



# Meaningful **Data Visualizations**

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Learning Together, Protecting Tomorrows



## Key Funding Partner

### Federal Acknowledgement

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# What to Expect Today

## January Office Hours



### Meaningful Viz

Explore concepts about creating impactful visualizations with our data.



### In The Wild

Highlight excellent visualizations from fatality review programs.



### Resources & Discussion

Summarize resources, discuss visualization, and answer questions.



# Introduction

To Data Visualization



# Data Visualizations

## Why Are They Meaningful?

Many people are visual processors. We all play a key role in knowing who our audience is and to select the most appropriate visualization to get our message across.



## Consider Your Audience

### When Visualizing Data

- Fatality review team members.
- Policymakers.
- Academics (e.g., peer review, research-gearred conferences).
- Community members/public.
- A different group?

# User Story

## Knowing Your Audience to Select Visualizations

As a [**type of person**],  
I need [**type of information**]  
So that [**I can do something**].

As a [**policymaker**],  
I need [**data on trends**]  
So that [**I can advocate**].

A user story example that we'll use today is...

As a **fatality review team member**,  
I need **to know how many infant deaths were sleep-related**  
So that **I can compare with other infant deaths**.

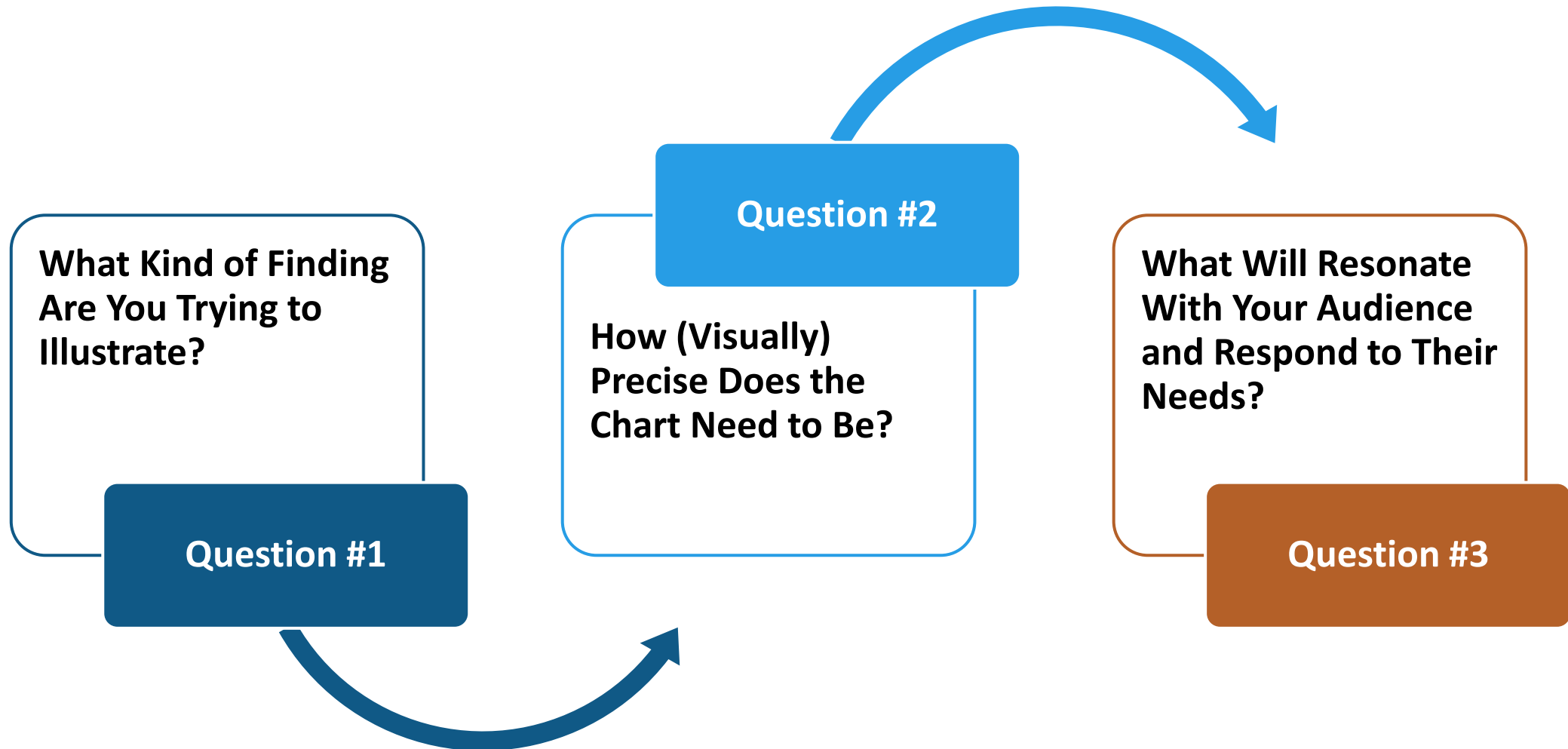


# Chart Selection

Strategies

# Selecting a Chart

## Three Questions to Ask



# Selecting a Chart

## To Illustrate Your Findings

Different chart types accomplish different things. To select the right chart for you, use a **chart taxonomy**, which classifies and groups charts according to function or other features, like shape.



# Chart Taxonomy

## Visual Vocabulary

<https://journalismcourses.org/wp-content/uploads/2020/07/Visual-vocabulary.pdf>

### Deviation

Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).

**Example FT uses**  
Trade surplus/deficit, climate change

#### Diverging bar

A simple standard bar chart that can handle both negative and positive magnitude values.

#### Diverging stacked bar

Perfect for presenting survey results which involve sentiment (eg disagree/neutral/agree).

#### Spine chart

Splits a single value into 2 contrasting components (eg Male/Female).

#### Surplus/deficit filled line

The shaded area of these charts allows a balance to be shown - either against a baseline or between two series.

### Correlation

Show the relationship between two or more variables. Be mindful that, unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the other).

**Example FT uses**  
Inflation & unemployment, income & life expectancy

#### Scatterplot

The standard way to show the relationship between two continuous variables, each of which has its own axis.

#### Line + Column

A good way of showing the relationship between an amount (column) and a rate (line).

#### Connected scatterplot

Usually used to show how the relationship between 2 variables has changed over time.

#### Bubble

Like a scatterplot, but adds additional detail by sizing the circles according to a third variable.

#### XY heatmap

A good way of showing the patterns between 2 categories of data. Less good at showing fine differences in amounts.

### Ranking

Use when an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.

**Example FT uses**  
Wealth, deprivation, league tables, constituency election results

#### Ordered bar

Standard bar charts display the ranks of values much more easily when sorted into order.

#### Ordered column

See above.

#### Ordered proportional symbol

Use when there are big variations between values and/or seeing fine differences between data is not so important.

#### Dot strip plot

Dots placed in order on a strip are a space-efficient method of laying out ranks across multiple categories.

#### Slope

Perfect for showing how ranks have changed over time or vary between categories.

#### Lollipop chart

Lollipops draw more attention to the data value than standard bar/column and can also show rank and value effectively.

# Chart Taxonomy

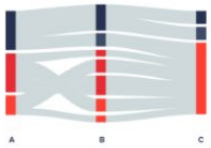
## Data Viz Project

1 dataset, 100 visualizations.

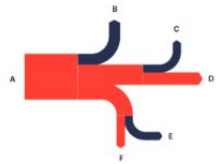
Discover data viz applied to real data in our latest project!



Alluvial Diagram



Sankey Diagram



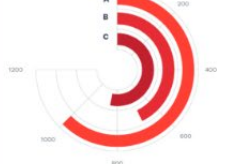
Donut Chart



Line Graph



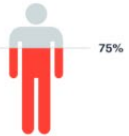
Radial Bar Chart



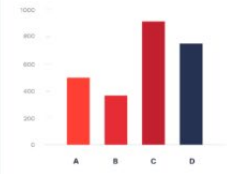
Polar Area Chart



Pictorial Percentage Chart



Bar Chart (Vertical)



Exploded View Drawing



Radial Histogram



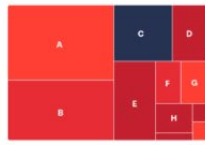
Sunburst Diagram



Flow Map



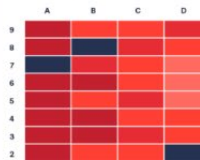
Treemap



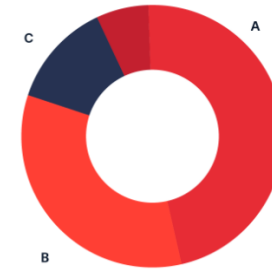
Sorted Stream Graph



Heat Map



Donut Chart Also called: doughnut chart



A donut chart (also spelled doughnut) is functionally identical to a pie chart, with the exception of a blank center and the ability to support multiple statistics at once. Doughnut charts provide a better data intensity ratio to standard pie charts since the blank center can be used to display additional, related data.

FAMILY  
Chart  
FUNCTION  
Comparison  
Part to whole

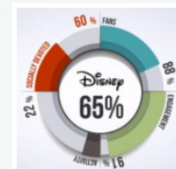
SHAPE



INPUT

A	32%
B	40%
C	28%

EXAMPLES



# Use A Chart Taxonomy

## Two Example Options



**Visual Vocabulary**

By Financial Times

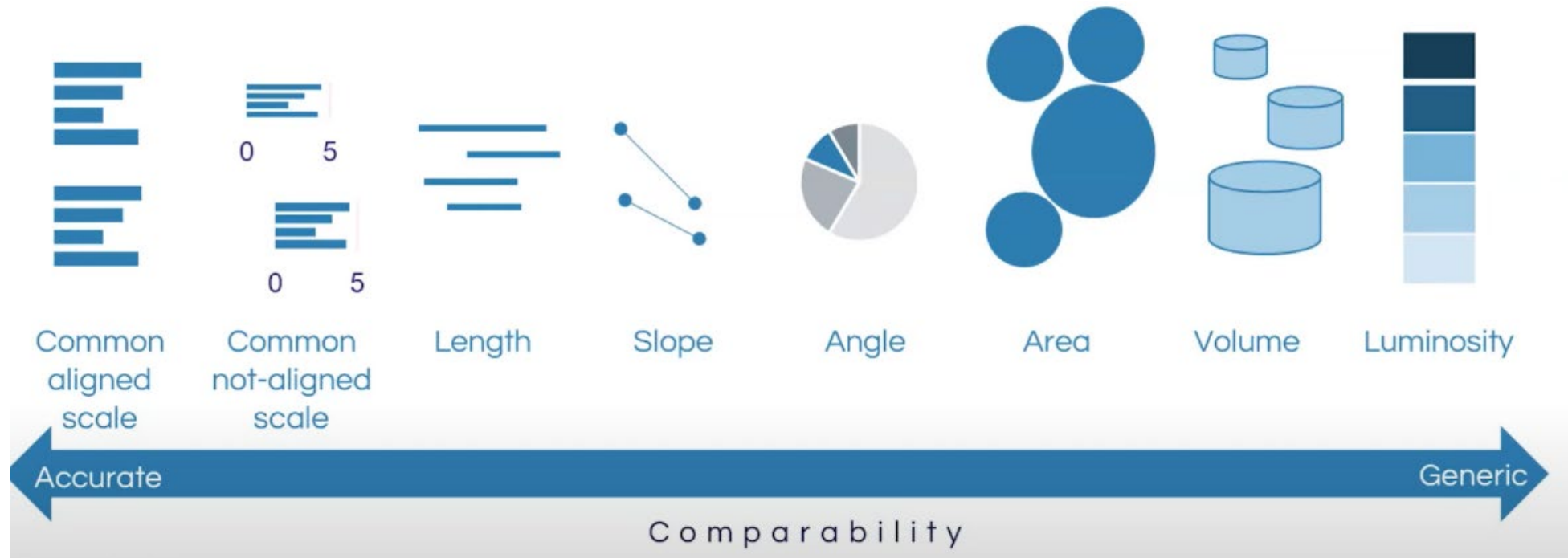


**Data Viz Project**

By Ferdio

# Selecting a Chart

How (Visually) Precise Does the Chart Need to Be?



# Selecting a Chart

## What Will Resonate With Your Audience and User Story?

### User Story:

As a **fatality review team member**,

I need **to know how many infant deaths were sleep-related**

So that **I can compare with other infant deaths.**

# Selecting a Chart

What Will Resonate With Your Audience and User Story?

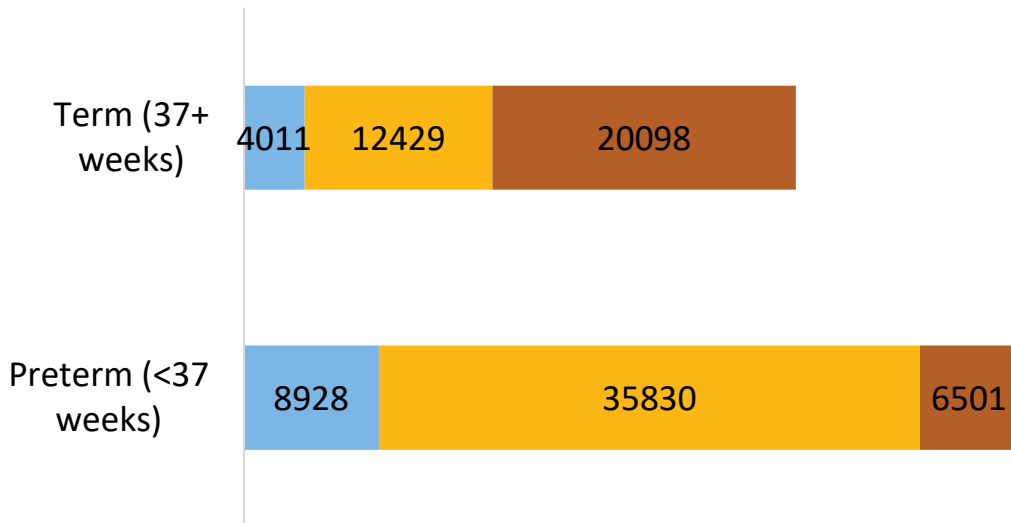
Let's start with a data table.

Number of infant deaths by maturity and sleep environment involvement, 2004-2020		
	Preterm (<37 weeks)	Term (37+ weeks)
Sleep related	6501	20098
Not sleep related	35830	12429
Missing/unknown	8928	4011

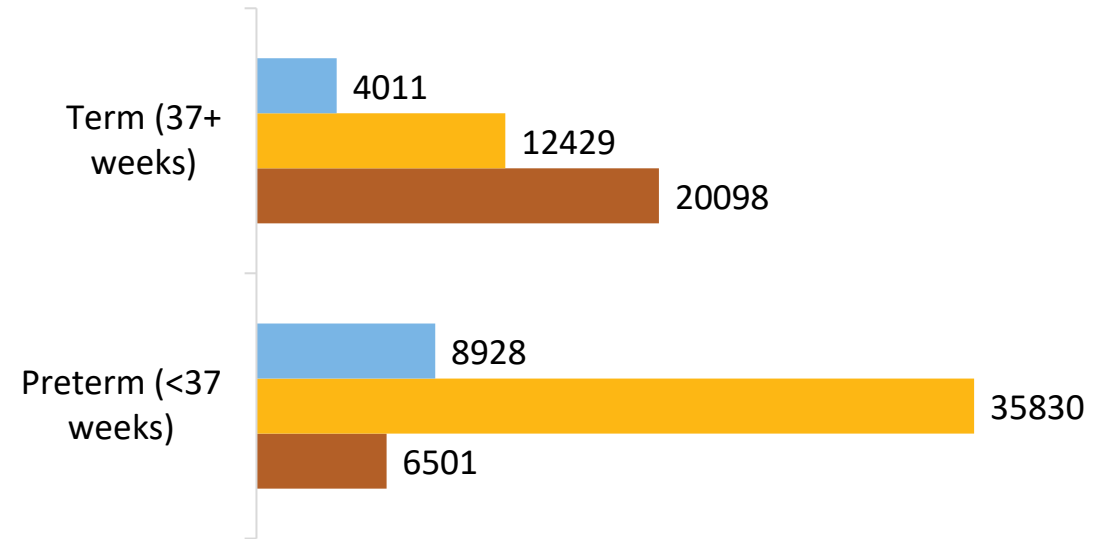
# Bar Charts Tell Different Stories

## Infant deaths by maturity and sleep environment involvement.

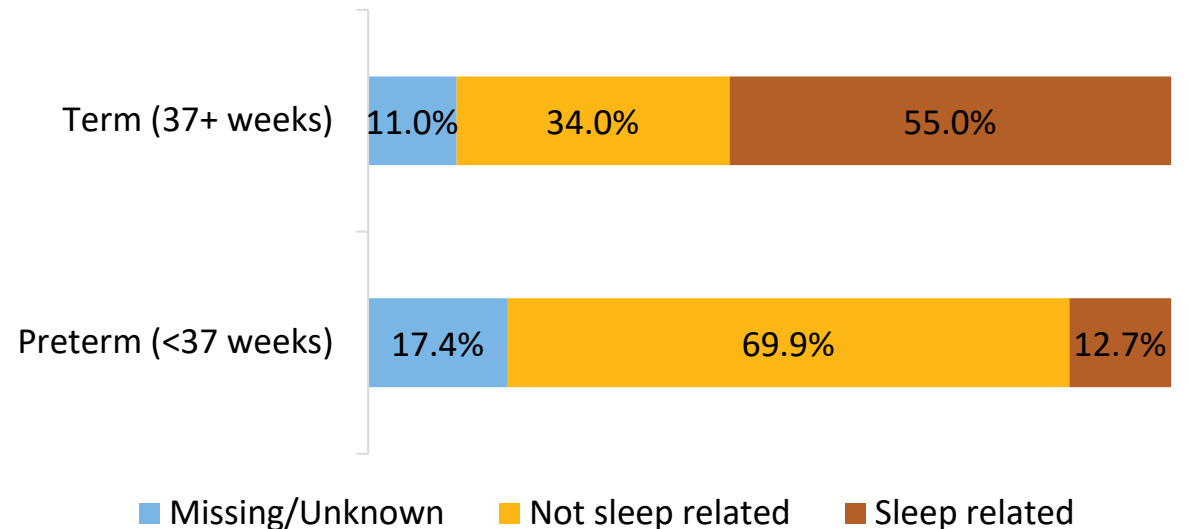
Stacked Bar Chart



Clustered Bar Chart



100% Stacked Bar Chart

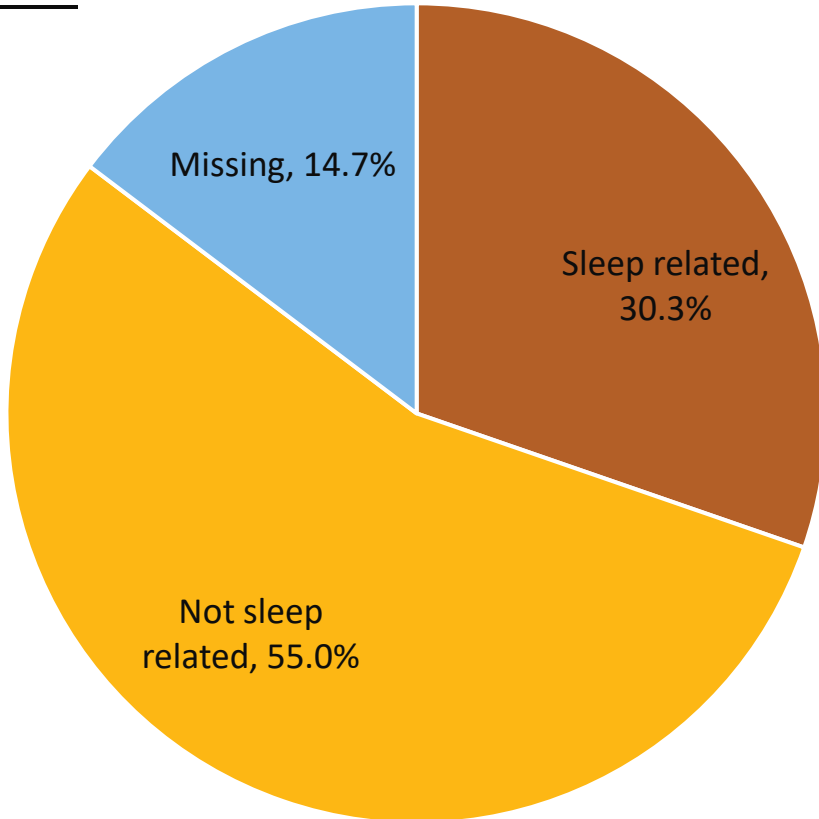


■ Missing/Unknown ■ Not sleep related ■ Sleep related

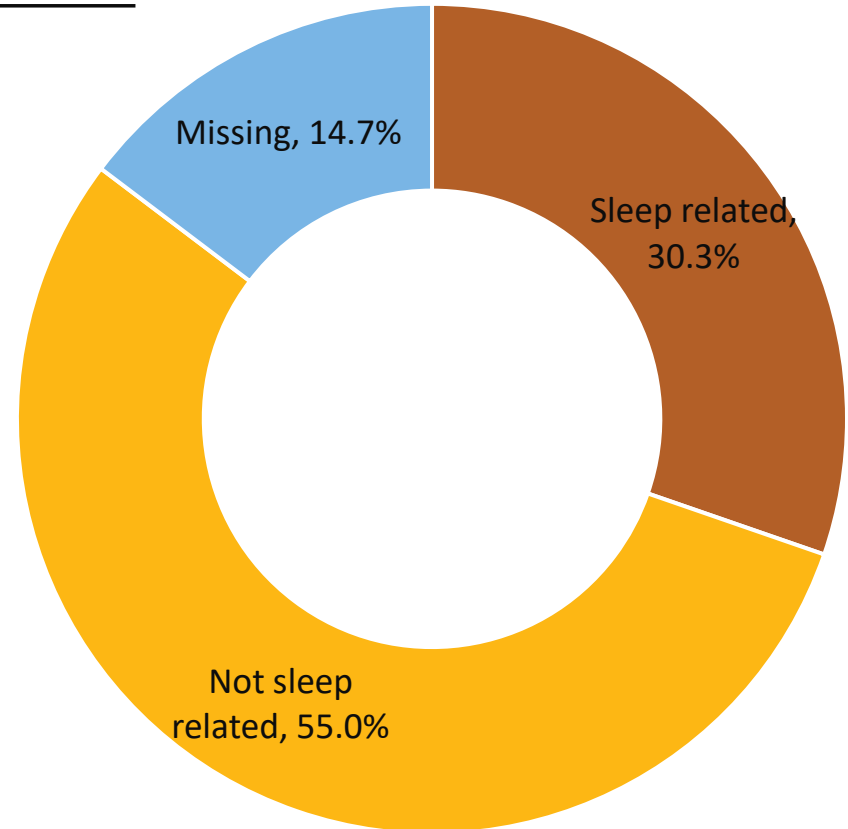
# Pie Charts

## When Are They Appropriate?

Pie Chart



Doughnut Chart

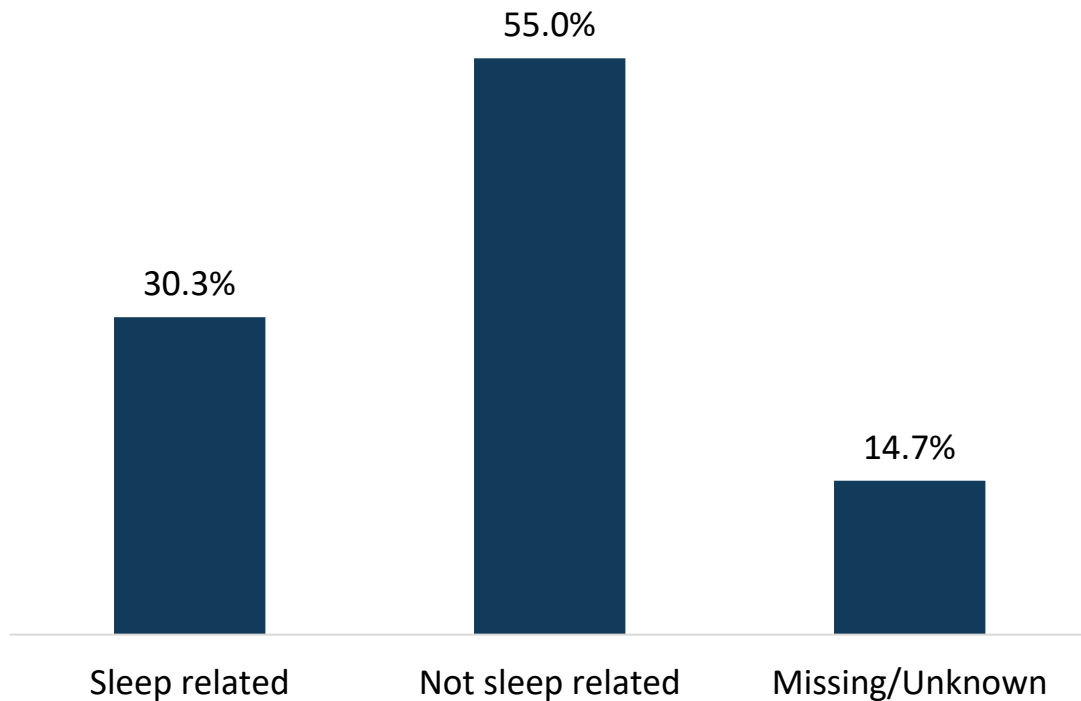


# Column Charts

## Encourage Comparisons

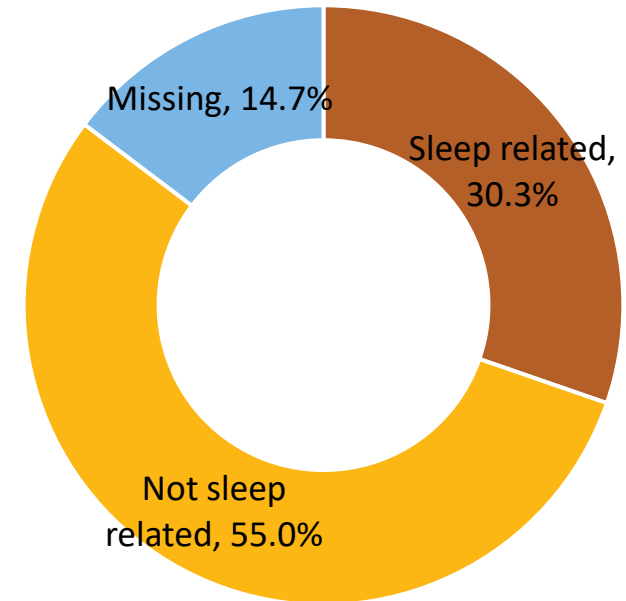
### Column Chart

Focuses our attention on **comparing categories**



### Doughnut Chart

Focuses our attention on **part to whole comparisons**

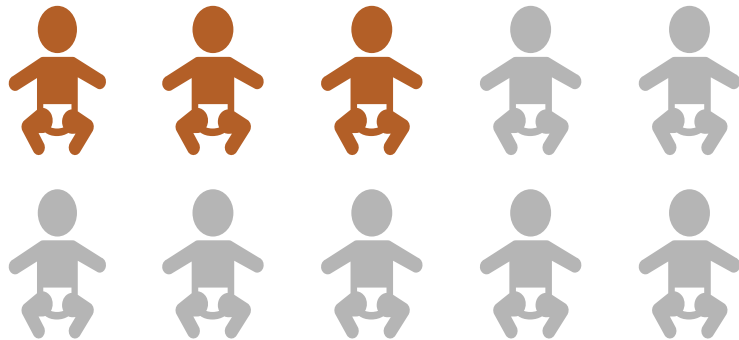


# Other Charts To Consider

Consider  
using whole  
numbers.

## Isotype/Pictogram/Icon Array

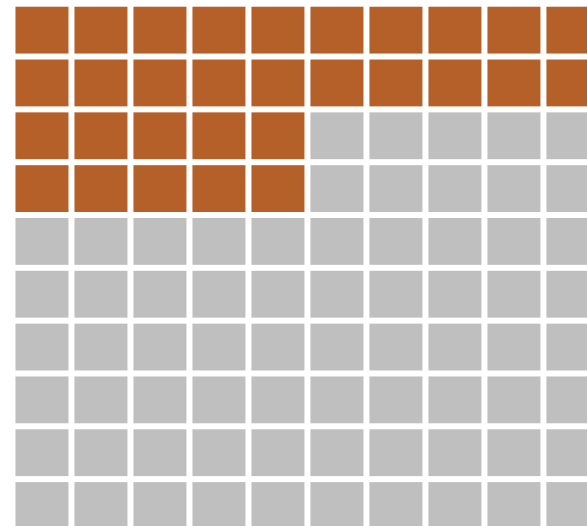
Focuses our attention on both magnitude and part to whole comparisons.



**3 in 10 infant deaths reviewed were sleep related.**

## Gridplot/Waffle Chart

Focuses our attention on part to whole comparisons.



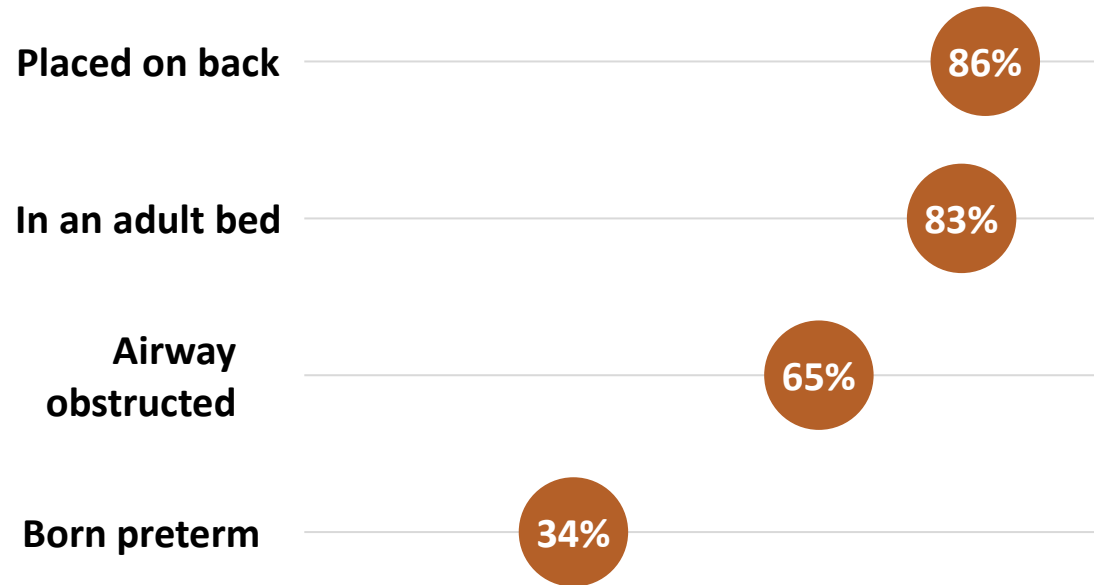
**30 in 100 infant deaths reviewed were sleep related.**

# Other Charts

## To Consider

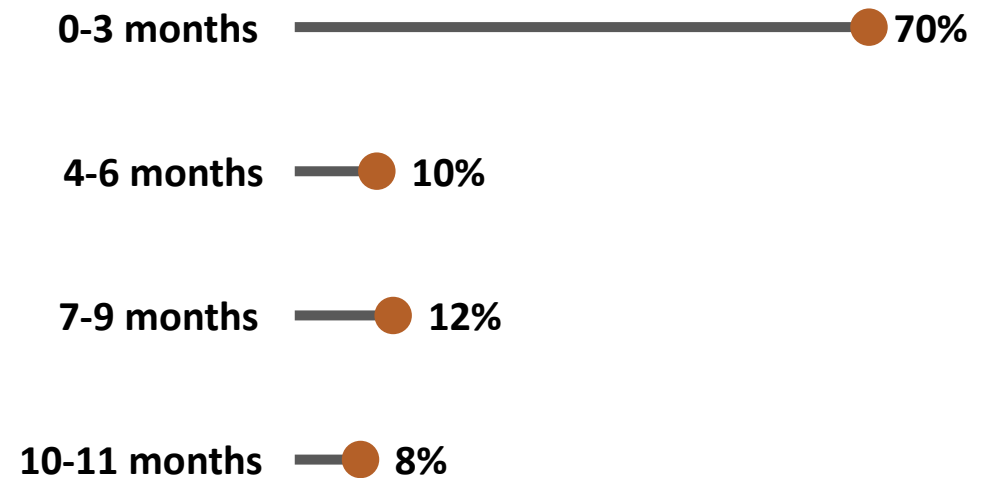
### Dot Plot

To share more information about sleep related deaths.



### Lollipop Chart

To share more information about sleep related deaths.



# Selecting a Chart

## Summary

- Use a chart taxonomy to decide what is best.
  - Consider the user story.
  - What data story do you want to tell?
- Don't be afraid to select a novel chart type. Do so with intention.





# Effective Formatting

Strategies

# Consider Effective Formatting

## For Maximum Impact



### Declutter

Do you really need gridlines and three decimal places?



### Meaningful Text

Charts are meant to be read, interpreted, and understood. Write a headline.



### Purposeful Color

Use color to emphasize your story and focus the audience's attention.



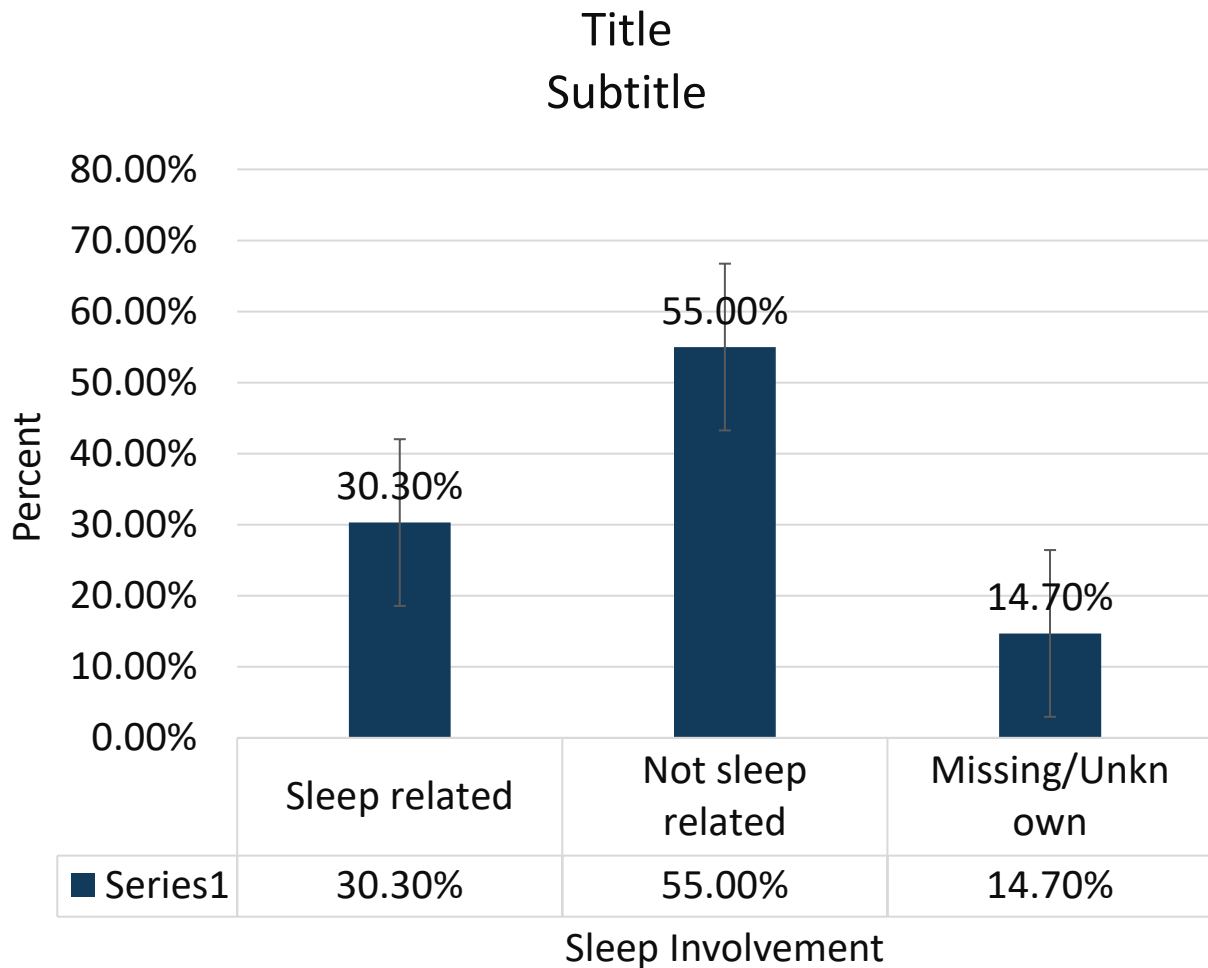
### Accessibility

Consult resources like WebAIM to ensure data visualizations are accessible to all.

## Default Excel Chart With the Kitchen Sink

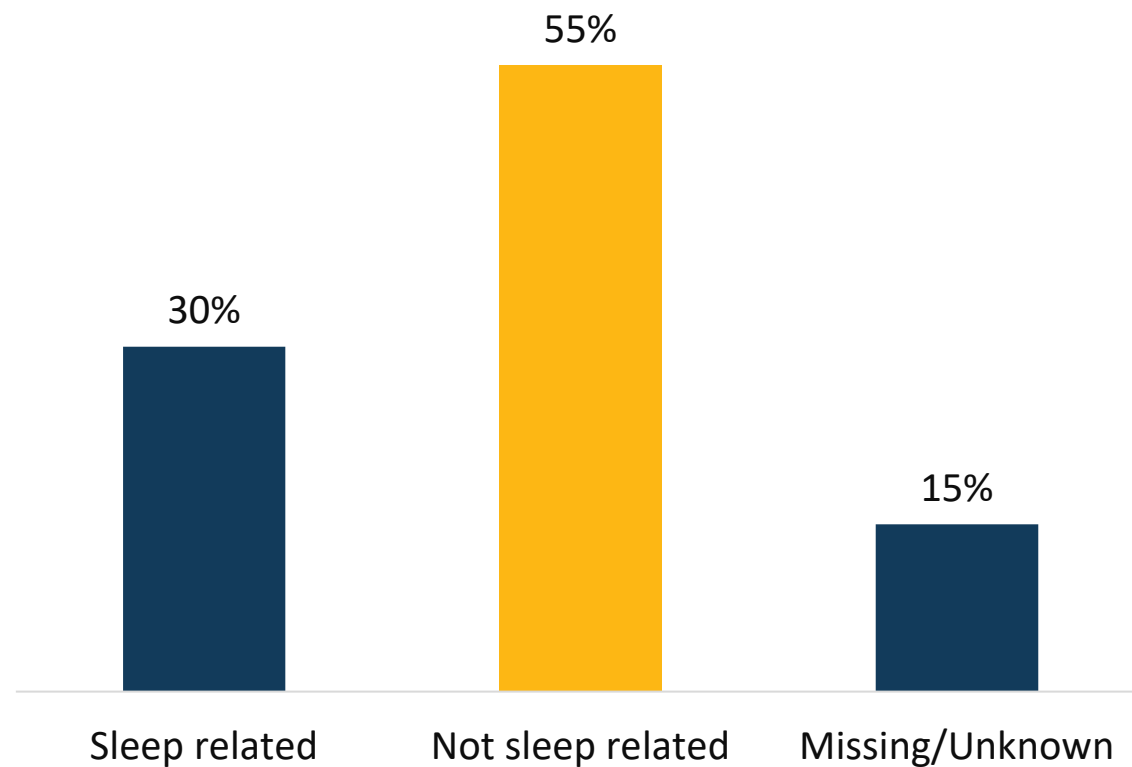


## Chart With Simple and Effective Formatting



**More than half of infant deaths reviewed were **not sleep related**.**

Infant deaths by sleep environment involvement, 2004-2020, Pediatric NFR-CRS.



# Other Considerations

## When Formatting

### Put people first

- Help the audience better understand and recognize the people behind the data.

### Consider missing groups

- Be transparent about analysis and visualization decisions, such as by using footnotes.

### Order data labels in a purposeful way

- Sort alphabetically, by population size, by sample size, or by magnitude of the data.

### Be thoughtful with colors and images.

- Be intentional in your choices not to reinforce potential stereotypes.

### Challenge the default approach

- Consider if there are different approaches.



# In The Wild

Success Stories

# Icon Array

## National Center Example

From [Teen Driver Safety Guidance](#).

**870** 15-17 Year Old Motor Vehicle Occupants



**40** Full High School Classrooms

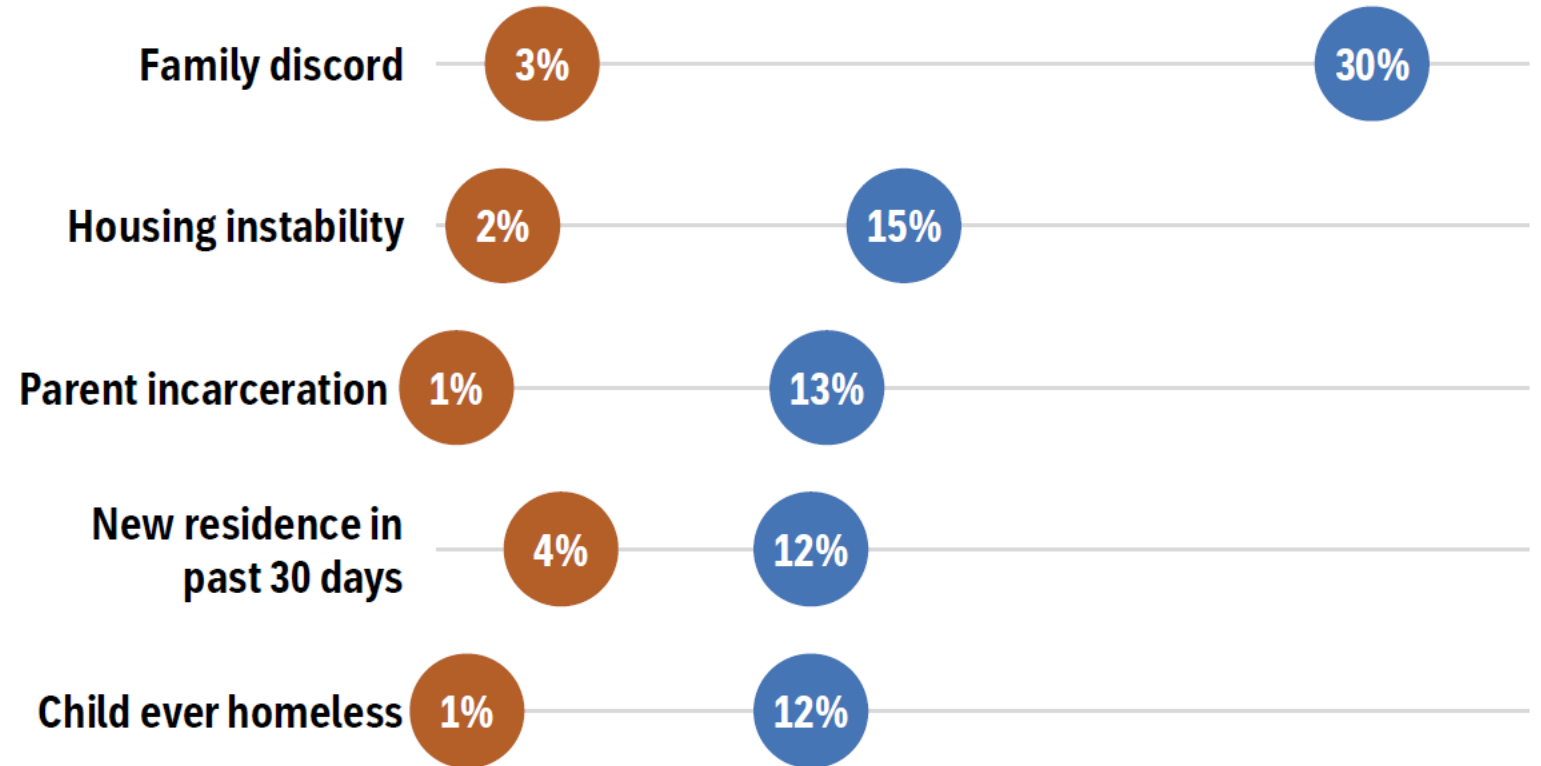


# Dot Plot and Integrated Legend

## National Center Example



**Children ever  
in foster care  
experienced housing  
and family stressors  
at a higher  
proportion  
compared to  
children not ever in  
foster care.**



# Integrated Legend

## Arkansas Infant and Child Death Review

### Sleep Location at Death



### Position Found at Death

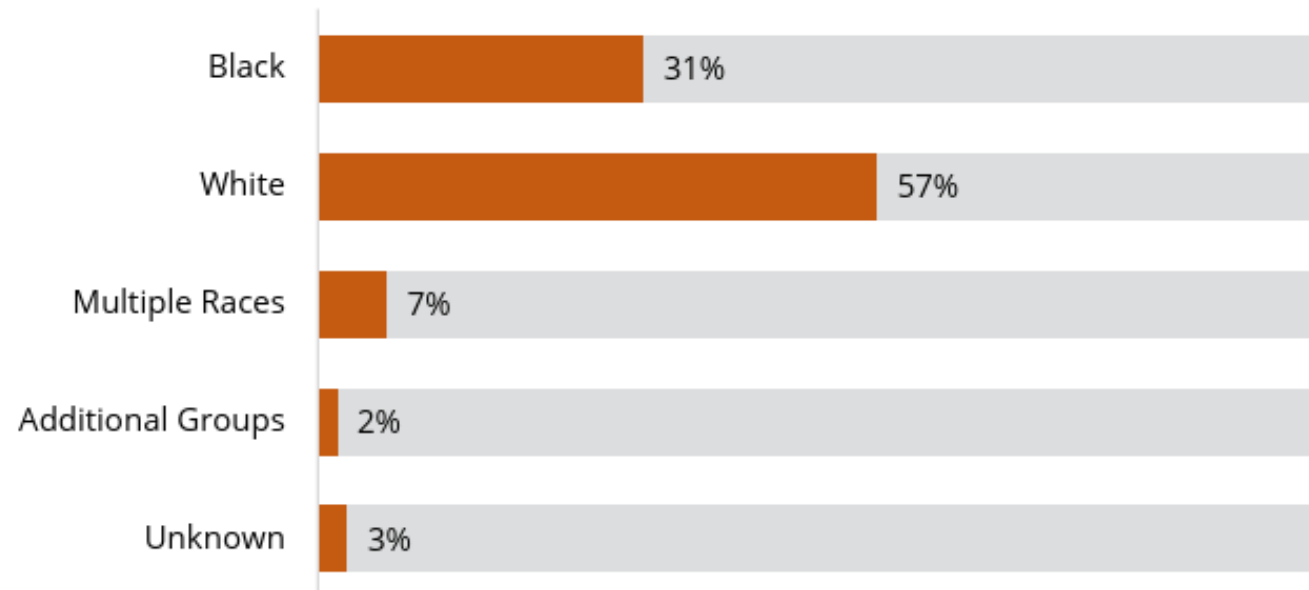


# Thoughtful Labeling and Transparency

## Michigan Fatality Review and Prevention




**Chart 14.** Deaths Reviewed by Local CDR Teams by Child's Race (2022)

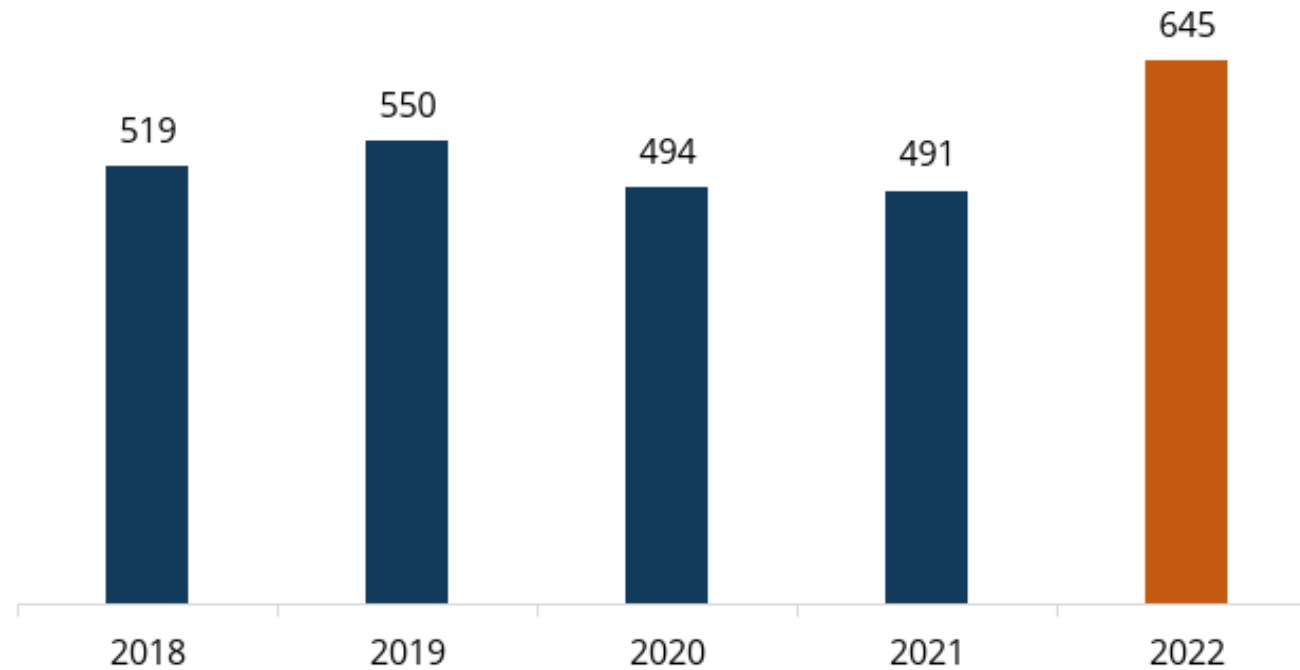


**Notes:** Additional groups include American Indian children and Asian or Pacific Islander children. American Indian children are those who were identified as American Indian, alone or in combination with other races, on the child's death certificate. This definition is inclusive of ancestry and Tribal affiliation identified on the death record.

# Purposeful Formatting

## Michigan Fatality Review and Prevention

 **Chart 3.** Number of Child Deaths Reviewed by Local CDR Teams by Year of Review (2018-2022)

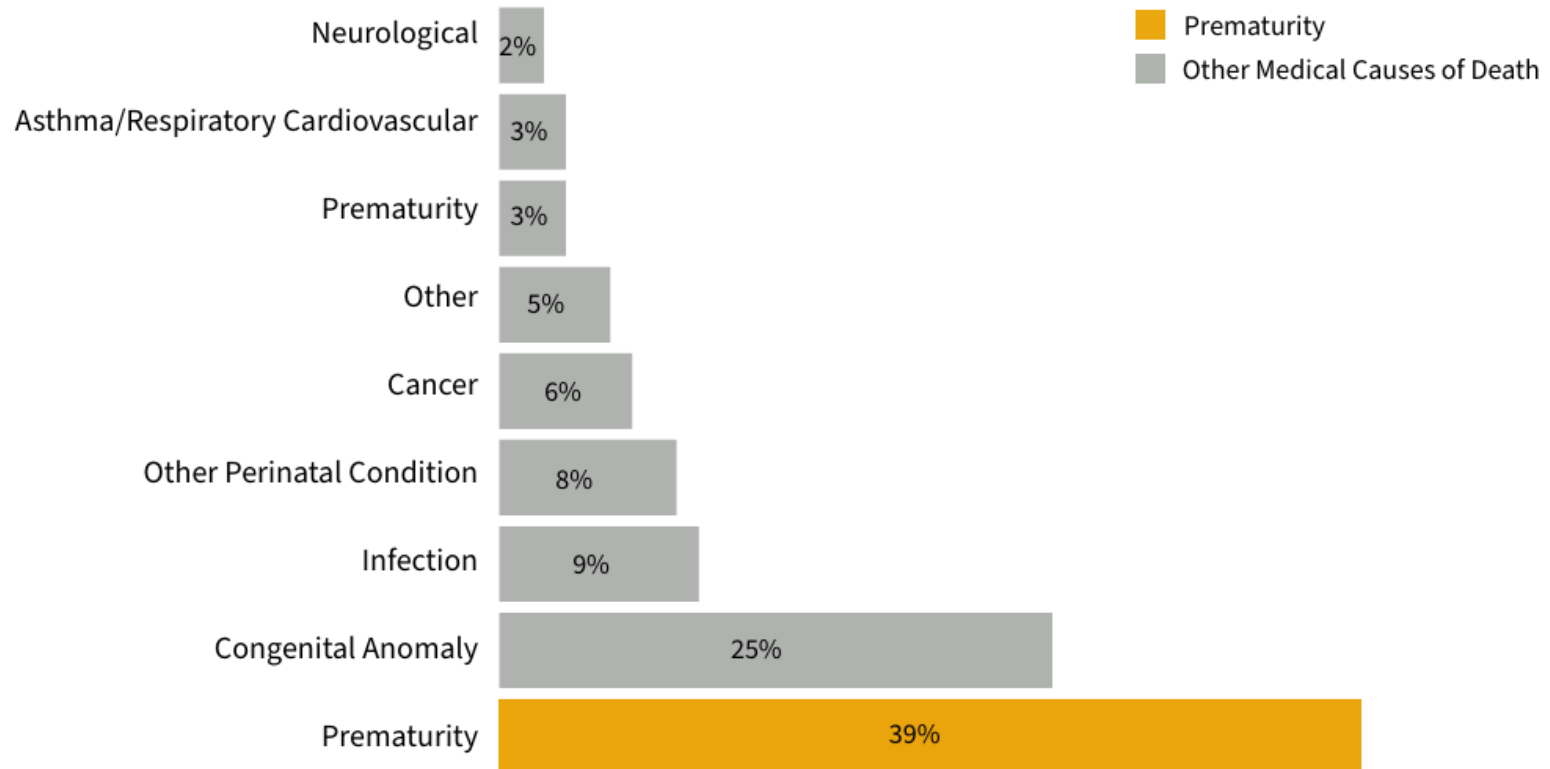


# Meaningful Text and Colors

## Ohio Child Fatality Review

**Most medical deaths are due to prematurity.**

Reviews of Deaths by Medical Causes Among Deaths Reviewed, from 2018 through 2022 (n=3,495).



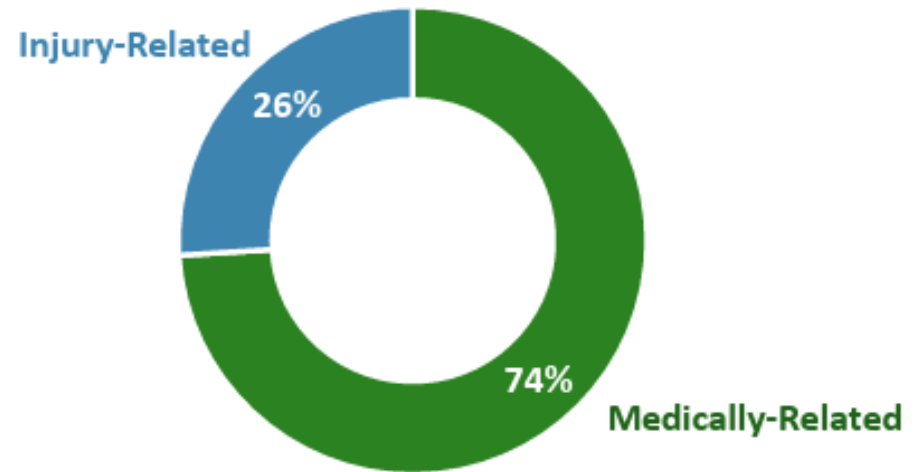
# Pictograms and Color Consistency

## Louisiana Child Death Review Program

From 2019-2021, an average of **117** infants per year died from an injury before they reached their first birthday.<sup>2</sup>



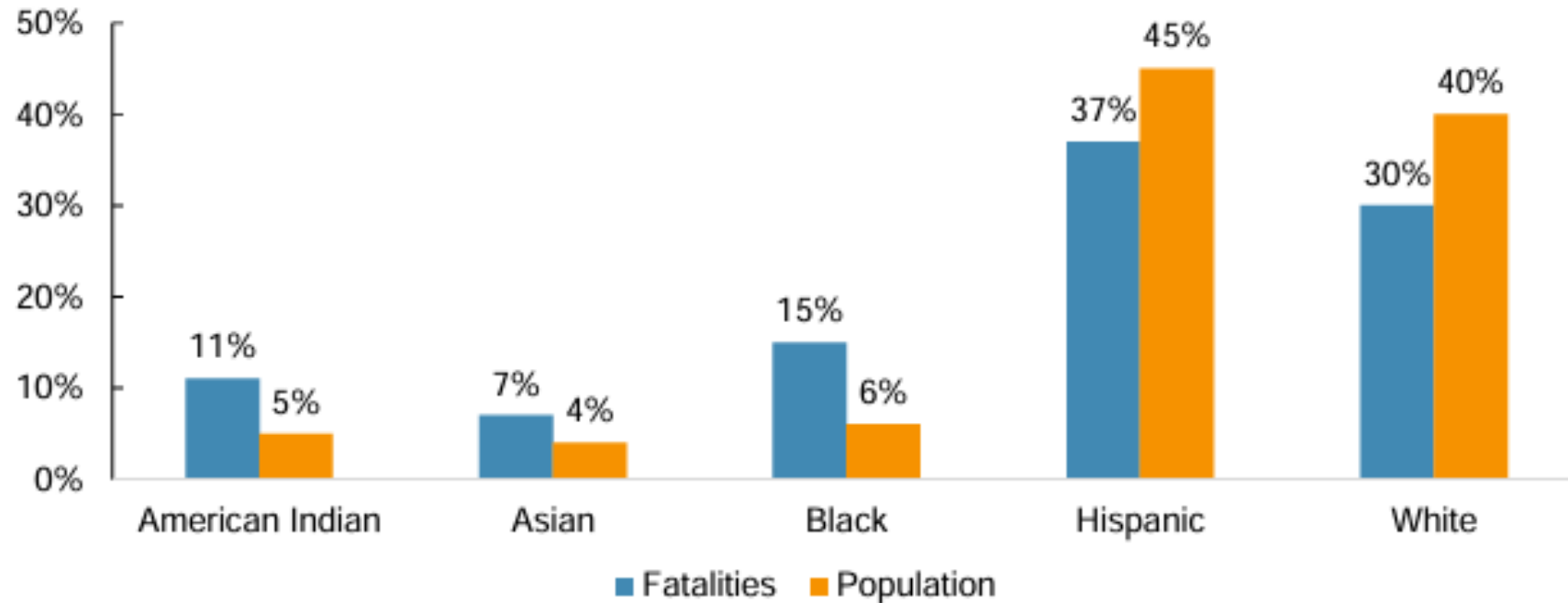
About one in four infant deaths were **injury-related.**<sup>2</sup>



# Charts for Comparisons

## Arizona Child Fatality Review Team

Figure 55. Percentage of Motor Vehicle Crash-Related Deaths by Race/Ethnicity, compared to the Population, Ages Birth to 17 Years, Arizona, 2023 (n=82)<sup>2</sup>



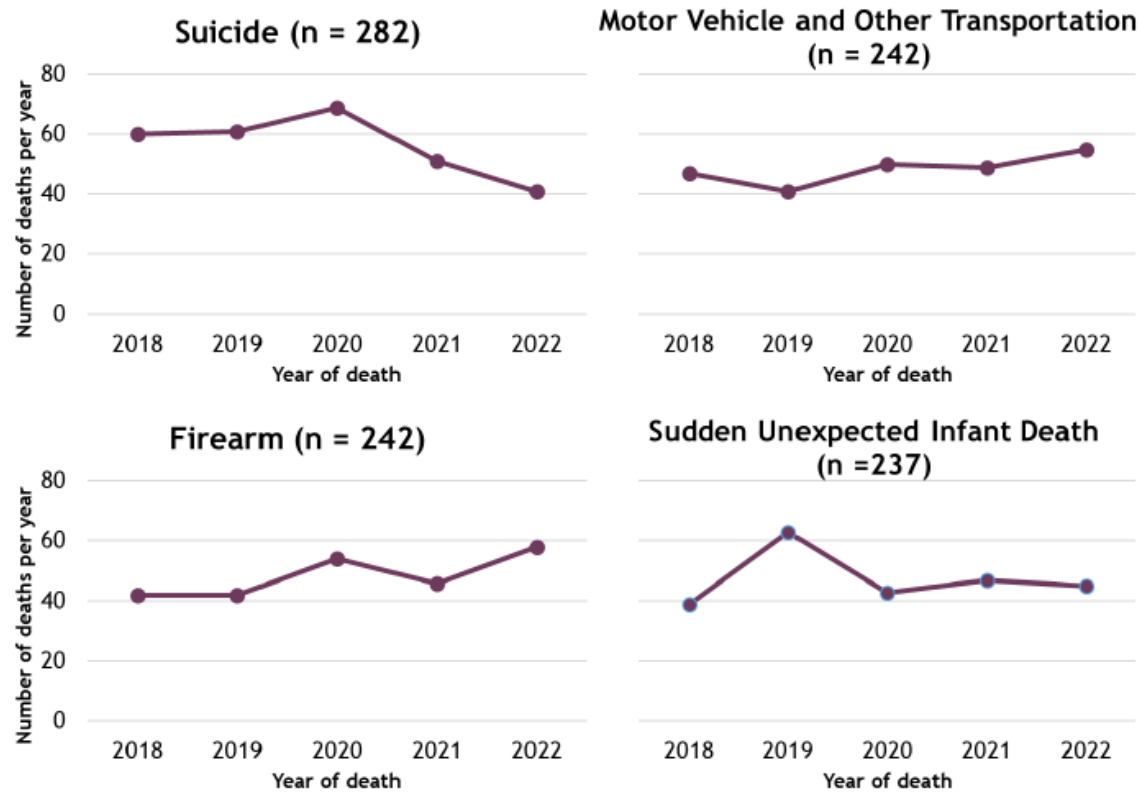
# Small Multiples

## Colorado's Child Fatality Prevention System

Figure 1

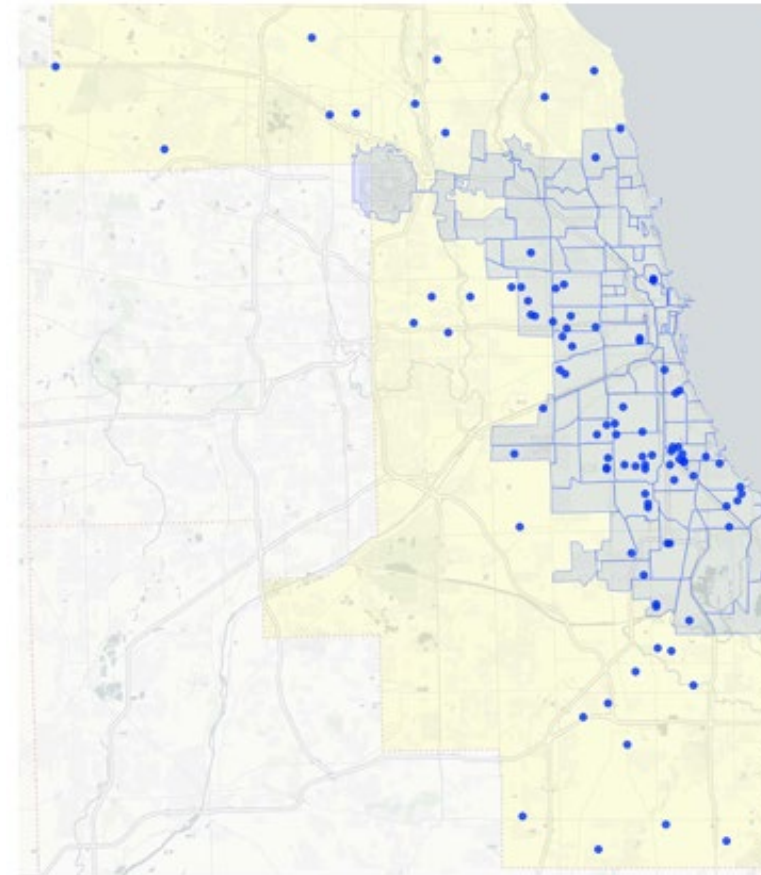
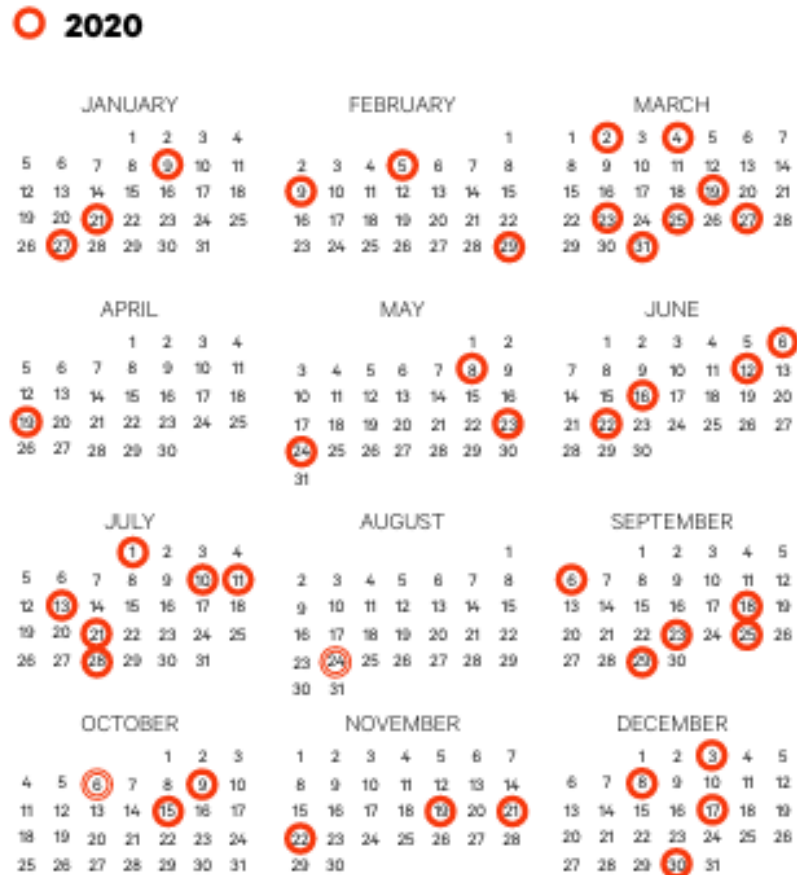
Leading causes of death occurring among those under age 18 in Colorado and reviewed by CFPS by year, 2018-2022 (n=1215)

Note: Some of these deaths may be counted in multiple categories. The categories are not mutually exclusive.



# Creative Distributions

Cook County SUID Case Registry Team & Dr. Kyran Quinlan





# Resources & Discussion

How Can We Help?



## What Types of Data Products Do You Currently Make?

What do you hope to create in the future?



## How Do You Currently Select Chart Types for Visualizations?

How might you approach visualizations differently?



## Do You Have a Visualization That You're Proud of and/or Would Like Feedback on?

Share them!

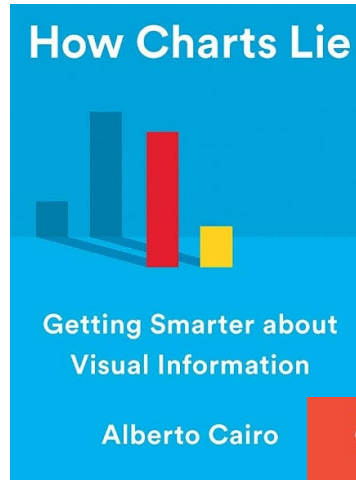


THE WALL STREET JOURNAL.  
**GUIDE TO  
INFORMATION  
GRAPHICS**  
THE DOS & DON'TS  
OF PRESENTING  
DATA, FACTS,  
AND FIGURES  
DONA M. WONG  
"INVALUABLE." —HOW DESIGN



# Additional Resources

## To Explore



- Books (a few examples of many).
- Urban Institute's Do No Harm Project:

<https://www.urban.org/projects/do-no-harm-project>



# Office Hours

## 2026 Sessions from the National Center

Date	Topic
<b>2/17/2026</b>	Grief and Bereavement
<b>3/17/2026</b>	Public Fatality Review Data
<b>4/21/2026</b>	Data Quality: Using Text Fields in the Pediatric NFR-CRS
<b>5/19/2026</b>	Building Support for Fatality Review in Your Organization
<b>6/16/2026</b>	Prevention in Action: Community Action Teams
<b>7/21/2026</b>	Documenting Deaths Related to Consumer Products
<b>8/18/2026</b>	Involving People Who Have Experienced Loss in Fatality Review
<b>9/15/2026</b>	Version 7.0 of the Pediatric NFR-CRS
<b>10/20/2026</b>	Family Engagement Resources
<b>11/17/2026</b>	Working with Small Numbers to Catalyze Prevention
<b>12/15/2026</b>	Celebrating Success: Highlights of Prevention Successes

Visit <https://ncfrp.org/news/> to register (each session requires individual registration).

# Thank You for Your Time!

[www.ncfrp.org](http://www.ncfrp.org)



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