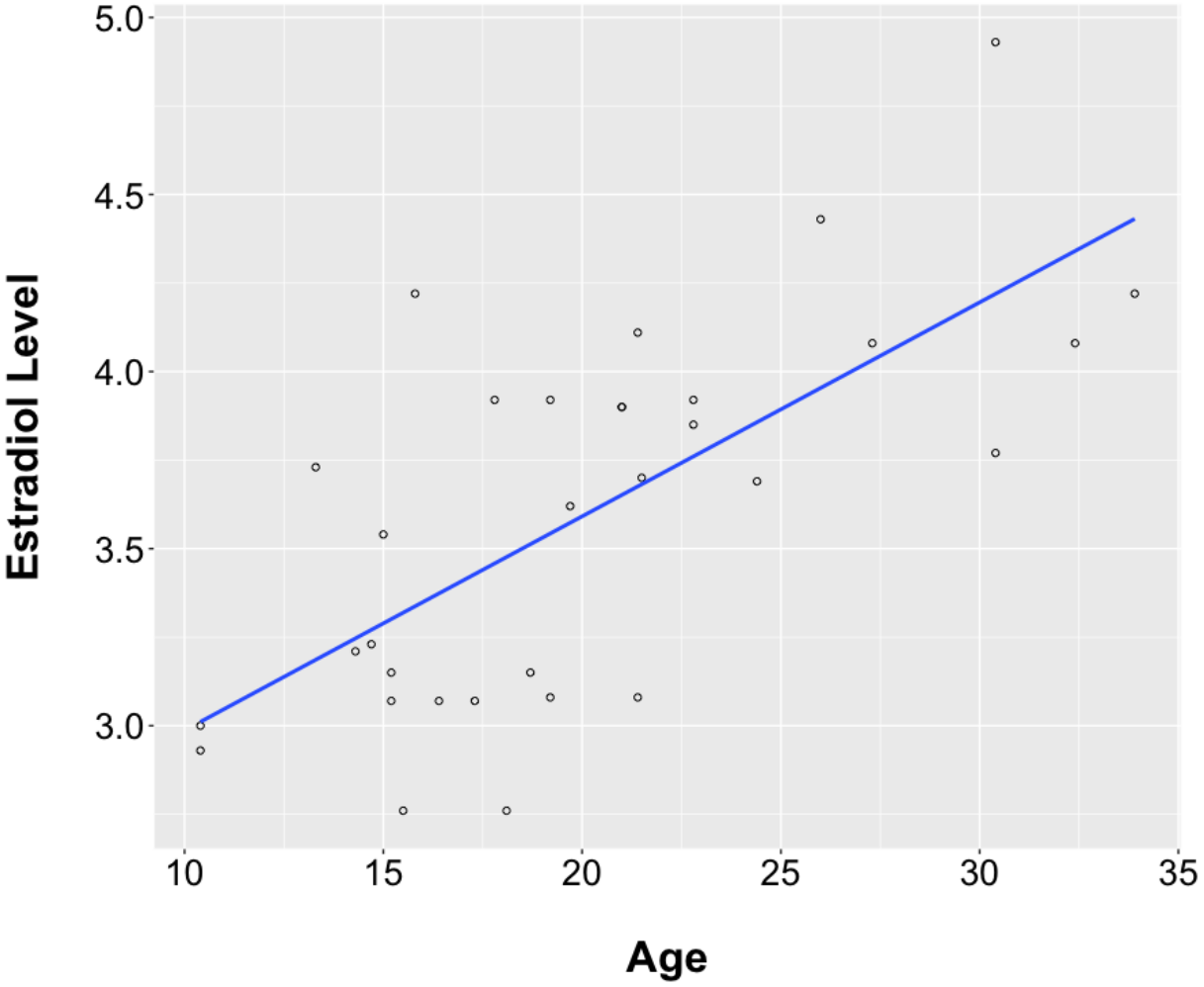
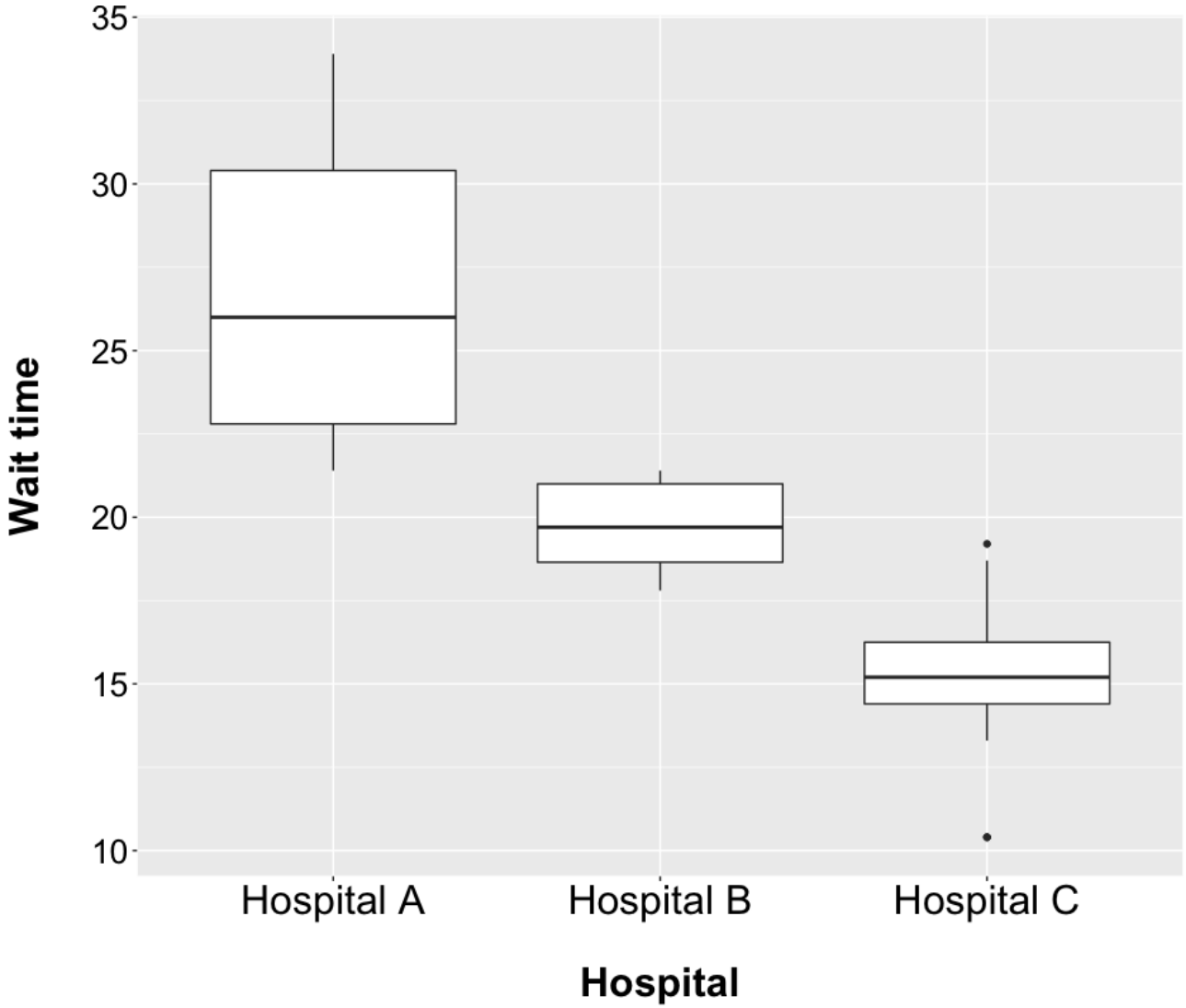
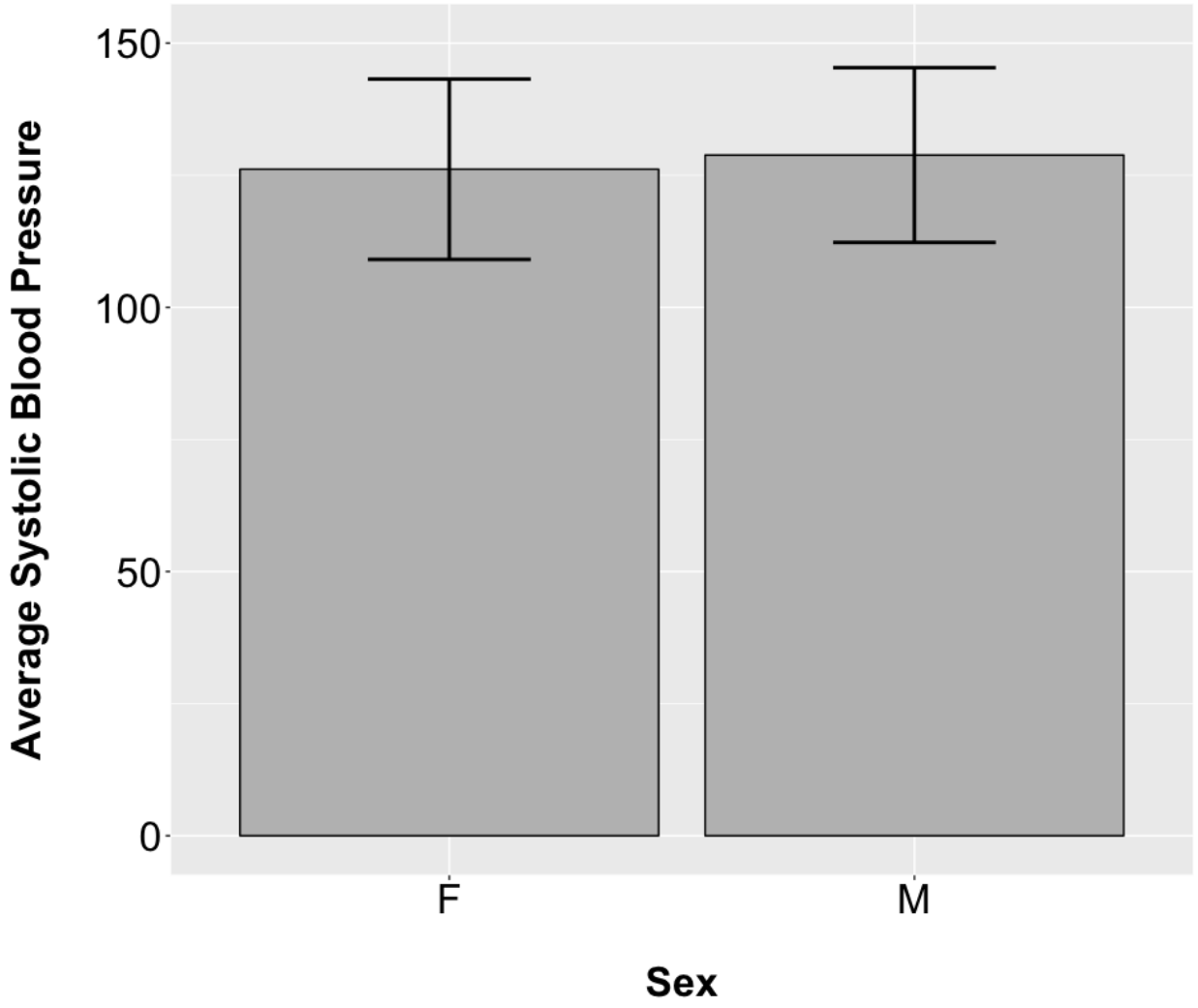
Scatter Plot



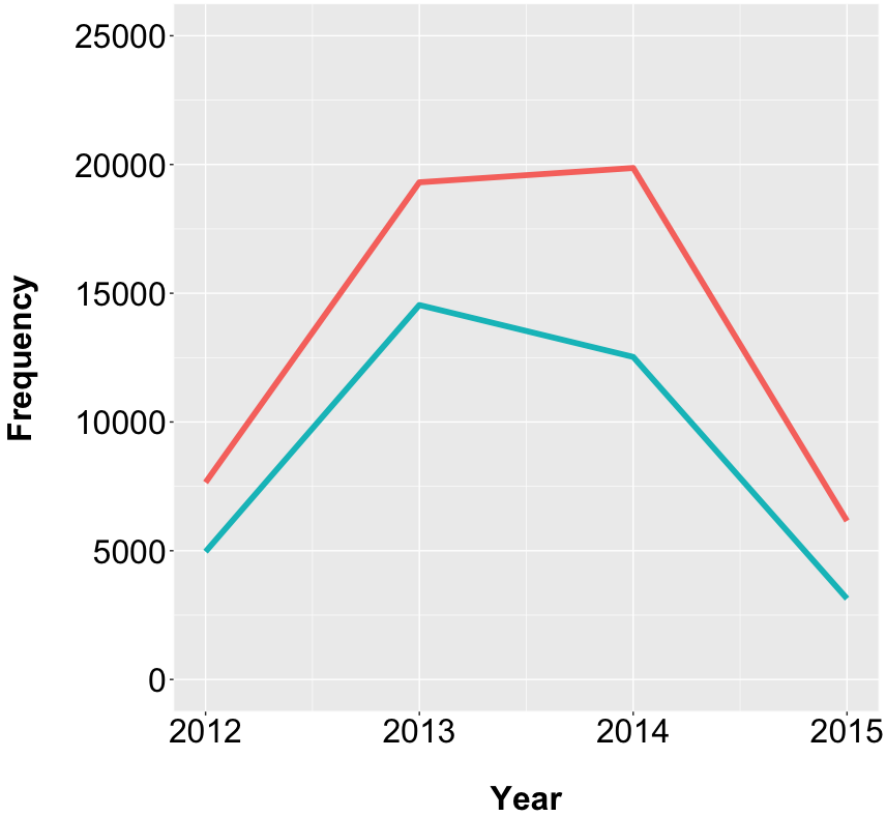
Box and Whisker

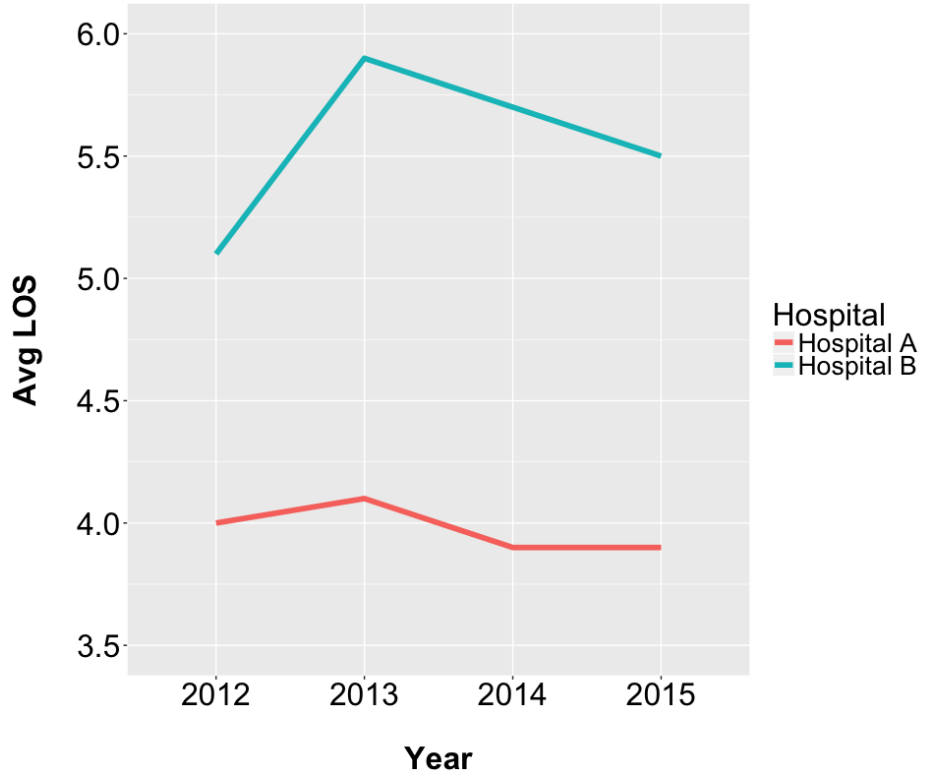


Confidence Interval



Scatter Plot with Straight Lines





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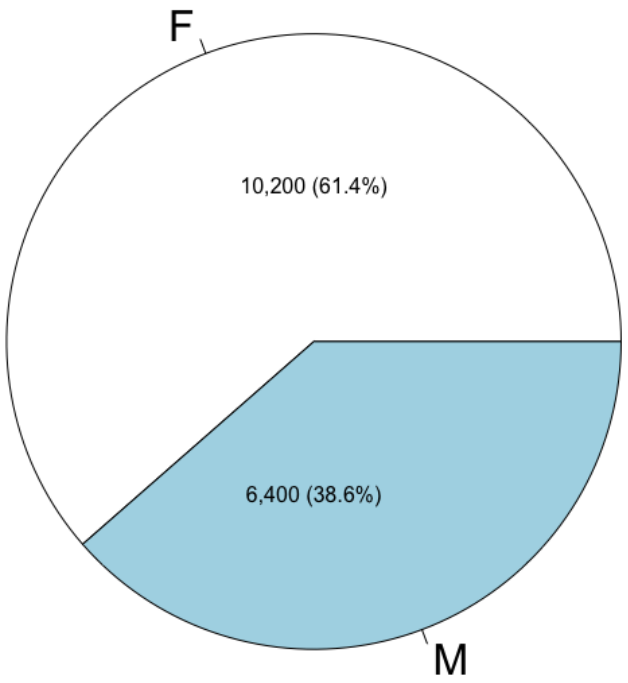
Pie Chart

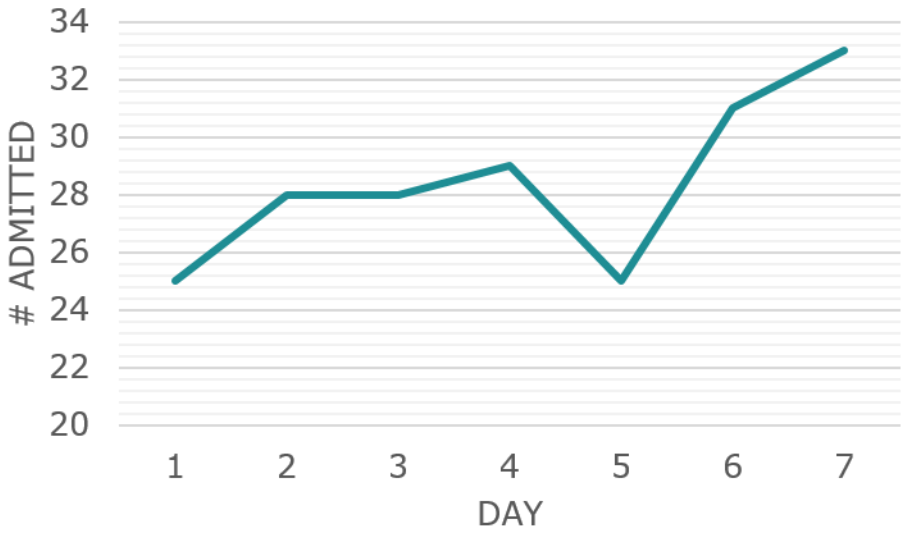


Is a Picture Always Preferred?

- What is the general trend of the # of 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.



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Don't Ignore Your Intent

- If you create a visualization that has nothing to do with your original intent, it won't be very meanin
- Always ask yourself, "Why is th important and how does it rela 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 rates?

Now It's Your Turn!

- Here's what you're going to do:
  - **Purpose:** Support the translation of information from data to create a story that is meaningful to engage stakeholders.
  - **Directions:** In groups, you're going to pose a question related to your projects, define your metrics, create mock visualizations to effectively communicate metrics to your topic.
    - The metrics can be those you are, or will be adopting, but the data may be made up…

Step 1: (10 min)

- What is the question you're hoping to answer with your data?
  - Be clear and concise!

Step 2: (20 min)

- Explain what you're going to do with the data:
  - Define your metrics
    - What is your dependent variable? (The thing being measured)
      - ✓ Explain why the measure is appropriate
      - ✓ Clearly define what you are measuring and how you're measuring it
    - What is your independent variable? (The way you're comparing the thing being measured?
      - ✓ Explain the levels of your variable (e.g., months and how many)
  - How will you use your dependent and independent variables?
    - What do you hope you'll see?

Step 3: (15 min)

- Where will you obtain your data:
  - Explain the data source.
  - What challenges will you have to anticipate?
  - Who are the people that need to be included in this process?
  - How will you validate the integrity of the data?

Step 4: (30 min)

- Translate the data into something meaningful
  - Identify the audience
  - Identify the appropriate visualization methods
  - Create a visualization of the data
    - Remember to keep it simple
  - Does your visualization answer your question posed in Step 1?

Report Out

- Each group will have several minutes to present their visualizations and translate how the visualization answers their original question
- Also, explain how this will impact your future approach with your projects
- The audience may pose questions

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Contact Information

David Marc, PhD, CHDA

The College of St. Scholastica

dmarc@css.edu

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