

Quality Improvement Basics

Data Display Methods

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0

Objectives



After completing this module, participants will be able to

- Define the meaning and purpose of data visualization
- Describe a variety of data visualization options and determine when they should be used

1

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1



What and Why of Data Visualization

- The graphical representation of information and data using visual elements
- Provide background, illustrate influential actions or variables, and unite the audience towards a common purpose

2



Communicating the Data Story

- Identify the audience and your goal in sharing the data
 - How much detail do they need?
 - What is the story you want to tell?
 - Determine the form for sharing your data (number, percent, etc.)
- Select a display method that best tells your story

3



Tables

- Organize large amounts of data
- Show specific quantitative values

Ethnic Group	Percent of Patients	Percent Diagnosed w/ HTN	Total Patients Diagnosed w/ HTN
Chinese	3	31	60
Asian-all other	5	30	100
Native American	6	37	120
Hmong	10	29	200
East African	16	25	320
Caucasian	18	28	360
Hispanic	20	29	400
African-American	22	35	440
Totals	100		2,000

4

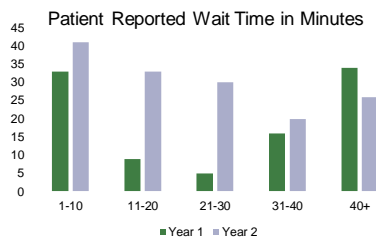


Graphs and Charts

- Show comparisons between variables
- Show patterns, trends or relationships
- Convey complex data relationships in a quick manner
 - Comparing
 - Trending
 - Relationships
 - Distributions
 - Parts of a whole

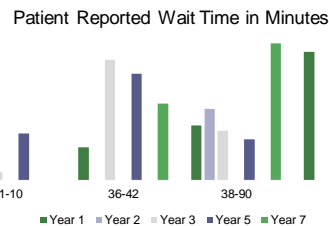
5

Histograms



Useful When:

- You want to display continuous data grouped into categories
- You want to display location, spread, and distribution of data



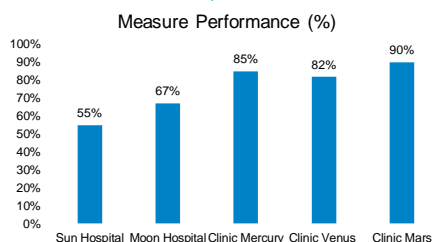
Not as useful when:

- Your data categories are not continuous, overlap, or have gaps
- Your category groupings vary widely in size and range

6

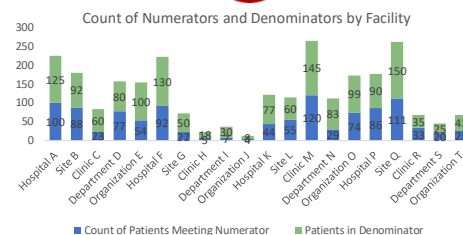
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Bar Charts



Useful When:

- You want to present distributions of data in categories
- You want to display and make comparisons of categorical data
- You want to display similarly formatted data between categories at a point in time



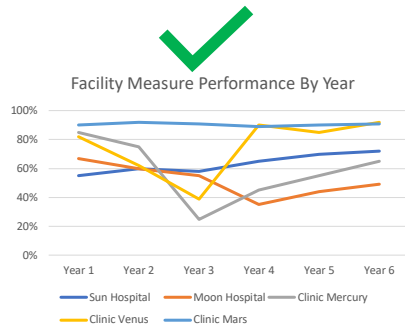
Not as useful when:

- You want to look at many data points with multiple categories
- You want to show relationships between categories or activities
- You want to look at many data points over time

7

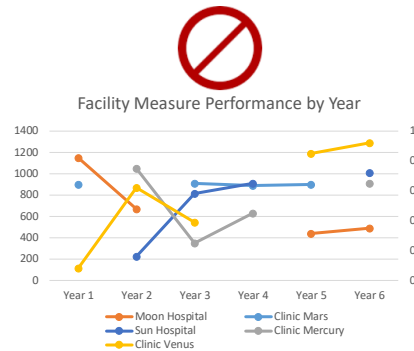
7

Line Graphs



Useful When:

- You want to present continuous data to analyze trends, patterns, and anomalies over time
- You want to display multiple sets of data
- You want to use trends to estimate predictions



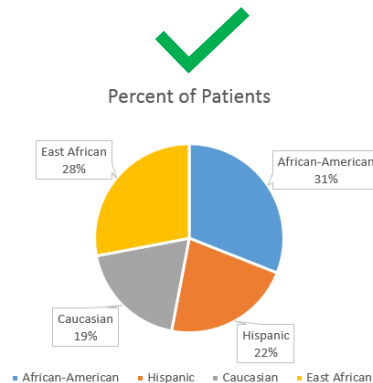
Not as useful when:

- You have a lot of missing data points in your timeline
- Your data is not consistent in format (counts vs. rates, etc.)
- Your data varies greatly in range and/or scale between groupings

8

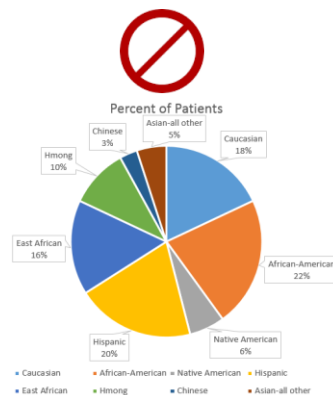


Pie Charts



Useful When:

- You want to compare parts or portions to a 'whole'
- You have a limited number of parts to compare (about 4 is the maximum - fewer is better)



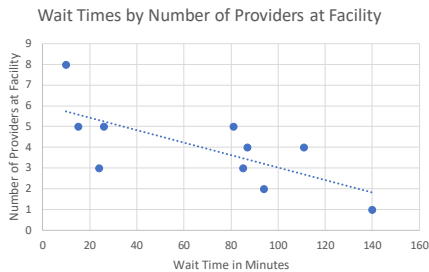
Not as useful when:

- Any part is under 5%
- You want to make comparisons over time
- The totals add up to more or less than 100% (incomplete data set or overlapping categories)

9

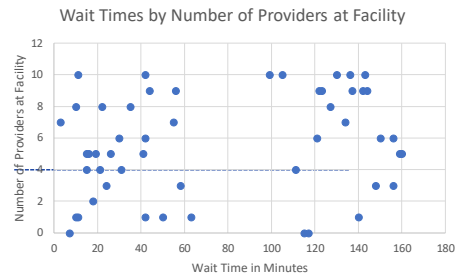


Scatter Plots



Useful When:

- You want to analyze a trend in the data relationship
- You want to show minimums, maximums, and outliers
- Data on both axes is continuous
- You want to test for possible cause and effect



Not as useful when:

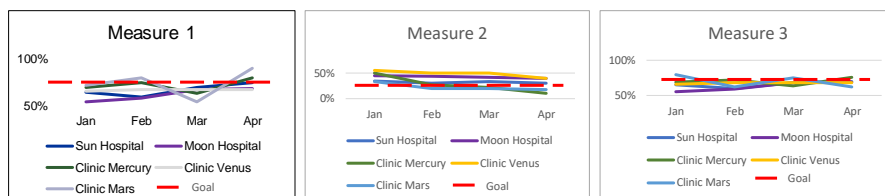
- You have a very large dataset
- Your data on one or more axes is not continuous or has gaps
- You want to definitively prove cause and effect
- You have a flat trendline (inconclusive results)

10

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10

Quality Data Dashboard



Measure	Desired goal	Desired Trend	Baseline Performance	Current Performance	Current Trend
✓ Measure 1	75%		58%	86%	
✗ Measure 2	25%		35%	30%	
✗ Measure 3	75%		67%	65%	

Useful When:

- You want to present high-level summaries of data in a snapshot
- You want to tell a big picture story to various stakeholders
- You want to monitor and/or analyze large amounts of data quickly
- You want to engage stakeholders and partners into interacting with and impacting your data goals

11

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11



In Summary

- Data visualization is an important tool that aids in telling the story of your data through graphical representation of information and data.
- Tables are a simple way to share data, but without an accompanying graph or chart can overwhelm and distract your audience.
- Different graphs are useful for different purposes.
- Keep it simple!

12



12

Stratis Health is a nonprofit organization that leads collaboration and innovation in health care quality and safety and serves as a trusted expert in facilitating improvement for people and communities.

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$740,000 with 0% financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official view of, nor an endorsement, by HRSA, HHS or the U.S. Government. (June 2023)



13