



A Data Story

Visualizing with Purpose in Excel

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Acknowledgement

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At the time of this publication, Miriam E. Delphin-Rittmon, Ph.D, served as Assistant Secretary for Mental Health and Substance Use in the U.S. Department of Health and Human Services and the Administrator of the Substance Abuse and Mental Health Services Administration.

The opinions expressed herein are the view of PTTC Network and do not reflect the official position of the Department of Health and Human Services (DHHS), SAMHSA. No official support or endorsement of DHHS, SAMHSA, for the opinions described in this document is intended or should be inferred.

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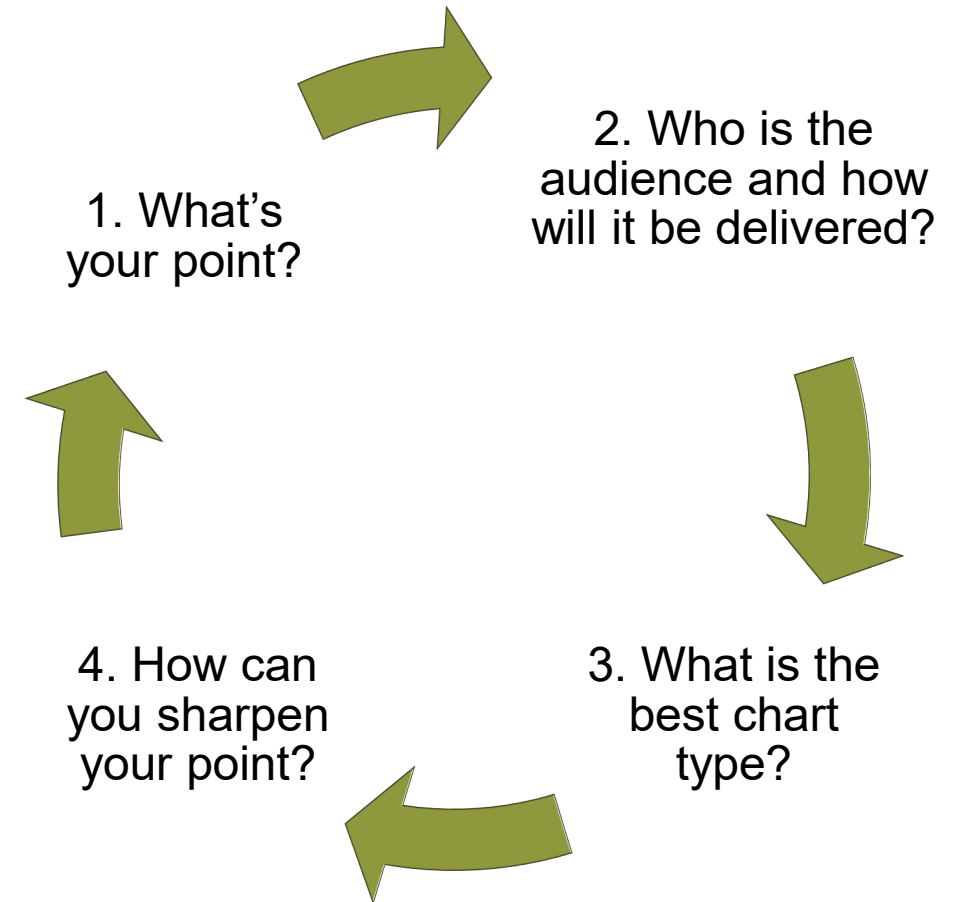
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Learning Objective

Use the 4-step visualization process in Excel to tell your data story

4-Step Visualization Process



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Our Roadmap Today

- ✓ Introductions
- ✓ Why visualize with a purpose?
- ✓ Using the 4-step visualization process
- ✓ Creating a chart in Excel
- ✓ What's the story?
- ✓ Sharpening the message
- ✓ Q&A
- ✓ Evaluation



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easy on
the eyes,
easy on
the mind



Let's Discuss!

Why do you think we need to visualize data with a purpose?



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Visualization Best Practices

- » Follow the 3-second rule
- » Limit the number of colors
- » Create a clear message
- » Remove redundant information
- » Declutter

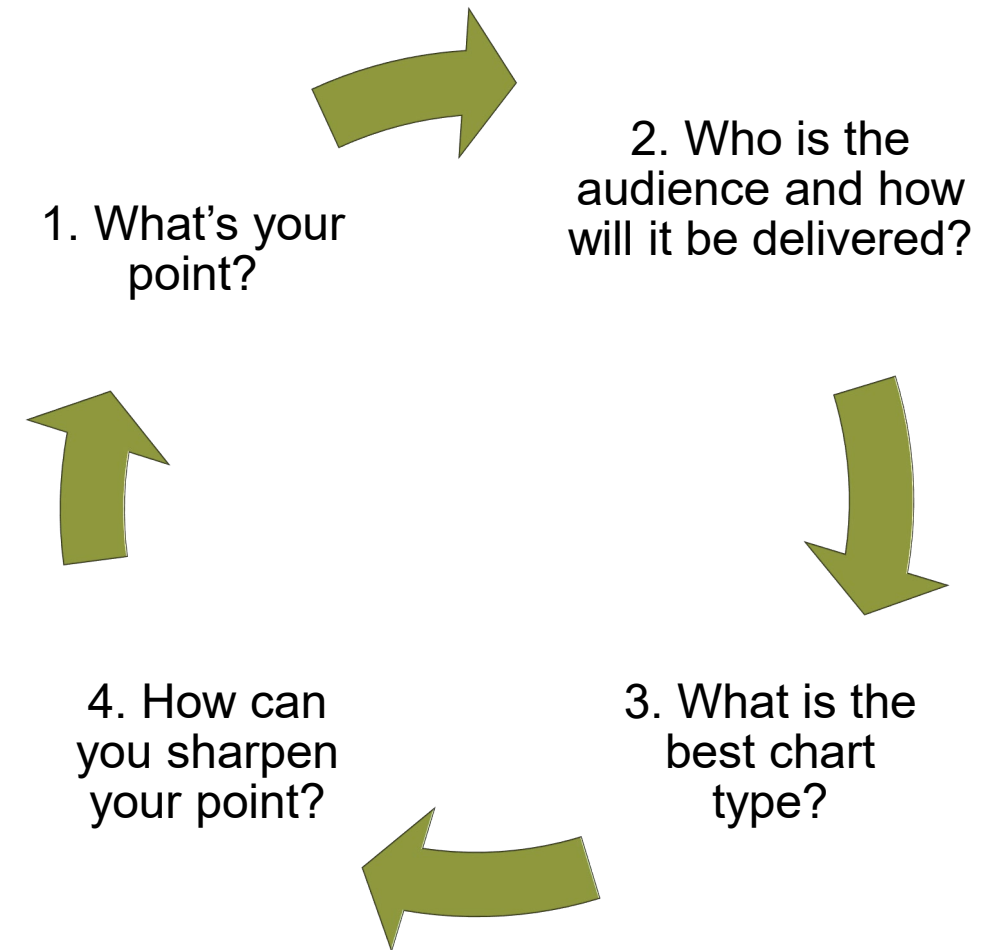
the

steps



4-Step Visualization Process

- » What's your point?
- » Who is the audience and how will it be delivered?
- » What is the best chart type?
- » How can you sharpen your point?



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1. What's Your Point?

Determine why it is important to communicate your data so you can understand the point you want to make. Is your purpose to:



Support data-driven decision-making?



Help stakeholders, peers, or communities understand the data?



Create awareness and produce action about an issue?



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2. Who is the audience and how will it be delivered?

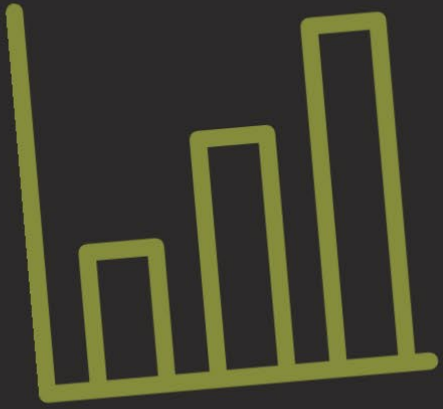
Understand the background and knowledge level of your audience



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**deciding
on a chart**



3. What is the best chart type?

Rule of thumb for choosing a chart



Pie charts - 2 or 3 categories that total 100%.



Bar/column charts - dataset comparisons with different categories.



Line charts - data occurring over time.



Scatter charts - larger, more complex datasets.

Let's Create a Chart

1. What's the point?

Understanding barriers that prevention professionals face to become credentialed

2. Who's the audience and how will it be delivered?

Prevention professionals, results sent via email

Prevention Professionals' Survey

Q: What barriers do you have to becoming credentialed in 2023?

Survey results:

Barrier	%
State/organization not supportive	9%
No barriers	11%
Not enough study resources	11%
Time constraints	11%
Procrastination	13%
Fear of taking/not passing the test	15%
Financial constraints	15%



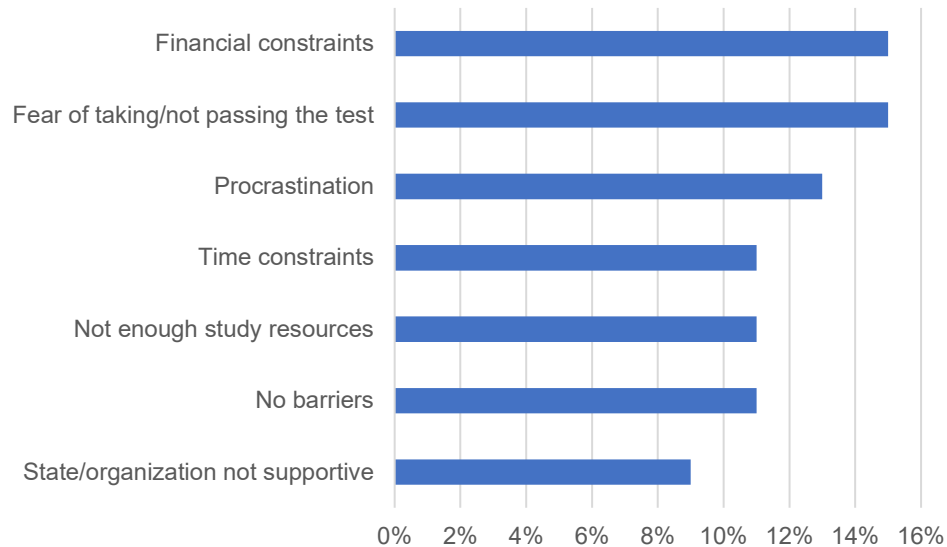
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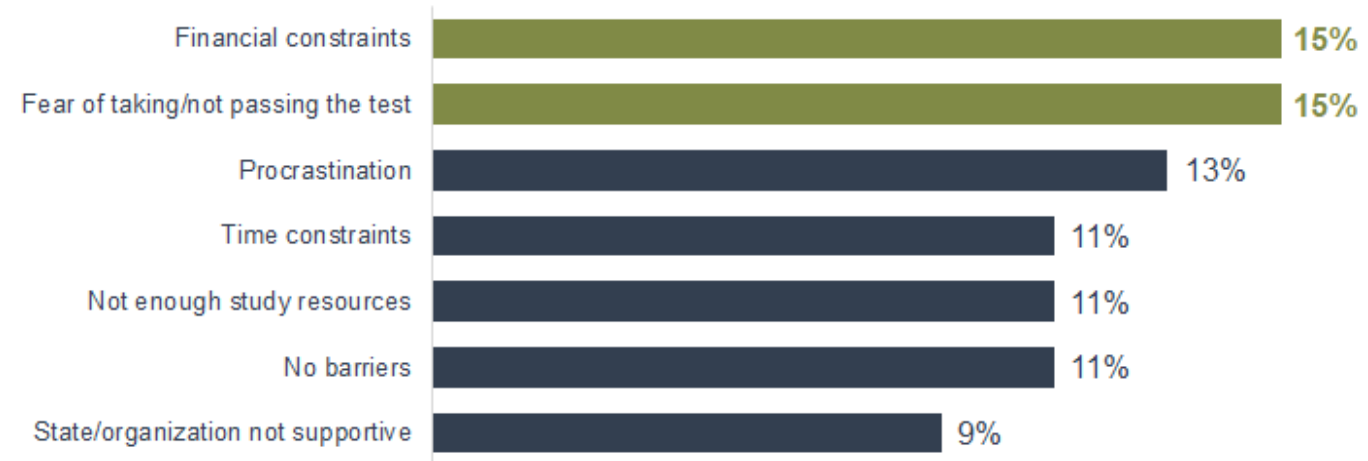
Live Data Demo

Step 1. Default chart in Excel



Step 2. After edits

Financial constraints and fear of test-taking were the top 2 barriers to becoming credentialed in 2023.



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Let's Create Charts

1. What's the point?

Create awareness about the health effects and risks of alcohol.

2. Who's the audience and how will it be delivered?

Prevention professionals and communities.

Written brief covering alcohol-related health effects with easy-to-digest data visualizations.



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Data Story Example

Gender	Year	Age Adjusted Rate/100,000
Male	1999	11.5
Male	2000	11.4
Male	2001	11.2
Male	2002	11
Male	2003	11
Male	2004	11
Male	2005	11
Male	2006	10.9
Male	2007	11.3
Male	2008	11.5
Male	2009	11.3
Male	2010	11.7
Male	2011	11.7
Male	2012	12.1
Male	2013	12.5
Male	2014	12.9
Male	2015	13.6
Male	2016	14.1
Male	2017	14.3
Male	2018	14.7
Male	2019	15.2
Male	2020	19.2

Gender	Year	Age Adjusted Rate/100,000
Female	1999	3.2
Female	2000	3.2
Female	2001	3.3
Female	2002	3.3
Female	2003	3.3
Female	2004	3.3
Female	2005	3.4
Female	2006	3.4
Female	2007	3.5
Female	2008	3.6
Female	2009	3.8
Female	2010	3.9
Female	2011	4.1
Female	2012	4.2
Female	2013	4.3
Female	2014	4.6
Female	2015	5
Female	2016	5.2
Female	2017	5.3
Female	2018	5.6
Female	2019	5.9
Female	2020	7.5

Alcohol-induced deaths CDC Wonder

What are some key takeaways from this data?



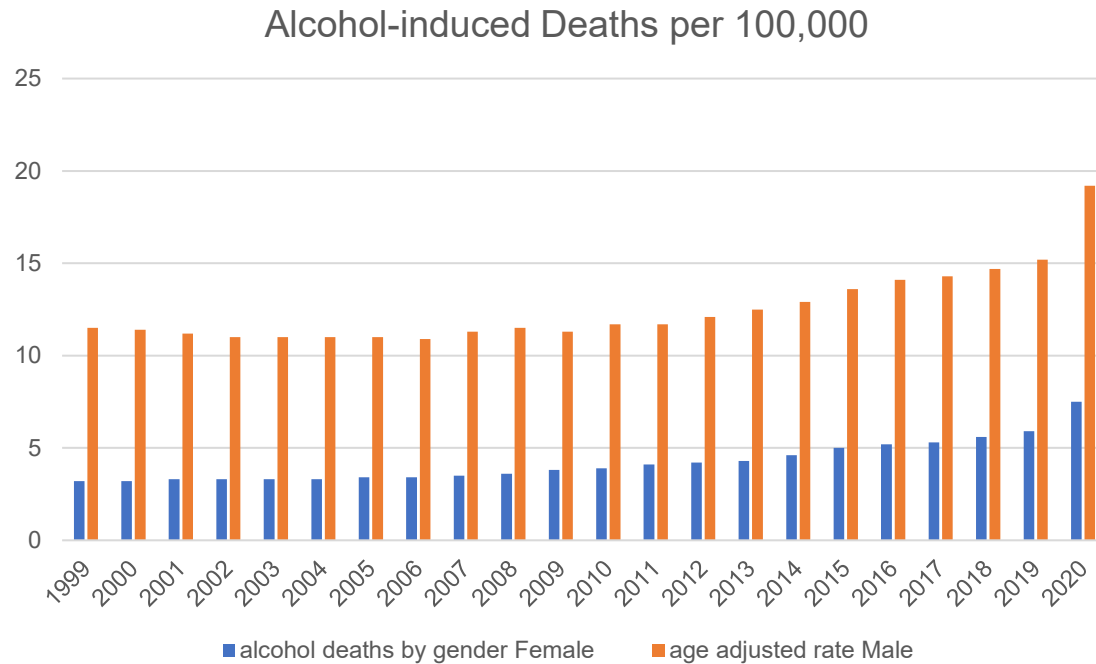
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Let's Create Charts!

Bar Chart Example



Gender	Year	Age Adjusted Rate/100,000	Gender	Year	Age Adjusted Rate/100,000
Male	1999	11.5	Female	1999	3.2
Male	2000	11.4	Female	2000	3.2
Male	2001	11.2	Female	2001	3.3
Male	2002	11	Female	2002	3.3
Male	2003	11	Female	2003	3.3
Male	2004	11	Female	2004	3.3
Male	2005	11	Female	2005	3.4
Male	2006	10.9	Female	2006	3.4
Male	2007	11.3	Female	2007	3.5
Male	2008	11.5	Female	2008	3.6
Male	2009	11.3	Female	2009	3.8
Male	2010	11.7	Female	2010	3.9
Male	2011	11.7	Female	2011	4.1
Male	2012	12.1	Female	2012	4.2
Male	2013	12.5	Female	2013	4.3
Male	2014	12.9	Female	2014	4.6
Male	2015	13.6	Female	2015	5
Male	2016	14.1	Female	2016	5.2
Male	2017	14.3	Female	2017	5.3
Male	2018	14.7	Female	2018	5.6
Male	2019	15.2	Female	2019	5.9
Male	2020	19.2	Female	2020	7.5



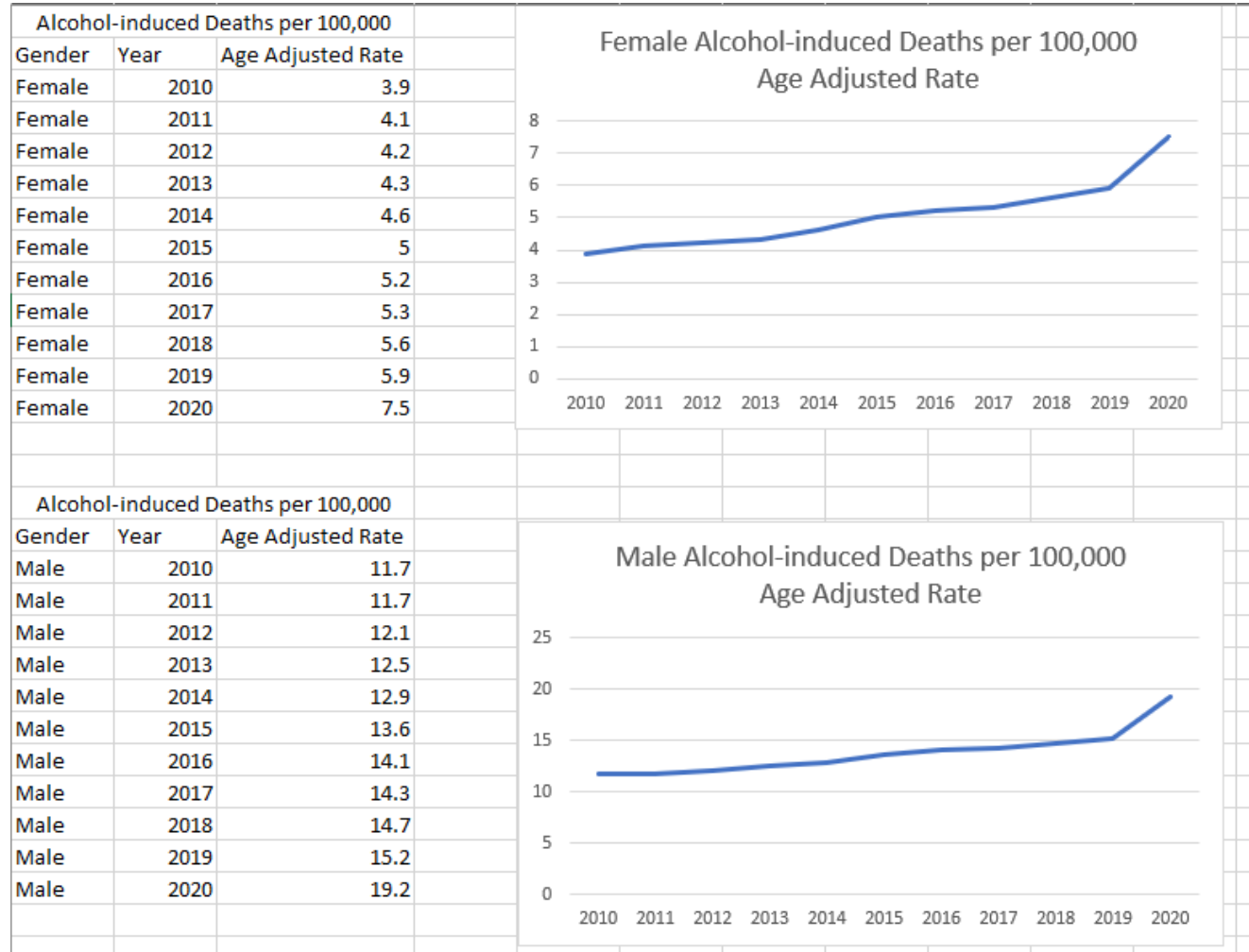
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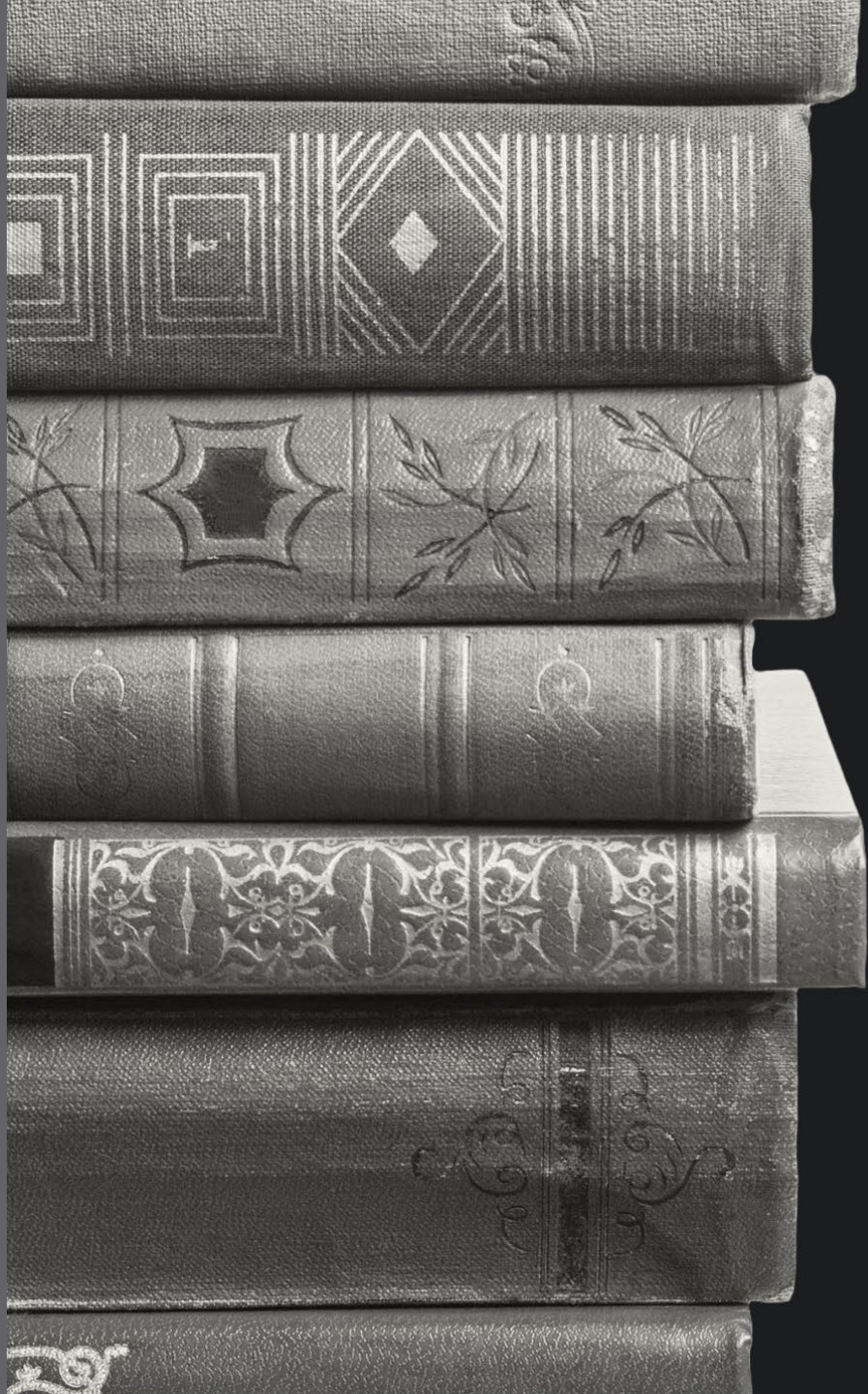
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Let's Create Charts

First iteration of chart during live demo





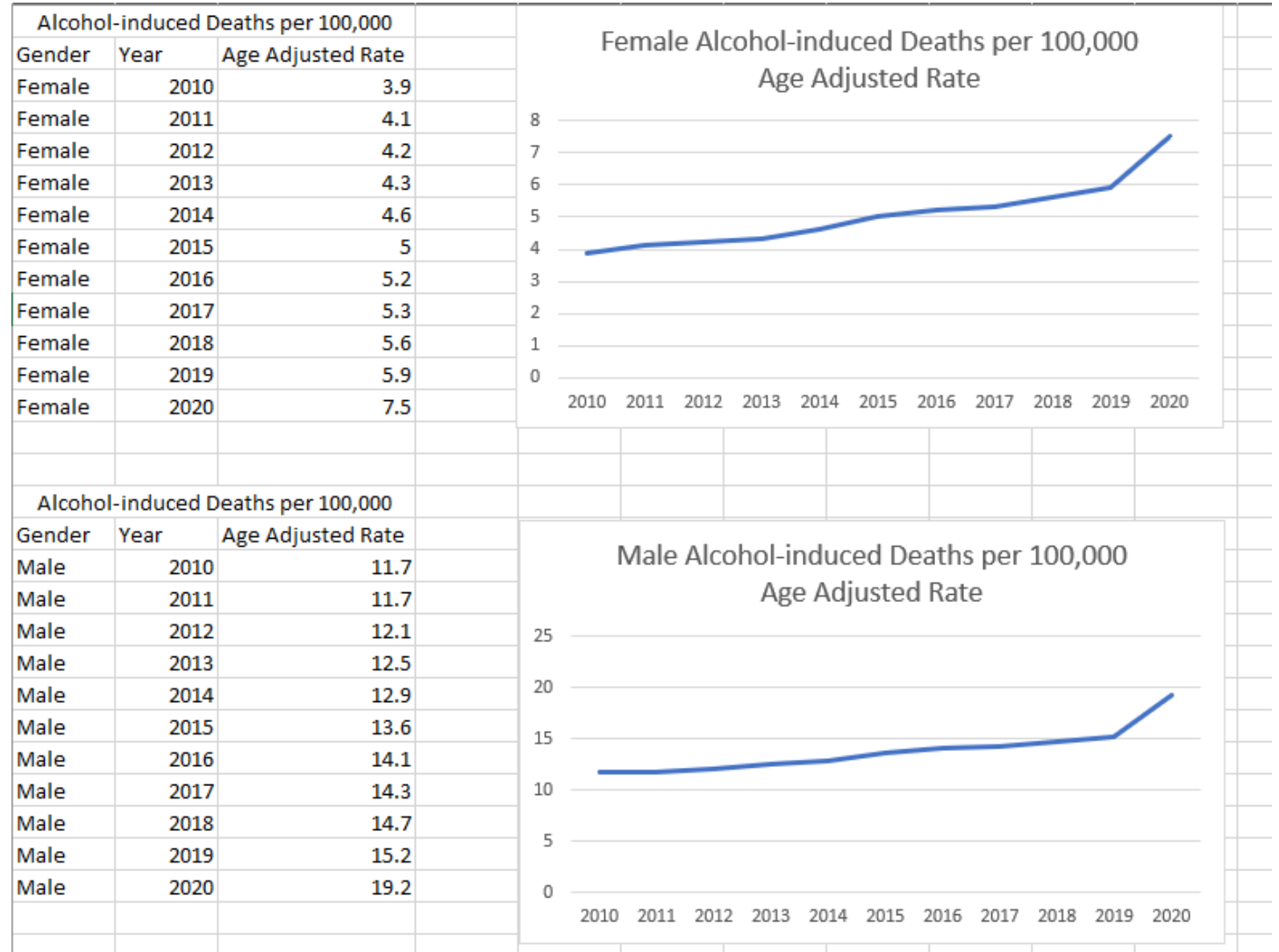
what's

the

story?

Before we edit, what's the data story?

Do you see insights that have emerged after creating the charts?



Writing Our Chart Title Using the Data Takeaways

- » Title should be a full sentence
- » Should make the audience care about the data
- » Should be clear and crisp



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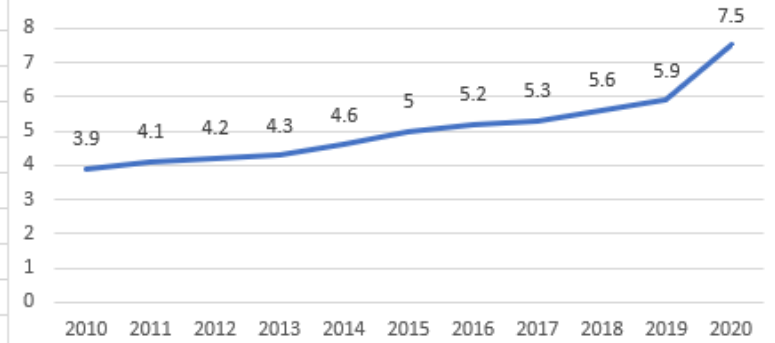
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Before we edit, what's the data story?

Our data story insights:

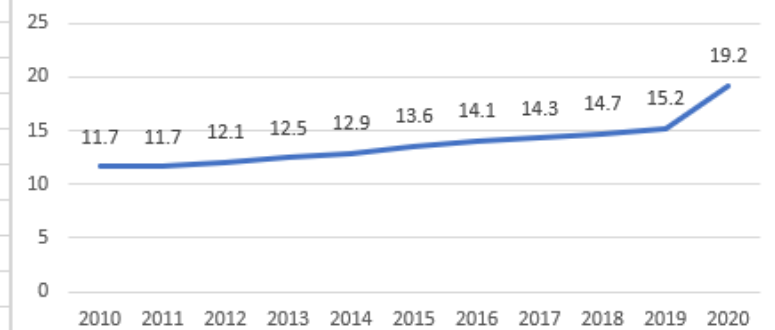
Alcohol-induced Deaths per 100,000		
Gender	Year	Age Adjusted Rate
Female	2010	3.9
Female	2011	4.1
Female	2012	4.2
Female	2013	4.3
Female	2014	4.6
Female	2015	5
Female	2016	5.2
Female	2017	5.3
Female	2018	5.6
Female	2019	5.9
Female	2020	7.5

Alcohol-induced deaths for females
increased 27% from 2019 to 2020.



Alcohol-induced Deaths per 100,000		
Gender	Year	Age Adjusted Rate
Male	2010	11.7
Male	2011	11.7
Male	2012	12.1
Male	2013	12.5
Male	2014	12.9
Male	2015	13.6
Male	2016	14.1
Male	2017	14.3
Male	2018	14.7
Male	2019	15.2
Male	2020	19.2

Alcohol-induced deaths for males
increased 26% from 2019 to 2020.



added data labels from the format

made the title left justified

Finding 2019 to 2020 percentage increase formula



sharpening
the
message



4. How can you sharpen your point?

- ✓ Title chart to tell a story
- ✓ Declutter
- ✓ Customize colors
- Use color to emphasize your point

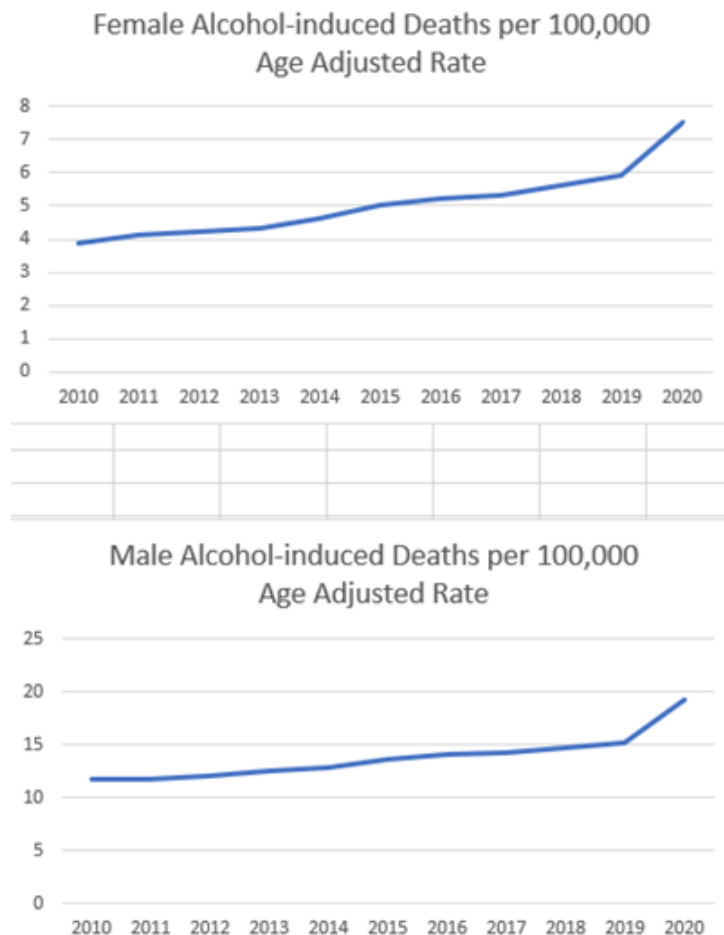


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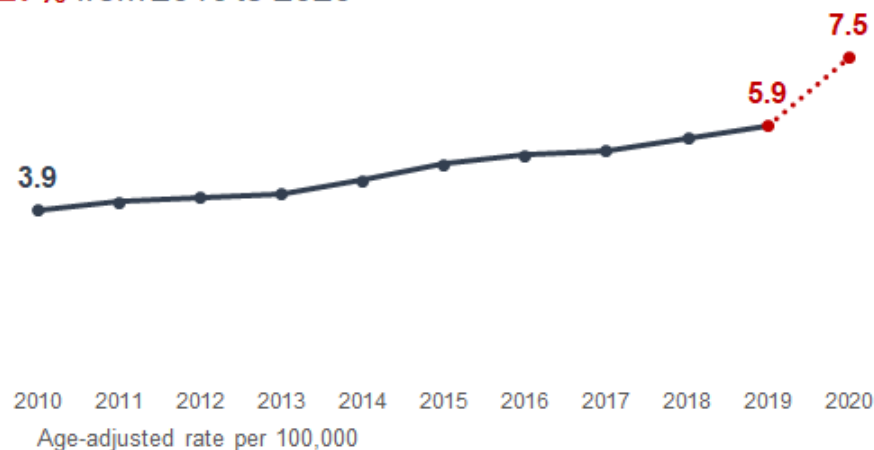
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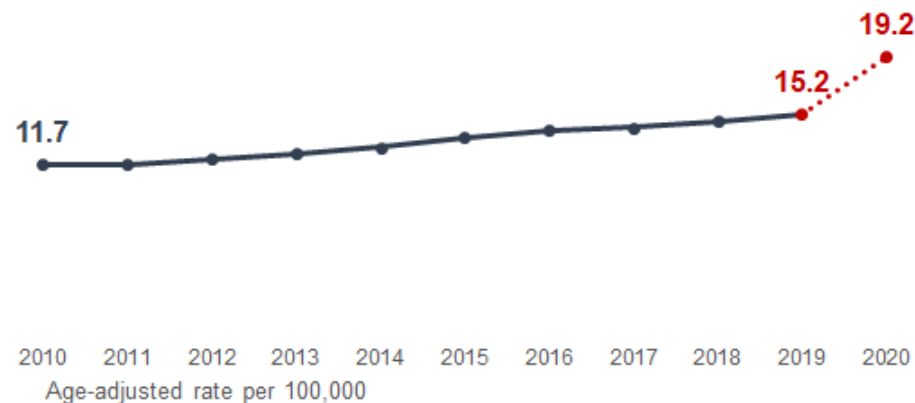
The Final Chapter of Our Data Story



Alcohol-induced deaths for females **increased 27%** from 2019 to 2020



Alcohol-induced deaths for males **increased 26%** from 2019 to 2020



wrapping up





Let's hear from you!

What are your questions?



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For further questions, contact:

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References

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Resources

Data Visualization Checklist

http://stephanieevergreen.com/wp-content/uploads/2017/03/DataVizChecklist_May2016.pdf

Data Visualization in Excel Made Easy

https://www.youtube.com/watch?v=32_BKhsK2gl

Visual Vocabulary: Designing with Data <https://ft-interactive.github.io/visual-vocabulary/>



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