

**S** Syracuse University  
Maxwell School of  
Citizenship & Public Affairs  
Center for Policy Research

# Designing Effective Research Posters

Shannon Monnat

May 19, 2026



# Why Present Research Posters?

- Present the findings from your completed or in progress research in a low-stress and fun forum.
- Share your ideas and get feedback from attendees.
- Posters are just as important (and often better) than oral presentations.
- Counts as a presentation on your CV.
- Poster awards!

# RSS Poster Reception: July 30, 4:15 – 5:30 pm

- See: <https://ruralsociology.org/annual-meeting/presentation-guidelines/>
- Poster can be no larger than 42” x 42”.
- I will share templates, but you are not required to use them.
- Get your poster printed in advance.
  - University library
  - Poster Nerd (<https://www.poster nerd.com/products/scientific-posters>)
  - Scientific Poster Printing (<https://scientificposterprinting.com/>)

# What is the Purpose of a Research Poster?

- Summarize the findings from research concisely and attractively to help publicize it and generate discussion.
- Share ideas and get feedback.
- Network in your area of study
- Add a line to your CV
  
- It is NOT: cram everything there is to know about your project into this small space

# Where Do I Begin?

1. What is the most important or interesting finding from my research project?
2. How can I visually (rather than textually) share my findings. Would a table, figure, or combination be best?
3. What kind of information can I add during my chats with poster visitors that will complement my poster?

# Basic Principles of Poster Making

- **Clean, concise, and attractive - less is more!**
- The most important information should be readable from 10 feet away.
- Title is short and draws interest.
- Word count of about 300 to 800 words (as few as possible).
- Don't cram - have plenty of blank space.
- Bullets, numbering, and headings make text easy to read.
- Effectively use graphics, colors, and fonts.
- Save figures as high resolution (e.g., .tif files at 300 dpi or higher).
- Consistent and logical layout of information.
- Don't put things on your poster that most people will ignore - people ignore most things.

# The Anatomy of a Poster

Mixture of brief text with data visualizations  
(e.g., tables, figures, maps, text visualization)

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University

## Background

Three sentences max.

Persuade the visitor that you have a novel and important research question.

## Research Questions

## Data and Methods

Keep it short and simple. Identify the dataset, main variables of interest, and approach (e.g., type of regression, ethnography site).

## Results

Show LARGE figures in this central area.

If you have just 2-3 large figures, people will be drawn to explore.

Visitors will be overwhelmed by too many tables or figures.

Separate graphics with plenty of white space.

Keep font sizes in tables and figures as big or bigger than in the rest of the poster.

## Key Takeaways

What are your 1-2 main findings?

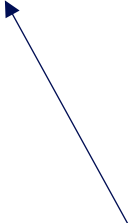
Why are your findings important?

Policy implications - only if appropriate

## Acknowledgments

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University



Title (Use big font, 10 words or less) - questions or conclusions make better titles than topical headings  
Include author(s) and affiliation (degrees not necessary)

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University

No Abstract.

Your poster is your abstract.

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University

## Background

What is the problem and why is it important? (3 sentences max).

This is your sales pitch.

No lit review.

## Research Questions

## Data and Methods

Keep it short & simple. Identify data, main variables of interest, and approach (e.g., type of regression, ethnography site).

## Results

Show LARGE figures in this central area.

If you have just 2-3 large figures, people will be drawn to explore.

Visitors will be overwhelmed by too many tables or figures.

Separate graphics with plenty of white space.

Keep font sizes in tables and figures as big or bigger than in the rest of the poster.

## Key Takeaways

What are your 1-2 main findings?

Why are your finding important?

Policy implications - only if appropriate

## Acknowledgments

Funding, advisor, research center

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University

## Background

Three sentences max.

Persuade the visitor that you have a novel and important research question.

## Research Questions

## Data and Methods

Keep it short and simple. Identify the dataset, main variables of interest, and approach (e.g., type of regression, ethnography site). Do you really need equations?

## Results

Show LARGE figures in this central area.

If you have just 2-3 large figures, people will be drawn to explore them.

Don't include every figure and table you have made related to the project. Choose the 2-3 that tell the main story.

Visitors will be overwhelmed by too many tables or figures.

Keep font sizes in tables and figures as big or bigger than in the rest of the poster.

## Key Takeaways

What are your 1-2 main findings?

Why are your finding important?

Policy implications - only if appropriate

## Acknowledgments

Funding, advisor, research center

# Title Pitched at General Audience: Provides Conclusion or Hints at Something Interesting

Name, Department, University

## Background

Three sentences max.  
Persuade the visitor that you have a novel and important research question.

## Research Questions

## Data and Methods

Keep it short and simple.

## Results

Show LARGE figures in this central area.

If you have just 2-3 large figures, people will be drawn to explore them.

Don't include every figure and table you have made related to the project. Choose the 2-3 that tell the main story.

Visitors will be overwhelmed by too many tables or figures.

## Key Takeaways

## Acknowledgments

# Finishing Touches

- Use the Zoom function to review all sections.
  - Zoom in 100% and slowly scan your poster to check that all alignments are even, colors are consistent, fonts match, etc.
  - Take a few steps back from your computer and check that the smallest font is still readable.
- Check spelling and grammar.
  - Run spell check.
  - Read your poster VERY carefully, then read it again, then ask a friend to read it.
  - Triple check for spelling and/or grammar errors.

# Award Winning Posters

# Environmental Correlates of Mortality: How do Physical Environments Contribute to Geographic Disparities in U.S. Mortality?

Yue Sun (ysun46@syr.edu) Sociology PhD Candidate, Syracuse University

## BACKGROUND

Exposure to fine particulate matter (PM 2.5) increases the risk of CVD death through the *translocation* of particles in the circulation system, *inflammation* and its spillover effects, and the *deregulation* of autonomic nervous systems (Basith et al., 2022; Brook et al., 2010).

## RESEARCH QUESTIONS

- 1) How does air pollution shape county-level cardiovascular disease (CVD) mortality?
- 2) How do the associations between air pollution and CVD mortality vary across rural and urban areas?

## DATA AND METHODS

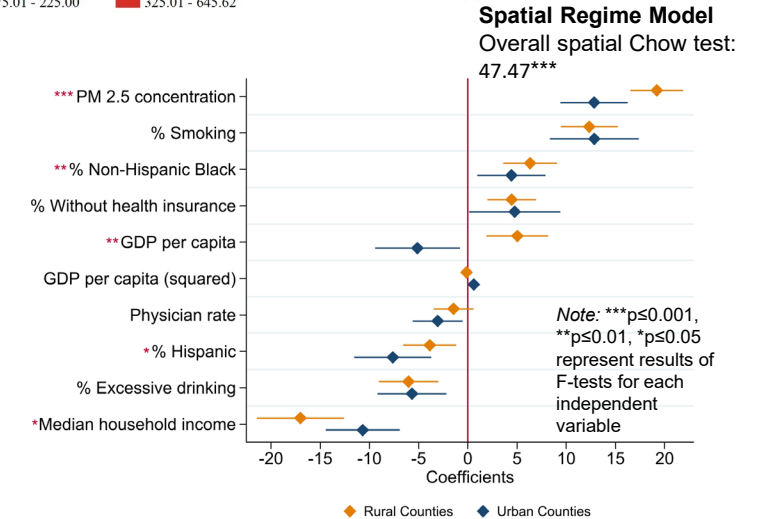
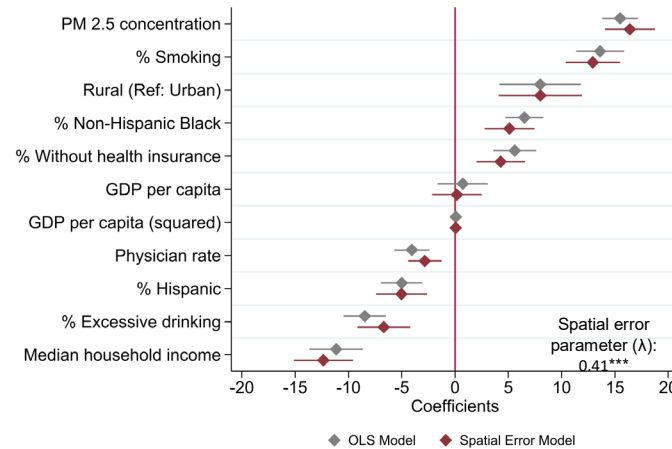
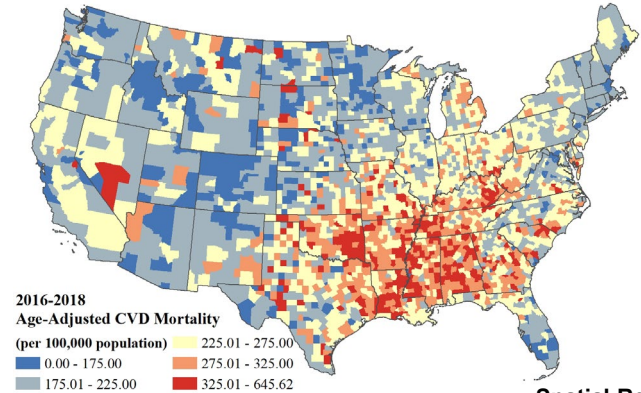
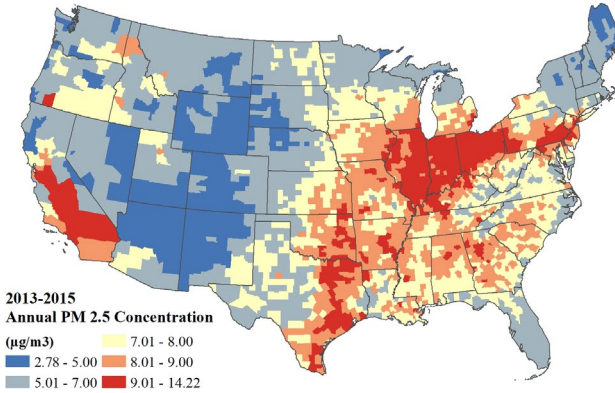
### DATA

- Multiple sources: Center for Air, Climate, and Energy Solutions; National Vital Statistics System death certificate files; American Community Survey; U.S. Bureau of Economic Analysis; Area Health Resource File; County Health Ranking; Rural-Urban Continuum Codes
- N=3,108 counties in the contiguous United States

### MODELS

- Ordinary Least Squares (OLS) Regression
- Spatial Error Model
- Spatial Regime Model
  - Spatial Chow test to examine structural instability

**Acknowledgement:** This work was supported by the Coordinating Center at University of Michigan (R24AG066588).



## CONCLUSIONS

- Higher concentrations of PM 2.5 are associated with higher CVD mortality rates.
- Curbing PM 2.5 to 5 micrograms pcm and below could have reduced the average CVD mortality rate by 12.2% (29.6 per 100,000 population) during 2016-2018.
- The association between PM 2.5 and CVD mortality varies across rural and urban counties. PM 2.5 concentration predicts higher CVD mortality in rural than in urban areas.
- To promote population health and narrow the rural mortality penalty, federal, state, and county governments should take measures to curb PM 2.5 emissions.

## Background

- Evacuation orders are a common tool in severe hurricanes to save lives of residents and emergency managers
- The dynamic and medium-term have not been carefully examined in a causal framework.

## Research Question

Do Hurricane evacuation orders have a lasting impact on county employment?

## Methods

- By exploiting exogenous variation in storm tracks and landfall, I identify the causal impact of Hurricane Evacuation orders on county-level employment
- Variation Comes from
  - Differences between forecasted and realized conditions
  - Differences between governors and emergency managers threshold for evacuation orders
- Event study estimation

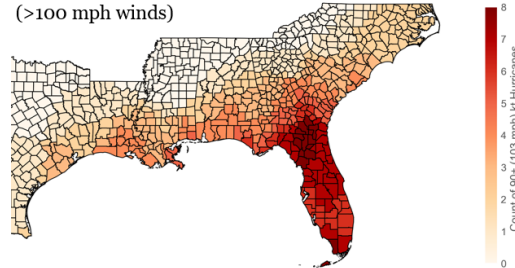
$$y_{ct} = \sum_{\tau=-24}^{24} [\beta_{\tau} + \delta_{\tau} E_{cs}] \mathbb{1}\{t - T_{cs} = \tau\} + \alpha_c + \gamma_t + \phi_s + \theta \mathbf{X}_{cta} + \varepsilon_{cta}$$

- Where  $E_{cs}$  is a dummy if had an evacuation order from storm  $s$  and interacts with a dummy  $t$ -periods from the hurricane arrival
- $\alpha_c$  is a county fixed effect  $\gamma_t$  is a month-year fixed effect, and  $\phi_s$  is a hurricane-specific fixed effect.

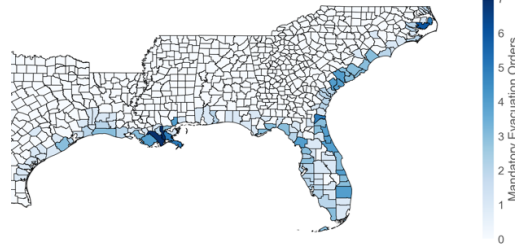
### Data Sources:

- National Hurricane Center Database (HURDAT2) 'Best Tracks', NOAA
- HEVOD Evacuation Order Database, University of Virginia
- The Local Area Unemployment Statistics (LAUS), Bureau of Labor Statistics
- Spatial Hazard Events and Losses Database (SHELDUS) Center for Emergency Management and Homeland Security

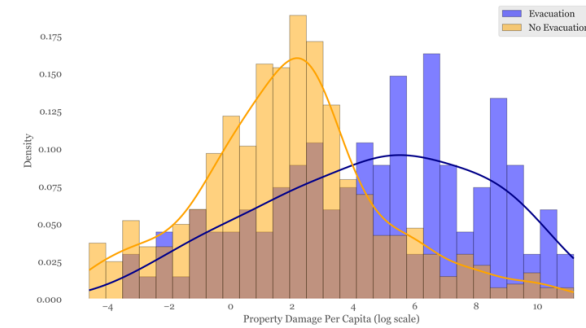
Count of Severe Hurricanes, 2014-2022 (>100 mph winds)



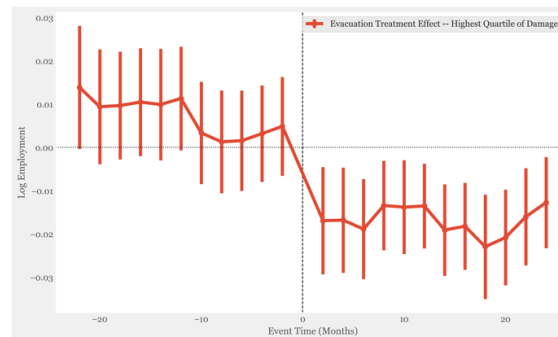
Count of Mandatory Evacuation Orders 2014-2022



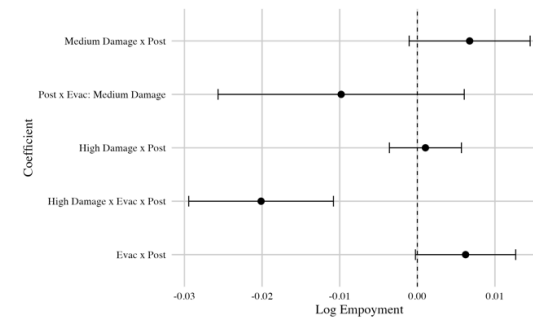
Distributions of Property Damage by County



Dynamic Treatment Effects of Evacuation



Difference-in-Difference Estimates, 2 Years After Evacuation



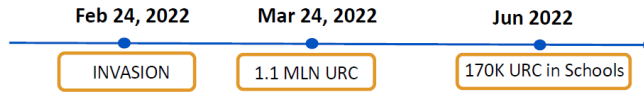
## Summary of Findings (preliminary)

- Evacuation orders depress employment and slow recovery relative to non-evacuated counties with similar damages
  - Around **2 percent lower employment** for those counties that evacuated and had a storm in the highest quartiles of damages.
  - No detectable effect for medium and low damage evacuations relative to similar levels without evacuation.

# Who Works Here? Refugee Integration and Relational Work of School-Age Children

Iwona Franczak (ifrancza@syr.edu) and Dr. Amy Lutz (aclutz@syr.edu)/ Sociology, Syracuse University

## INTRODUCTION



### HOST SCHOOLS

- Site of education, social integration, and social inclusion

### PAST RESEARCH

- Structural inclusion of refugee students, role of children in the integration process

### GAP

- The **work** younger children do to integrate from the **relational integration** perspective

## RESEARCH INQUIRY

### PURPOSE

- To explore the integration process of Ukrainian refugee students in Polish host elementary schools

### FRAMEWORK

- Relational Work - “establishing, maintaining, negotiating, transforming, and terminating interpersonal relations” (Zelizer 2012, p. 149))
- Forms of Social Capital - social bridging and social bonding (Coleman 1988; Putnam 2000)
- Social Network Theory - social brokering (Brut 1992)

### QUESTION

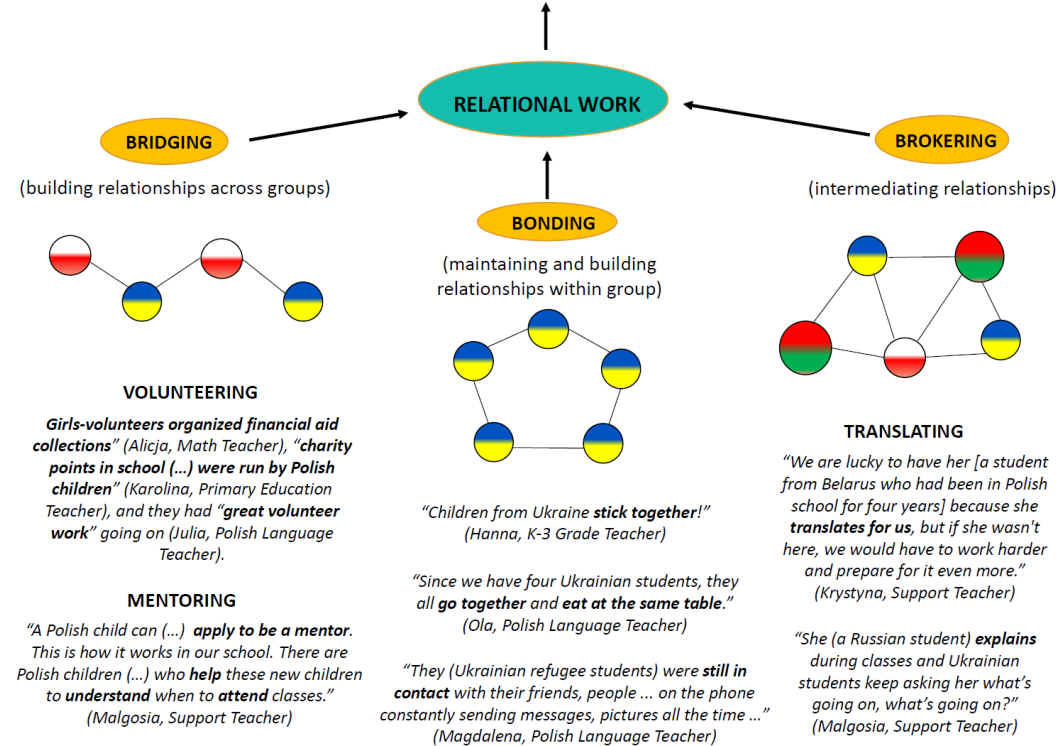
- How do young students engage in integration process of Ukrainian refugee school-age children in host schools?

## DATA and METHODS

- 24 semi-structured interviews with mothers (U) and teachers (P)
- 3 public elementary schools in a large city in Poland
- Constructivist grounded approach (Charmaz 2001; Tie et al. 2019)
- Purposive sampling

## FINDINGS

### INTEGRATION OF REFUGEE STUDENTS



## KEY TAKEAWAYS

- Children’s **efforts** to integrate refugee students into host schools constitute “**work**” since these efforts are purposeful, means to an end, done of out necessity, and encouraged by schools.
- In the process of social integration of young refugee students into host schools, some school-age children engage in **relational work** which can include **bridging, bonding, and/or brokering**.
- Conceptualizing children’s efforts to integrate as “**work**” illuminates the broader ramifications of war which extend beyond the physical zone of conflict.

**FURTHER INFORMATION:** Paper Presentation – American Sociological Association, NYC, NY (August 2026)

# Poorly Designed Posters

# O<sup>6</sup>-Benzylguanine Inhibits Tamoxifen Resistant Breast Cancer Cell Growth and Resensitizes Breast Cancer Cells to Anti-Estrogen Therapy

Masked



## Abstract

Endocrine therapies using anti-estrogens are less toxic and very effective for breast cancers, however, tumor resistance to tamoxifen remains a stumbling block for successful therapy. Based on our recent study on the involvement of the DNA repair protein MGMT in tamoxifen resistance (Clin Cancer Res. 15: 6087; 2009), here, we investigated whether MGMT overexpression mediates tamoxifen resistance. Specifically, we determined whether administration of MGMT inhibitor O<sup>6</sup>-benzylguanine (BG) at a non-toxic dose alone or in combination with the anti-estrogens (tamoxifen/fulvestrant) curtails human tamoxifen resistant breast cancer cell growth. Further, we also determined whether BG sensitizes breast cancers to tamoxifen using tamoxifen resistant cells.

MGMT expression was found to be increased in breast cancer cells relative to normal breast epithelial cells. Also, MGMT levels were significantly higher in tamoxifen resistant MCF-7 compared to the parent cells. Silencing of the ER- $\alpha$  expression using a specific siRNA resulted in augmentation of MGMT mRNA and protein levels by a fold. We also observed an inverse correlation between MGMT and p53 levels in breast cancer cell lines; moreover, p53 downregulation was accompanied by increased MGMT expression. Other experiments showed that BG alone or BG in combination with tamoxifen or fulvestrant decreased ER- $\alpha$  expression, whereas tamoxifen alone and fulvestrant alone increased and decreased the same respectively. However, all these treatments increased the p21<sup>ras</sup> mRNA and protein expression significantly. BG inhibited tamoxifen resistant breast cancer growth in a dose-dependent manner and it also resensitized resistant breast cancer cells to anti-estrogen therapy (TAM/ICI). These combinations also enhanced the cytochrome C release and the PARP cleavage, indicative of apoptosis. In breast tumor xenografts, BG alone or a combination of BG with tamoxifen or fulvestrant caused significant tumor growth delay and immunohistochemistry revealed that BG inhibited the expression of MGMT, ER- $\alpha$ , ki-67 and increased p21<sup>ras</sup> staining. These findings suggest that MGMT inhibition may provide a novel and effective approach for overcoming tamoxifen resistance.

## Introduction

Recent advances in breast cancer research have identified key pathways involved in the repair of DNA damage induced by chemotherapeutic agents. The ability of cancer cells to recognize DNA damage and initiate DNA repair is an important mechanism for therapeutic resistance and has a negative impact on therapeutic efficacy. A number of DNA-damaging alkylating agents attack the nucleophilic O<sup>6</sup> position on guanine, forming mutagenic and highly cytotoxic interstrand DNA crosslinks. The DNA repair enzyme O<sup>6</sup>-methylguanine DNA methyltransferase (AGT), encoded by the gene MGMT, repairs alkylation at this site and is responsible for protecting both tumor and normal cells from alkylating agents. MGMT is expressed constitutively in normal cells and tissues. In breast tumors, MGMT gene expression is elevated and levels are up to 4-fold higher than in the normal breast. Interestingly, it has been shown that tamoxifen accelerates proteasomal degradation of MGMT in human cancer cells. In 1991, Pegz, Moschel, and Dolan observed that O<sup>6</sup>-benzylguanine (BG) inhibited AGT and potentiated the cytotoxicity of both chloroethylating agents and methylating agents. In a series of important observations, they fully characterized the interaction between BG and AGT and its therapeutic impact. They showed that BG binds to AGT, transferring the benzyl moiety to the active-site cysteine [99]. The reaction is very rapid and more potent than any other previously known AGT inhibitor. BG is not incorporated into DNA in living cells and reacts directly with both cytoplasmic and nuclear AGT. Because BG is a pseudosubstrate for MGMT which results in the covalent transfer of benzyl group to the active site cysteine, the MGMT protein is degraded after each reaction. This stoichiometric reaction mechanism effectively depletes the AGT content in tumors and the associated repair of alkylation damage. BG is currently undergoing clinical trials in various cancers to increase the efficacy of alkylating agents.

Interestingly, several observations suggest an inverse correlation between the levels of MGMT and p53 tumor suppressor proteins where wild-type p53 suppresses transcription of human MGMT expression. Unfortunately, p53 function is often inactivated or suppressed in human cancers; therefore, restoration of wt-p53 activity is essential for the success of some treatments. However, whether or not this is mediated by suppression of MGMT expression has yet to be determined. To date, the cross-talk between MGMT and ER- $\alpha$  (and the link to p53 expression) has not been explored in drug (i.e., tamoxifen) resistant breast tumors. The anti-estrogen tamoxifen is the most commonly used treatment for patients with estrogen receptor positive breast cancer. Although many patients benefit from tamoxifen in the adjuvant and metastatic settings, resistance to this endocrine therapeutic agent is an important clinical problem. The primary goal of present study was to investigate the mechanisms of anti-estrogen drug resistance and to design new therapeutic strategies for circumventing this resistance. The results show that MGMT expression is increased in TAM-resistant breast cancers and inhibition of MGMT by BG significantly improves TAM-sensitivity.

## Results

**Prolonged Treatment of Tamoxifen Increases MGMT Expression:** We developed a tamoxifen resistant MCF-7 cell line by using prolonged treatment of tamoxifen on the parental ER-positive breast cancer cell line, MCF-7. Tamoxifen-resistant MCF-7 cells proliferate at rates similar to the parental MCF-7. Prolonged treatment of tamoxifen onto MCF-7 cells increased MGMT expression compared to parental MCF-7 cells by 2 fold (Fig.1).

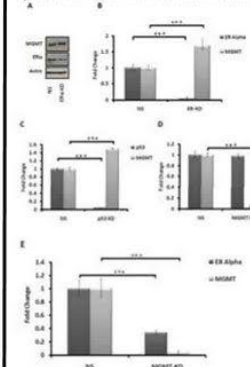
**Knocking Down ER $\alpha$  Enhances MGMT Expression in Tamoxifen Resistant Breast Cancer Cells:** It is not known whether ER $\alpha$  and MGMT transcriptionally regulate each other in tamoxifen resistant breast cancer cells. We therefore investigated whether down regulation of ER $\alpha$  has any effect on endogenous MGMT expression in these cells. As expected, downregulation of ER $\alpha$  using specific siRNA significantly reduced ER $\alpha$  protein levels in these cells. Western blot analysis was performed and the results in the left panel (Fig. 2A) shows that silencing of ER $\alpha$  increases MGMT expression in these cells, and interestingly, the results in the right panel (Fig.2B) show increased MGMT mRNA levels were increased as assessed by qRT-PCR. These data suggest that ER $\alpha$ -mediated signaling functions to repress MGMT gene expression in breast cancer cells.

**Transcriptional Regulation Between MGMT and p53:** Previously, it was reported that p53 negatively regulates MGMT in breast cancer cells. Therefore, we addressed whether or not silencing of the p53 enhances endogenous MGMT transcription. Tamoxifen resistant MCF-7 cells were transfected with either p53 siRNA (p53-KD) (Fig.3C) or MGMT siRNA (MGMT-KD) (Fig.3D) along with Non-specific siRNA (NS). MGMT expression was consistently increased in p53 knock down cells, with different experiments showing a 3- fold augmentation (Fig. 3A) and as expected, knocking down MGMT decreased MGMT transcription whereas p53 mRNA levels were unaffected in MGMT knockdown cells (Fig.3B). These results confirm that p53 can regulate MGMT at the transcriptional level.



**Figure 1.** MCF-7 parental and tamoxifen resistant MCF-7 cell pellets were prepared. Proteins were isolated and MGMT expression was detected by western blot analysis. Tamoxifen resistant MCF-7 breast cancer cells significantly increased MGMT expression compared to MCF-7 parental cells.

**O<sup>6</sup>-Benzylguanine Plays a Dual Role in Tamoxifen Resistant MCF-7 Cells:** Contrasting with the experiments above, next, we studied whether or not knocking down MGMT has any effect on ER $\alpha$  transcription. As expected, knocking down MGMT decreased MGMT gene transcripts. However, it was interesting to find that ER $\alpha$  gene transcription was also reduced after MGMT silencing (Fig.2E). These data demonstrate that BG has the ability to attenuate the not only the MGMT, but also the ER $\alpha$  transcription, indicating a possible dual role for MGMT blockers in these breast cancer cells.

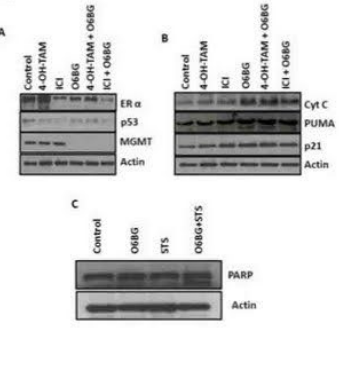


**Figure 2.** (A) Tamoxifen resistant MCF-7 cells were transfected with ER $\alpha$  siRNA (ER $\alpha$ -KD) and NS siRNA (non-specific siRNA), and cells were harvested 24h post-transfection. Total proteins were isolated and ER $\alpha$  and MGMT expression was determined by western blot analysis. MGMT protein was significantly increased in ER $\alpha$  knock down cells (B) Tamoxifen resistant MCF-7 cells were transfected with ER $\alpha$  siRNA (ER $\alpha$ -KD) and NS siRNA (non-specific siRNA), and cells were harvested 24h post-transfection. Total RNA was isolated and MGMT and ER $\alpha$  transcription was determined by qRT-PCR. MGMT transcription was significantly increased in ER $\alpha$  knock down cells. (C) Total RNA was isolated from non-specific siRNA (NS) (non-specific siRNA) and p53 siRNA (p53-KD) knock down tamoxifen resistant MCF-7 breast cancer cells. MGMT and p53 transcription was determined by qRT-PCR. (D) Total RNA was isolated from non-specific siRNA (NS) (non-specific siRNA) and MGMT siRNA (MGMT-KD) knock down tamoxifen resistant MCF-7 breast cancer cells. MGMT and p53 transcription was determined by qRT-PCR. There is an inverse correlation between MGMT and p53 in tamoxifen resistant breast cancer cells (E & F).

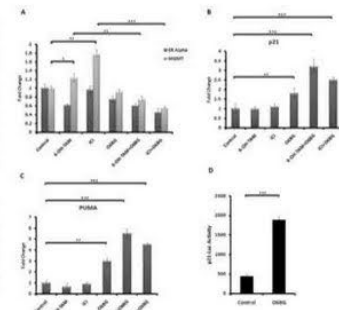
**O<sup>6</sup>-Benzylguanine Modulates p53 Down-Stream Targeted Protein Expressions:** Encouraged by the results reported, we investigated the effect of combination therapy on endogenous MGMT, p53, and ER $\alpha$  protein expressions. As expected, BG decreased MGMT expression, while combination therapy (4-OH-TAM or ICI combined with BG) significantly decreased both MGMT and ER $\alpha$  expression. BG alone or in combination with tamoxifen or ICI decreased ER- $\alpha$  expression, whereas tamoxifen alone and ICI alone increased and decreased the same respectively (Fig.3A). p53 expression was slightly altered after ICI treatment. The reduction in p53 expression by ICI alone was reversed when BG was combined (Fig.3A). We investigated the effect of BG on proteins which are involved in cell cycle regulation, apoptosis in tamoxifen resistant breast cancer cells. All these treatments significantly increased the p21<sup>ras</sup> protein expression (Fig.3B). PUMA expression was also increased with these treatments. Hence, PUMA may have translocated to the mitochondria, cytochrome C is released (Fig.3B), and apoptosis was triggered in these cells in presence of combination therapy. PARP cleavage is seen in BG treated cells in presence of staurosporin as an indicative of apoptosis (Fig.3C). Therefore, this data suggest that BG promotes cell cycle arrest and can induce apoptosis by modulating p53 function.

**O<sup>6</sup>-Benzylguanine Modulated Transcriptional Targets in Tamoxifen Resistant Breast Cancer Cells:** The effect of combination therapy on endogenous MGMT mRNA levels was also studied. Quantitative real-time PCR (qRT-PCR) revealed that anti-estrogens (TAM/ICI) increased the MGMT expression while the combination therapy decreased it compared to control levels. ER $\alpha$  transcription was decreased compared to controls with all these treatments (Fig.4A). Surprisingly, p21 and PUMA mRNA was significantly increased in the presence of combination treatments (Fig.4B & C). These results suggest that p53 mediated target gene transcription was affected by the drug combinations in breast cancer cells (Fig. 3 & 4).

**O<sup>6</sup>-Benzylguanine Enhances p21 Transcriptional Activity in Tamoxifen Resistant Breast Cancer Cells:** In order to investigate the effect of BG on p53 function, we performed luciferase reporter assays. Tamoxifen resistant MCF-7 breast cancer cells were transfected with p21 luciferase construct in presence or absence of BG (target gene of p53). These results clearly demonstrated that BG significantly enhanced p21 transcriptional activity by 4-5 fold in these cells (Fig.4D).



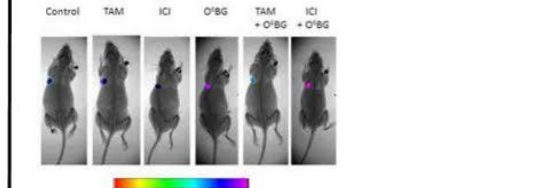
**Figure 3.** (A) Tamoxifen resistant MCF-7 breast cancer cells were treated in presence or absence of BG (50  $\mu$ M) and 48h post-treatment 4-OH-TAM (2 $\mu$ M), ICI (2 $\mu$ M) either alone or in combination with BG. 24h post-treatment cells were harvested and proteins were isolated and western blot analysis was performed. (A) ER $\alpha$ , p53 and MGMT expressions (B) Cytochrome C, PUMA and p21 was determined by western blot analysis (C) tamoxifen resistant MCF-7 cells were treated with or without BG 48h and later treated with staurosporin (5  $\mu$ M) for 6h PARP cleavage was determined by western blot analysis.



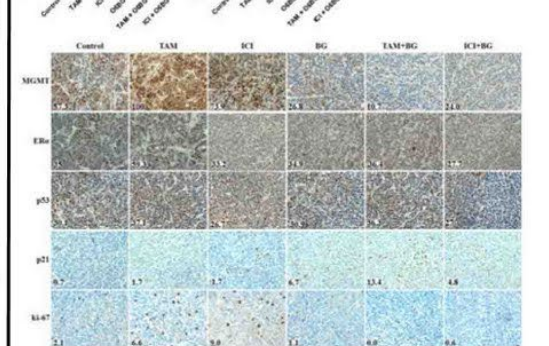
**Figure 4.** Tamoxifen resistant MCF-7 breast cancer cells were treated in presence or absence of BG (50  $\mu$ M) for 48h and later 4-OH-tamoxifen and ICI (2 $\mu$ M) was either alone or in combination with BG and 24h later cells were harvested and total RNA was isolated. (A) MGMT and ER $\alpha$  (B) p53 transcription (C) PUMA transcription was determined by qRT-PCR. 4-OH-tamoxifen and ICI induces MGMT transcription. BG inhibition PUMA and p21 transcription. (D) Tamoxifen resistant MCF-7 breast cancer cells were transfected with p21 luciferase construct and 6h later treated with BG and 24h later cells were harvested. p21 transcriptional activity was significantly increased by BG in these cells.

**O<sup>6</sup>-Benzylguanine Inhibits Tamoxifen Resistant Breast Cancer Cell Growth and Increase Resistant Breast Cancer Cell Sensitivity to Anti-Estrogen Therapy (TAM/ICI):** Detailed neonatal revealed that all the mice had tumors in the breast. The data summarized in Table 1 show the daily BG alone or in combination with twice weekly tamoxifen/ICI significantly decreased median tumor volume and weight as compared with that seen in tamoxifen/ICI treated and control mice. The combination of BG with tamoxifen or ICI produced the greatest decrease in median tumor volume as compared with control mice (83.99 mm<sup>3</sup>, 9.33 mm<sup>3</sup> (TAM-BG), respectively; p < 0.0001; (83.99 mm<sup>3</sup>, 31.60 mm<sup>3</sup> (ICI+BG), respectively; p < 0.0001). Tumor weight was also significantly reduced in mice treated with combination therapy as compared with control mice (81.23 mg, 22.30 mg (TAM+BG), respectively, p < 0.0005; (81.23 mg, 51.27 mg (ICI+BG), respectively, p < 0.0005) (Table 1). Body weight was not changed among all treatment groups as compared with control mice. No visible liver metastases were present (enumerated with the aid of a dissecting microscope) in all treatment groups.

**Histology and IHC Analysis:** We next determined the *in vivo* effects of BG (alone or in combination) with tamoxifen/ICI. Tumors harvested from different treatment groups were processed for routine histological and IHC analysis. Tumors from mice treated with BG alone or in combination with tamoxifen/ICI exhibited a significant decrease in MGMT, ER $\alpha$ , ki-67 as compared with tumors treated with tamoxifen/ICI alone or control group. p53 expression was not much altered in these treatment groups. In sharp contrast, the expression of p21 was significantly increased in tumors from mice treated with BG either alone or in combination with tamoxifen/ICI. The images were analyzed by ImageJ (NIH) and MGMT, ER $\alpha$ , p53, p21 and ki-67 expressions were quantified by the ImmunoRatio plugin (Fig.5).



**Figure 5.** Tumors were harvested from control mice and mice treated with tamoxifen/ICI, BG, or both tamoxifen/ICI and BG. The sections were immunostained for expression of MGMT, ER $\alpha$ , p53, p21 and ki-67. Tumors from mice treated with BG either alone or in combination with tamoxifen or ICI had a significant decrease in the expression of MGMT, ER $\alpha$  and ki-67. p53 expression was not much altered in these treatment groups. In sharp contrast, expression of p21 was significantly increased in all these treatment groups compared to controls. Representative samples (40 $\times$ ) are shown.



## Conclusions

- In the present study, we observed that prolonged treatment with anti-estrogens causes drug resistance by inducing the DNA repair protein O<sup>6</sup>-methylguanine DNA methyltransferase (MGMT).
- Decreasing the expression of MGMT by exposing breast cancer cells to BG sensitized these cells to anti-estrogen therapy (tamoxifen and ICI 182,780).
- We also observed that combination therapy of anti-estrogens and MGMT blockers not only overcome the MGMT derived drug (tamoxifen and ICI) resistance but also increased the efficacy of anti-estrogen therapy by decreasing estrogen receptor expression and restoration of the functional activity of p53 in tamoxifen-resistant breast cancer cells.
- Combination therapy inhibited tamoxifen resistant breast tumor growth *in vivo*.

## Acknowledgements

We would like to thank the Florida Department of Health, Southeast Cancer Research Program (08B) for their funding of this project.





# PIGS IN SPACE: EFFECT OF ZERO GRAVITY AND AD LIBITUM FEEDING ON WEIGHT GAIN IN CAVIA PORCELLUS



SPACE EXES

## ABSTRACT:

One ignored benefit of space travel is a potential elimination of obesity, a chronic problem for a growing majority in many parts of the world. In theory, when an individual is in a condition of zero gravity, weight is eliminated. Indeed, in space one could conceivably follow ad libitum feeding and never even gain an gram, and the only side effect would be the need to upgrade one's stretchy pants ("exercise pants"). But because many diet schemes start as very good theories only to be found to be rather harmful, we tested our predictions with a long-term experiment in a colony of Guinea pigs (*Cavia porcellus*) maintained on the International Space Station. Individuals were housed separately and given unlimited amounts of high-calorie food pellets. Fresh fruits and vegetables were not available in space so were not offered. Every 30 days, each Guinea pig was weighed. After 5 years, we found that individuals, on average, weighed nothing. In addition to weighing nothing, no weight appeared to be gained over the duration of the protocol. If space continues to be gravity-free, and we believe that assumption is sound, we believe that sending the overweight — and those at risk for overweight — to space would be a lasting cure.

Masked

## INTRODUCTION:

The current obesity epidemic started in the early 1980s with the invention and proliferation of elastane and related stretchy fibers, which released wearers from the rigid constraints of clothes and permitted monthly weight gain without the need to buy new outfits. Indeed, exercise today for hundreds of millions people involve only the act of wearing stretchy pants in public, presumably because the constrictive pressure forces fat molecules to adopt a more compact tertiary structure (Xavier, 1999).

Luckily, at the same time that fabrics became stretchy, the race to the moon between the United States and Russia yielded a useful fact: gravity in outer space is minimal to nonexistent. When gravity is zero, objects cease to have weight. Indeed, early astronauts and cosmonauts had to secure themselves to their ships with seat belts and sticky boots. The potential application to weight loss was noted immediately, but at the time travel to space was prohibitively expensive and thus the issue was not seriously pursued. Now, however, multiple companies are developing cheap extra-orbital travel options for normal consumers, and potential travelers are also creating new ways to pay for products and services that they cannot actually afford. Together, these factors open the possibility that moving to space could cure overweight syndrome quickly and permanently for a large number of humans.

We studied this potential by following weight gain in Guinea pigs, known on Earth as fond of ad libitum feeding. Guinea pigs were long envisioned to be the "Guinea pigs" of space research, too, so they seemed like the obvious choice. Studies on humans are of course desirable, but we feel this current study will be critical in acquiring the attention of granting agencies.

## MATERIALS AND METHODS:

One hundred male and one hundred female Guinea pigs (*Cavia porcellus*) were transported to the International Space Laboratory in 2010. Each pig was housed separately and deprived of exercise wheels and fresh fruits and vegetables for 48 months. Each month, pigs were individually weighed by duct-taping them to an electronic balance sensitive to 0.0001 grams. Back on Earth, an identical cohort was similarly maintained and weighed. Data was analyzed by statistics.

## RESULTS:

Mean weight of pigs in space was 0.0000 +/- 0.00002 g. Some individuals weighed less than zero, some more, but these variations were due to reaction to the duct tape, we believe, which caused them to be slammed push briefly against the force plate in the balance. Individuals on the Earth, the control cohort, gained about 240 g/month (p = 0.0000). Males and females gained a similar amount of weight on Earth (no main effect of sex), and size at any point during the study was related to starting size (which was used as a covariate in the ANCOVA). Both Earth and space pigs developed substantial disteaps (double chins) and were left arctic at the conclusion of the study.

## CONCLUSIONS:

Our view that weight and weight gain would be zero in space was confirmed. Although we have not replicated this experiment on larger animals or primates, we are confident that our result would be mirrored in other model organisms. We are currently in the process of obtaining necessary human trial permissions, and should have our planned experiment initiated within 80 years, pending expedited review by local and Federal IRBs.

## ACKNOWLEDGEMENTS:

I am grateful for generous support from the National Research Foundation, Black Hole Diet Plans, and the High Fructose Sugar Association. Transport flights were funded by SPACE EXES, the consortium of wives divorced from insanely wealthy space-flight startups. I am also grateful for comments on early drafts by Mahana Athletic Club, Corpus Christi, USA. Finally, sincere thanks to the Guy Foundation for generously donating animal care after the conclusion of the study.

## LITERATURE CITED:

- NASA. 1962. Project STS-XX: Guinea Pigs. Leaked internal memo.
- Sekula, S.R., D. D. Lukac, and N. M. Naumovik. 2005. The Pelvic Girdle Exercises Like An Astronaut: Gravity Loading Is Necessary For The Physiological Development During Second Half Of Pregnancy. Medical Hypotheses. 64:221-229
- Xavier, M. 1999. Elastane Purchases Accelerate Weight Gain In Case-control Study. Journal of Obesity. 2:23-40.



# What Software Can I Use to Make a Poster?

- PowerPoint
- Adobe Illustrator
- Photoshop
- InDesign
- For RSS, must be no larger than 42” x 42” to accommodate the poster boards available.

# Best Practices in Data Visualization

# Creating Effective Tables

- **Include tables only if absolutely necessary - try to use figures instead.**
- **If you must use a table, keep concise.**
- **Table Title**
  - Should convey the specific topics or questions addressed in the table
    - Specify types of statistics presented (e.g., descriptive statistics, coefficients from regression models)
  - Should include the 4 Ws - who, what, where, when
  - Minimize abbreviations. If you must abbreviate, spell out the full wording in a note
  - Specify units of measurement (e.g., deaths per 100,000) when applicable
- **Row Labels**
  - Name the concepts and variables. Indent as appropriate
  - Organize conceptually related blocks together
- **Column Headings**
  - Identify the variable or statistic (e.g., %, mean, odds ratio)
- **Table Notes**
  - Indicate whether the statistics are weighted or unweighted
  - Include data source
  - Spell out abbreviations
  - Identify what symbols (e.g., \*, \*\* mean)

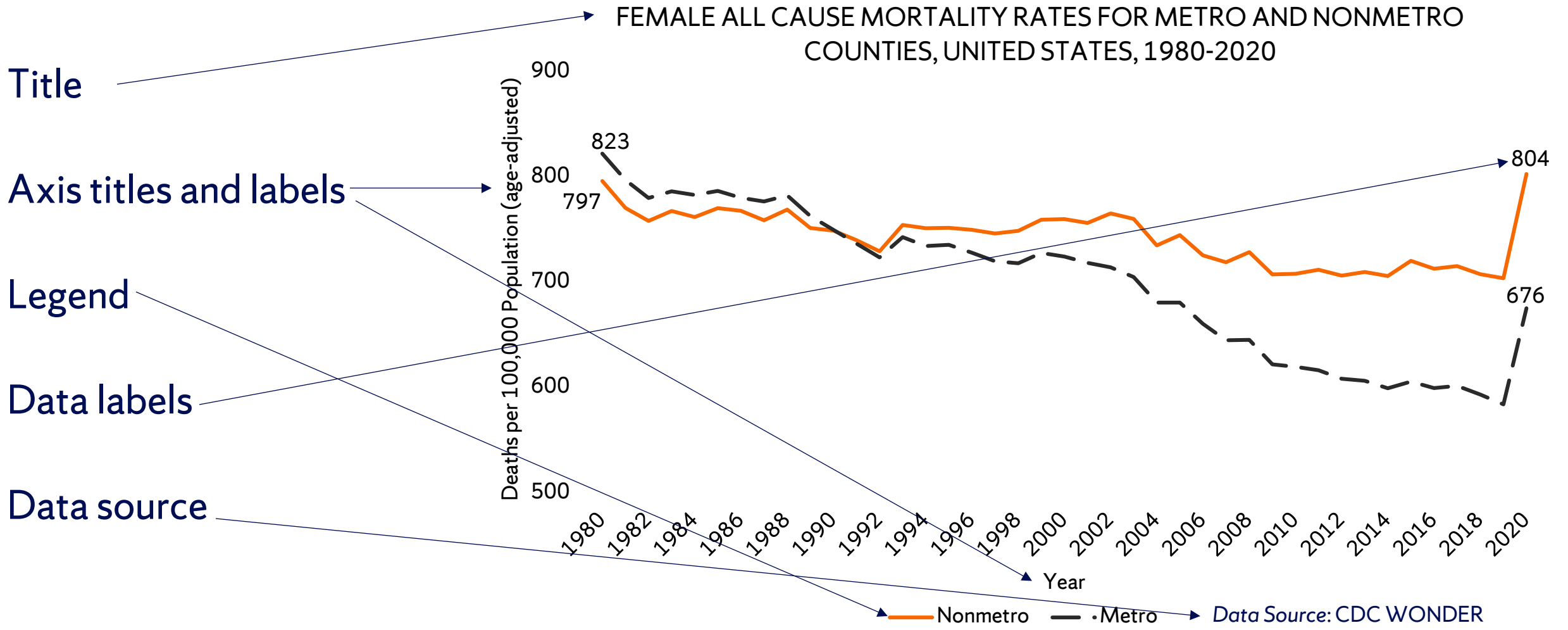
# Creating Effective Figures

- Purpose: Provide a good general sense of the pattern of findings by graphically depicting the direction and size of differences between numbers, thereby complementing the text.
- Principles:
  1. Label figures so readers can identify the 4 Ws (who, what, where, when) and interpret the data from the title and labels alone.
  2. Make figures self-contained, including units, context, and source of data, and definitions of abbreviations.
  3. Design each figure to promote understanding of the patterns in the chart and to coordinate with your written description.
  4. Avoid excessive labeling and garish features.
  5. Use large font size.

# Anatomy of a Figure

- **Title**
  - Specify the Ws.
  - A short restatement of the research question can sometimes work well.
- **Axis titles and labels**
  - Charts typically have an X (horizontal) and Y (vertical) axis.
  - Both axis titles should specify the contents
  - Axis labels should be used to identify the values along the axis.
  - For continuous variables, minimize clutter by marking major increments of the units (consider the range and scale of measurement).
- **Legend**
  - Identifies the series or categories of variables that are not elsewhere labeled in the figure.
- **Data labels**
  - Numeric values placed adjacent to the pertinent data point.
  - Use sparingly, if at all. Reserve for reference points; high and low points
- **Data Source:** specify the source of the original data.

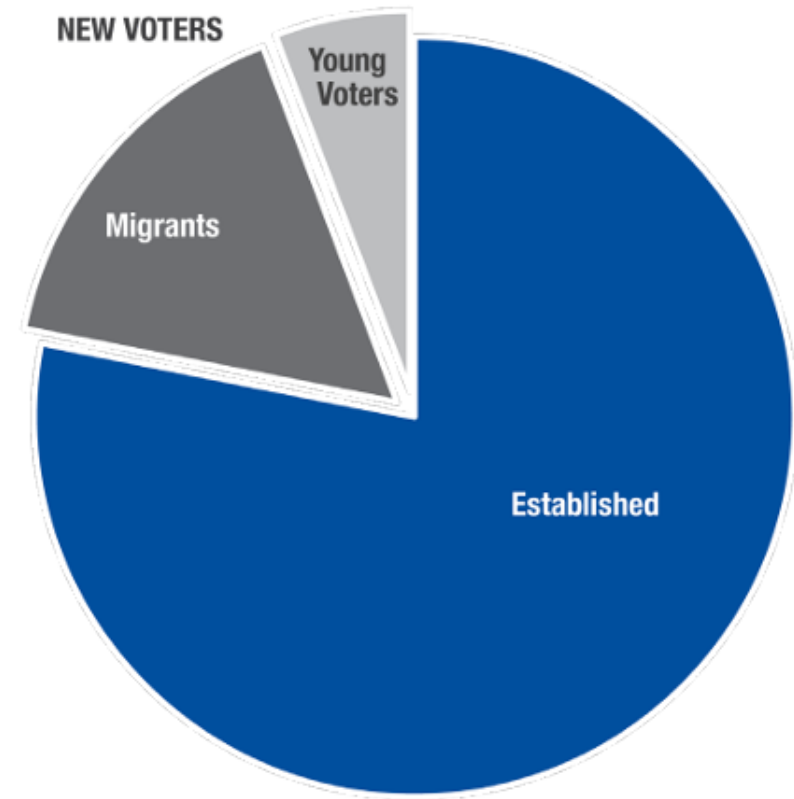
# Anatomy of a Figure



# Chart Types and Features - Pie Charts

- Present data for only one variable.
- Shows how cases are distributed across categories of nominal or ordinal variables.
- Do not use for continuous variables.
- Values need to add up to an overall total.
- Values must be mutually exclusive.
- Rarely the best option.

**Figure 1. Young, Migrant and Established Potential Voters, 2024**



*Note: Young voters reached voting age after 2019; migrants moved to New Hampshire after 2019.*

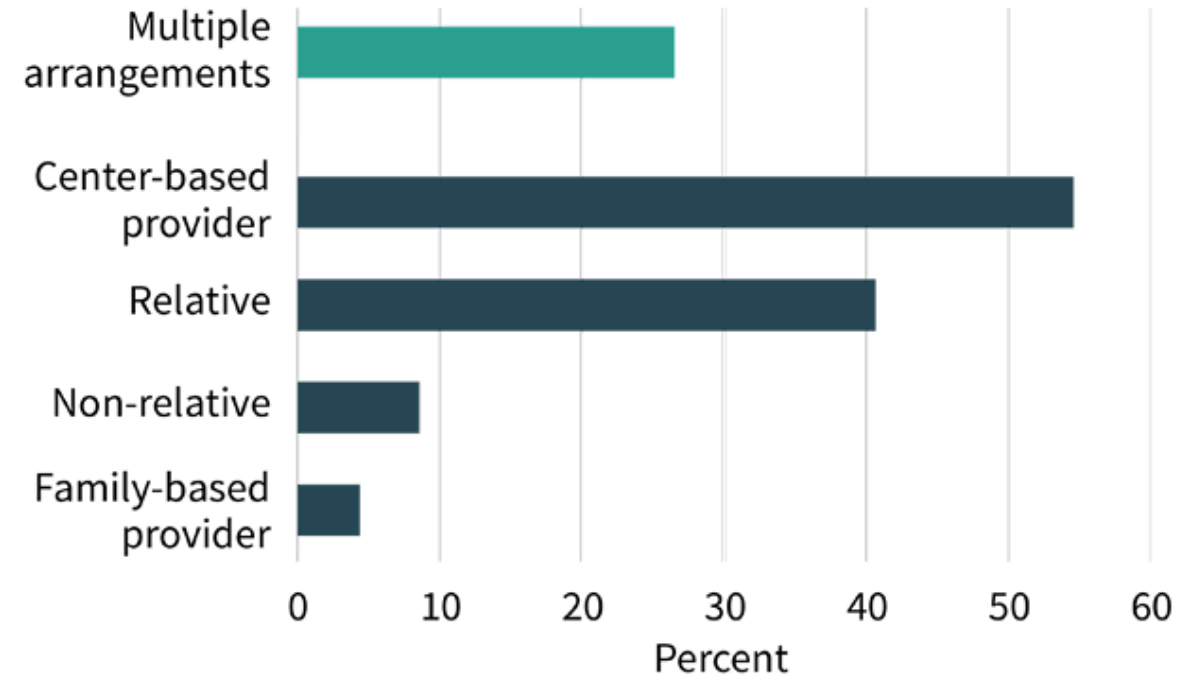
*Source: U.S. Census Population Estimates and American Community Survey*

# Chart Types and Features - Bar Charts

## Simple bar chart

- Illustrates relationship between two variables - a categorical predictor on the x-axis and a continuous outcome variable on the y-axis.
- Can be used to show most dimensions of quantitative comparisons (absolute numbers, percentages, rates)
- Height (or length) of bar reflects value for that group
- Arrange predictors in a logical sequence
- Can be vertical or horizontal

**Figure 1. Percent of New Hampshire Households That Used Any of the Following Arrangements**



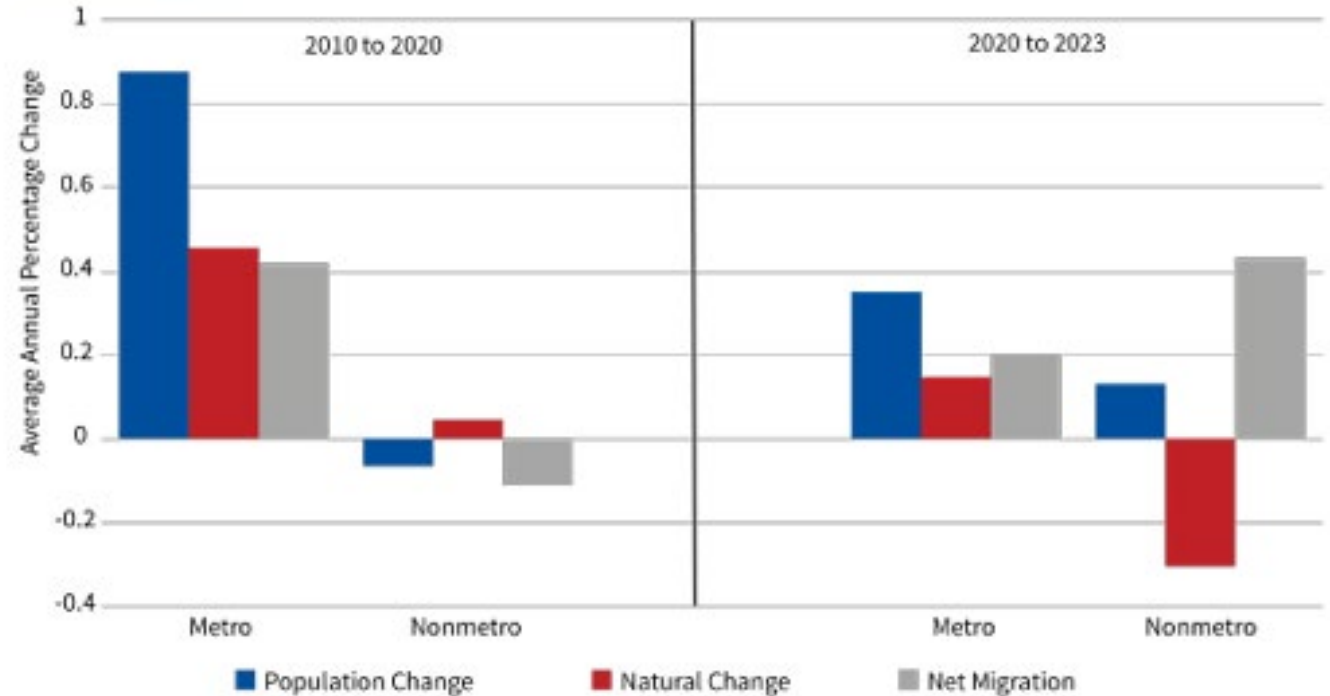
**Source.** Author analysis of U.S. Census Bureau, Household Pulse Survey, Phases 3.6–3.8 (Weeks 49–57). **Notes.**<sup>3</sup> Percentages reflect the lower bound of the 95 percent confidence interval (a conservative floor). Estimates are calculated among households with children under age 5 who used any care.

# Chart Types and Features - Bar Charts

## Clustered bar chart

- Introduces a third dimension to illustrate differences in some continuous outcome between 2+ groups.
- Can include error bars to indicate 95% confidence intervals for continuous value (represent whether differences are statistically significant)

Figure 1. Nonmetropolitan Population Gain Resumed Between 2020 and 2023 After Population Loss in the Prior Decade



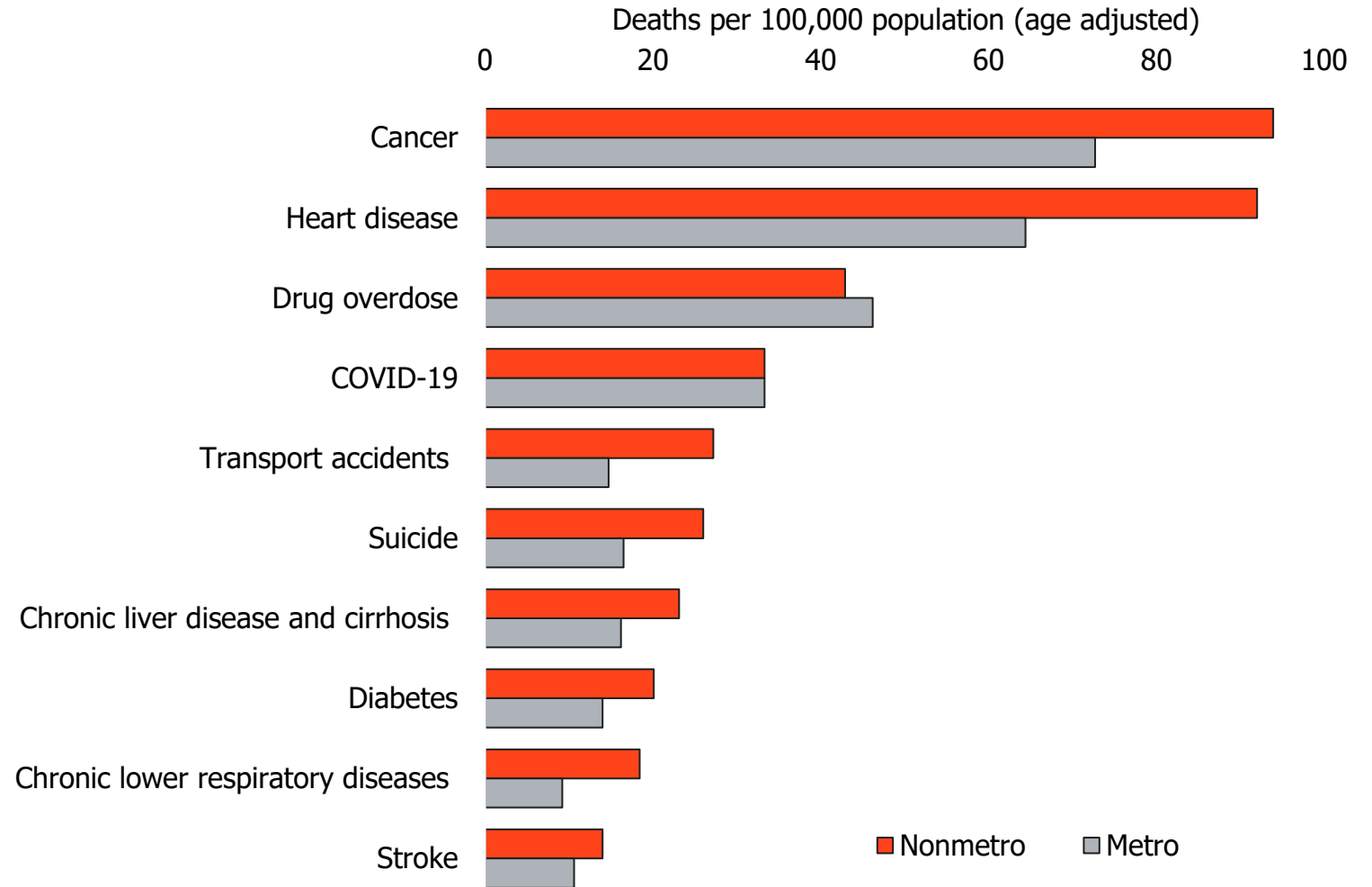
Source: U.S. Census Bureau Estimates. Analysis: K. M. Johnson, Carsey School, University of New Hampshire.

# Chart Types and Features - Bar Charts

## Clustered bar chart

- Introduces a third dimension to illustrate differences in some continuous outcome between 2+ groups.
- Can include error bars to indicate 95% confidence intervals for continuous value (represent whether differences are statistically significant)

Mortality Rates for Top Ten Causes of Death in the United States for Metro and Nonmetro Adults ages 25-64, 2020



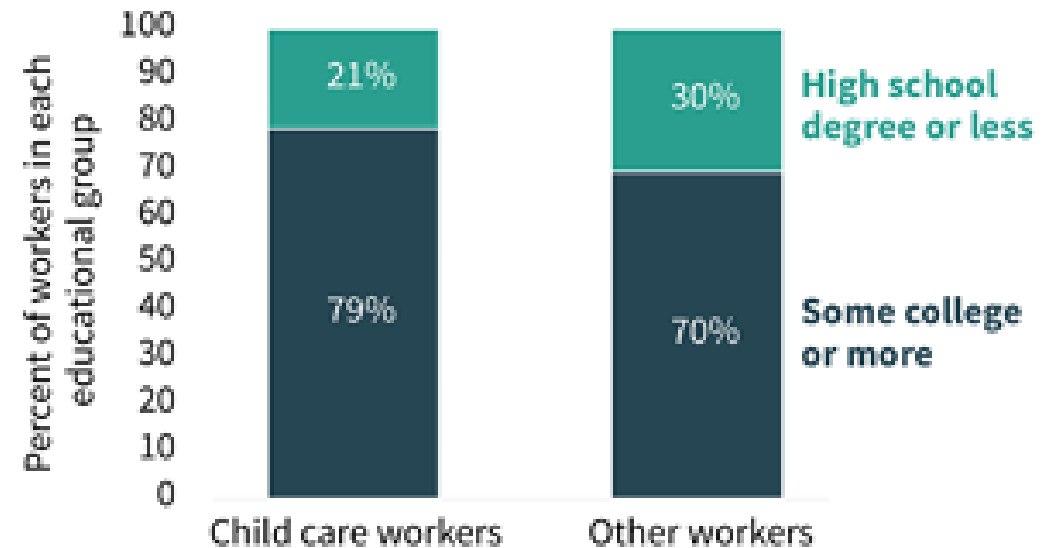
Data Source: CDC WONDER

# Chart Types and Features - Bar Charts

## Stacked bar chart

- Shows how the distribution (number, percentage) of one variable varies according to another characteristic (variable).
- Can show variation in composition only or variation in levels and composition.

*Figure 1. Educational Composition of New Hampshire's Workforce, With Child Care Workers Compared to Those in Other Occupations*



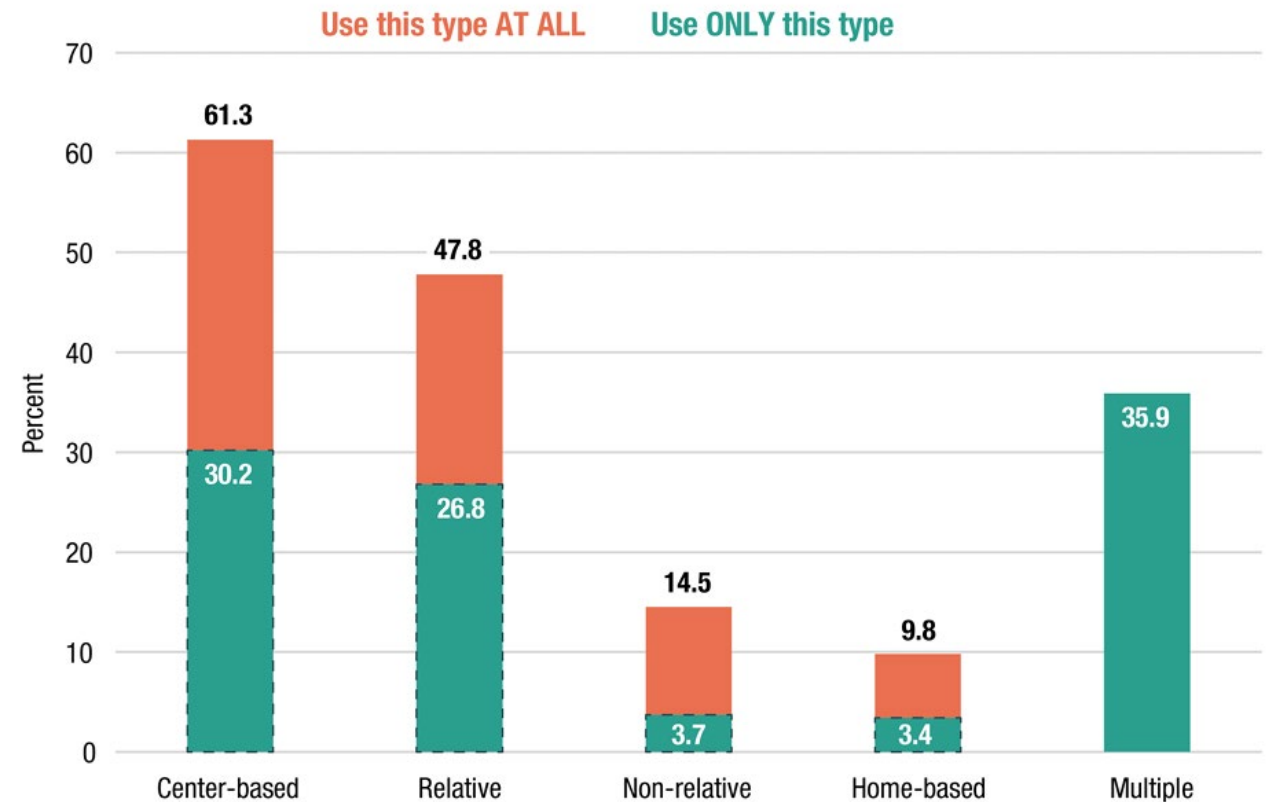
*Source: Author analysis of U.S. Census Bureau, American Community Survey, 2018–2022. [Notes](#)<sup>2</sup>*

# Chart Types and Features - Bar Charts

## Stacked bar chart

- Shows how the distribution (number, percentage) of one variable varies according to another characteristic (variable).
- Can show variation in composition only or variation in levels and composition.

**FIGURE 1. CHILD CARE ARRANGEMENTS AMONG NEW ENGLAND HOUSEHOLDS WITH CHILDREN UNDER AGE FIVE WHO USE AT LEAST SOME CARE**



**Note:** Estimates are calculated using household-level replicate weights. Percentages in Figure 1 are calculated only among New England households with a child under five who report using at least some child care in the past seven days.

**Source:** U.S. Census Bureau, Household Pulse Survey, Phases 3.7–3.8 (partial), Weeks 53–57

# Chart Types and Features - Line Charts

## Single Line Chart

- Illustrate change in an outcome over time.
- Predictor variable shown in X (horizontal) axis; outcome variable shown on Y (vertical axis)
- Use reasonable y-axis values.

Figure 1.  
**Annual Deaths in the United States: 1920-2021**  
(In millions)

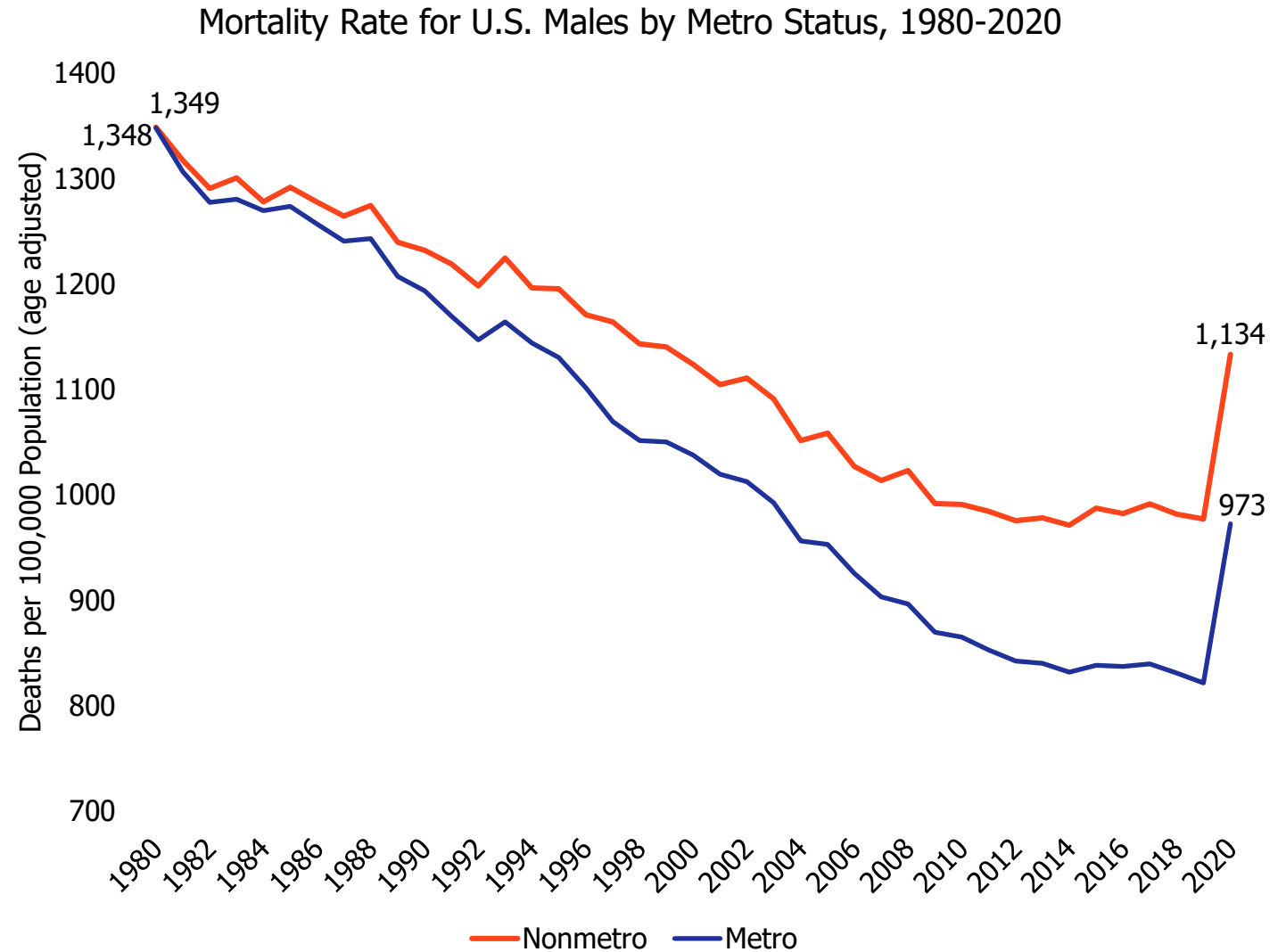


Source: National Center for Health Statistics.

# Chart Types and Features - Line Charts

## Multiple Line Chart

- Enables comparisons of outcomes between 2+ groups.
- Predictor variable shown in X (horizontal) axis; outcome variable shown on Y (vertical axis)
- Use different colors and/or line types for different groups.



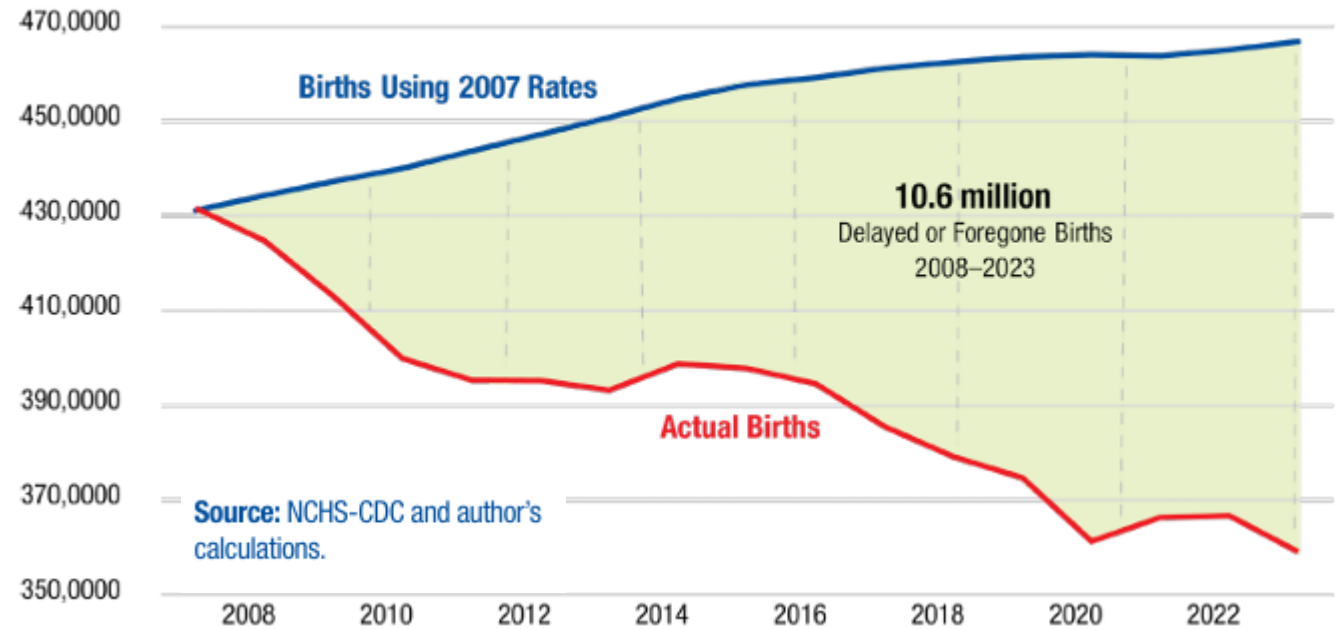
Data Source: CDC WONDER

# Chart Types and Features - Line Charts

## Multiple Line Chart

- Enables comparisons of outcomes between 2+ groups.
- Predictor variable shown in X (horizontal) axis; outcome variable shown on Y (vertical axis)
- Use different colors and/or line types for different groups.

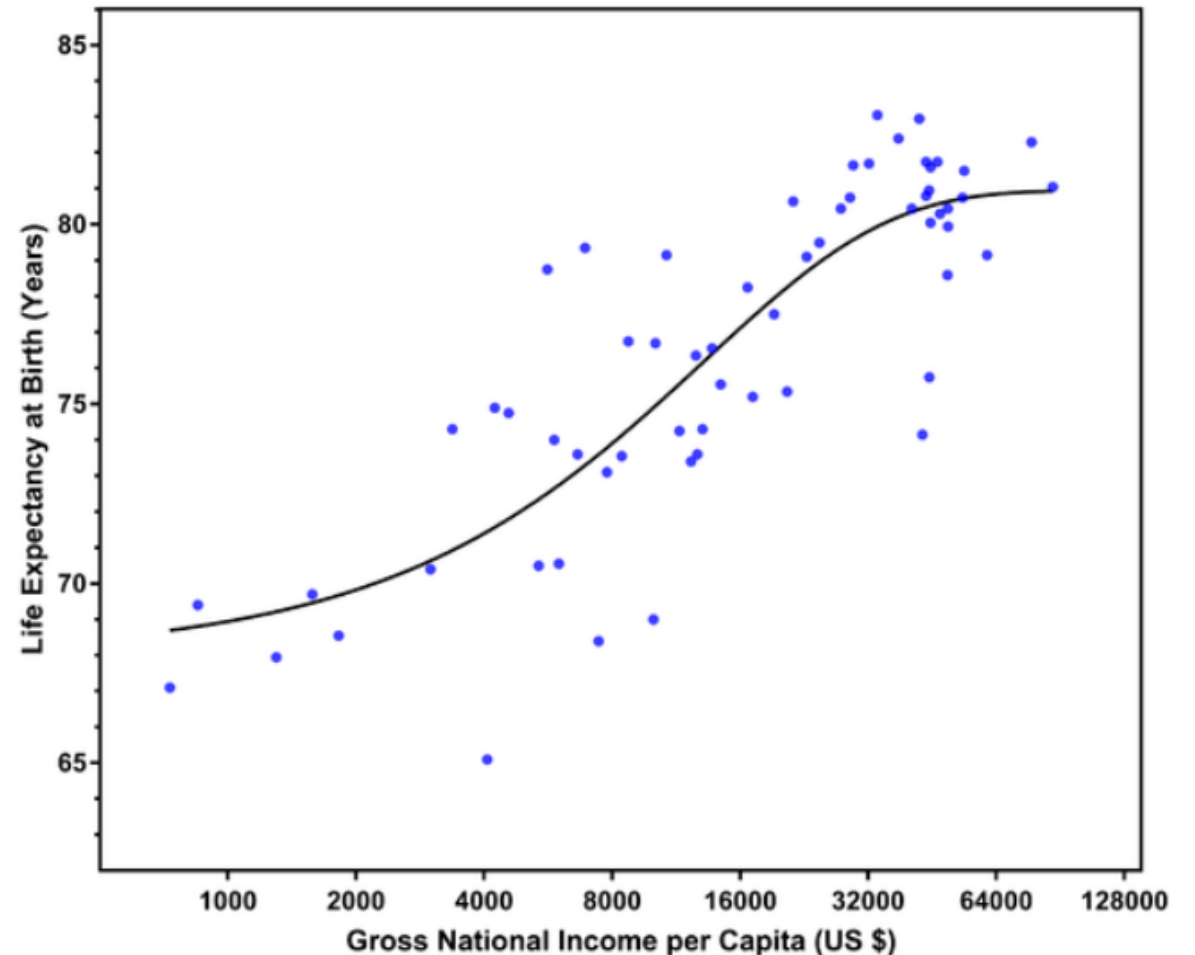
**FIGURE 1. ACTUAL BIRTHS COMPARED TO BIRTHS USING 2007 BIRTH RATES, 2007 TO 2023**



# Chart Types and Features - Scatterplots

## Scatterplots

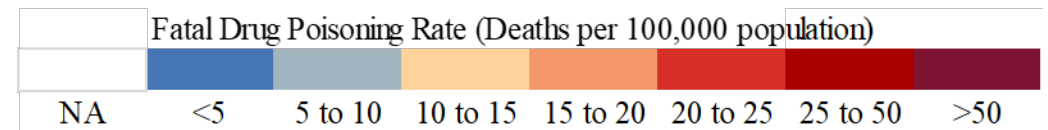
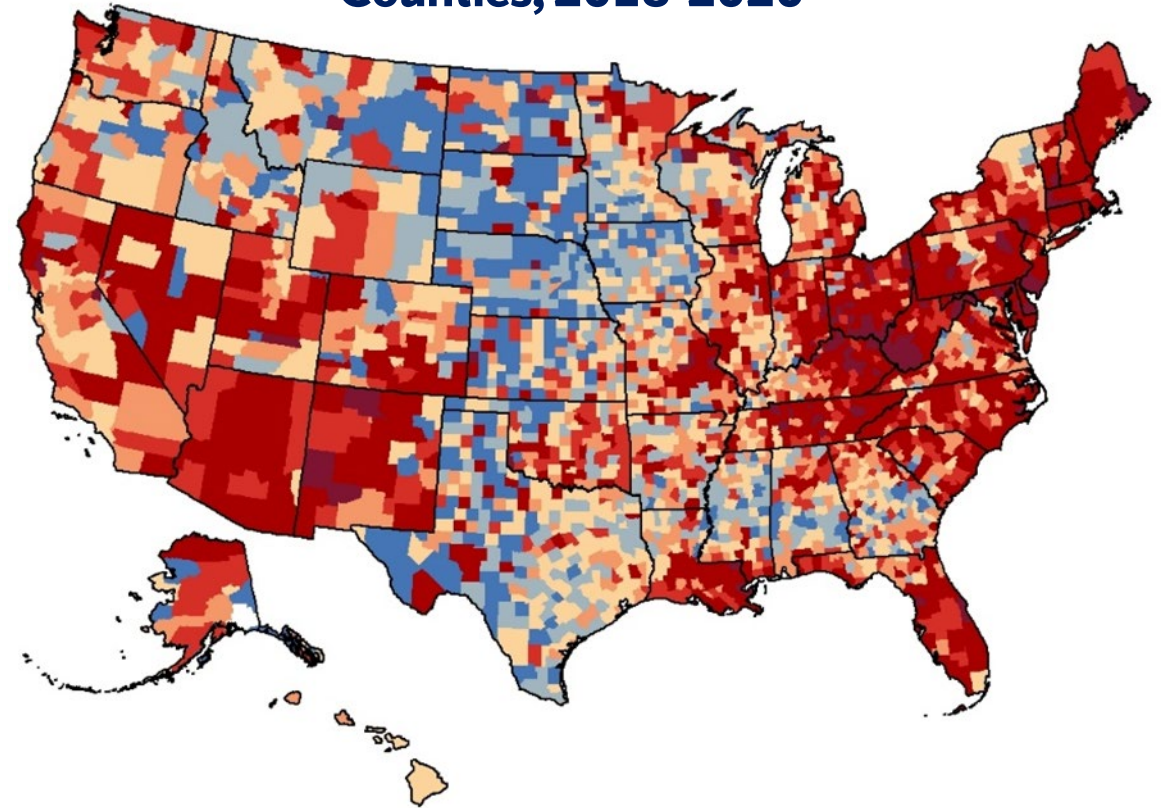
- Compare two quantitative variables.
- Predictor variable shown in X (horizontal) axis; outcome variable shown on Y (vertical axis)
- Use reasonable axis values



Above chart "[GNI and Life Expectancy log scale](#)" created by Wikipedia user Ljstalperts under [CC-BY-SA 4.0](#).

# Maps

## Fatal Drug Overdose Rates, United States Counties, 2018-2020



Data Source: National Vital Statistics System  
Rates are age adjusted

- Superior for showing data with a geographic component.
- Can display most types of quantitative comparisons, including level, rank, percentage change, rates, and average values.
- Use reasonable legend values.

Choropleth map - shades geographic units based on values of outcome variable

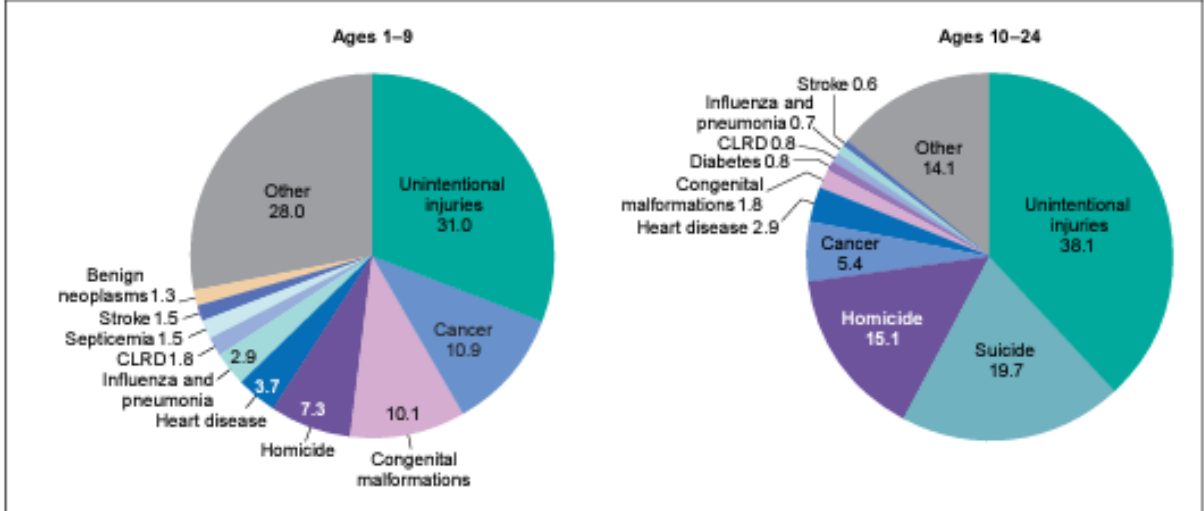
# Tips for Creating Effective Figures

- **Choose the appropriate figure type for your data/story.**

# Improving Visualization

Ok

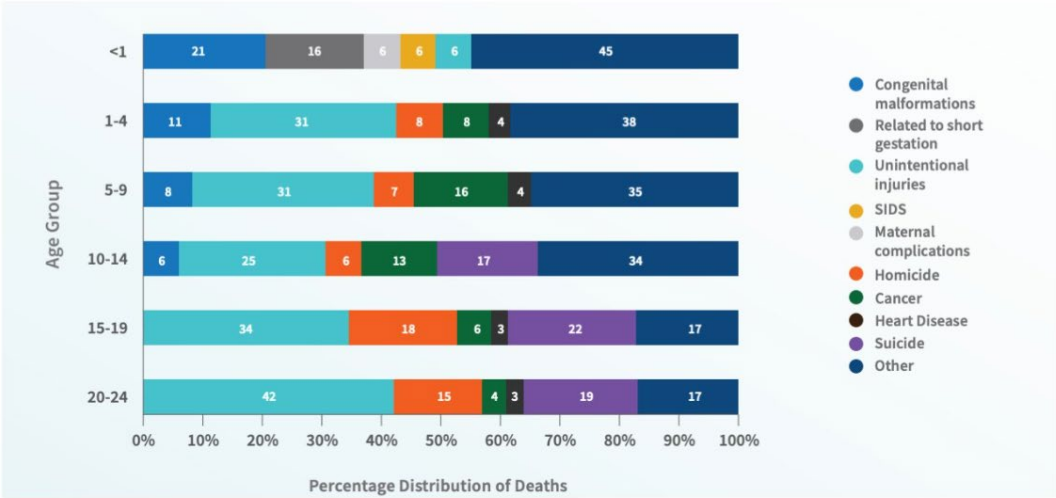
Figure 2. Percent distribution of the 10 leading causes of death, by age group: United States, 2019



Better

## Unintentional Injuries Are the Leading Cause of Death for Americans Ages 1 to 24

The Five Leading Causes of Early Life Death in the United States by Age Group, 2019



Source: Melonie Heron, "Deaths: Leading Causes for 2019," National Vital Statistics Reports 70, no. 9 (2021): 1-114.



Source: <https://pubmed.ncbi.nlm.nih.gov/34520342/>

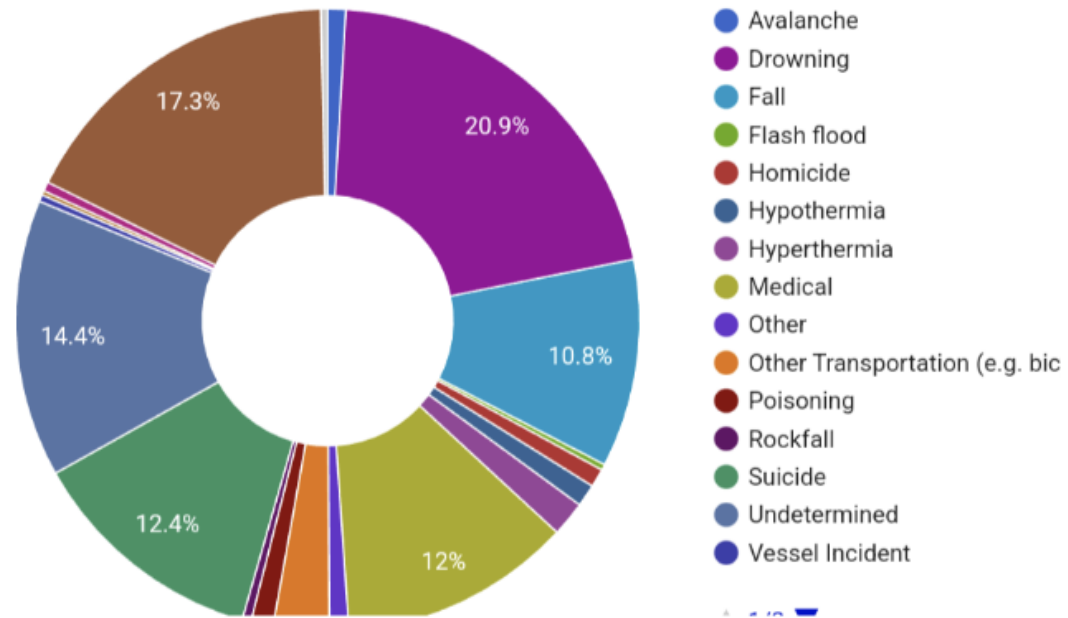
# Tips for Creating Effective Figures

- Choose the appropriate figure type for your data/story.
- **Don't try to cram too much into one chart.**

# Too Much!!!

## What Are the Top Causes of Death in the National Parks?

Fatalities in National Parks (2007-2023) by Cause of Death

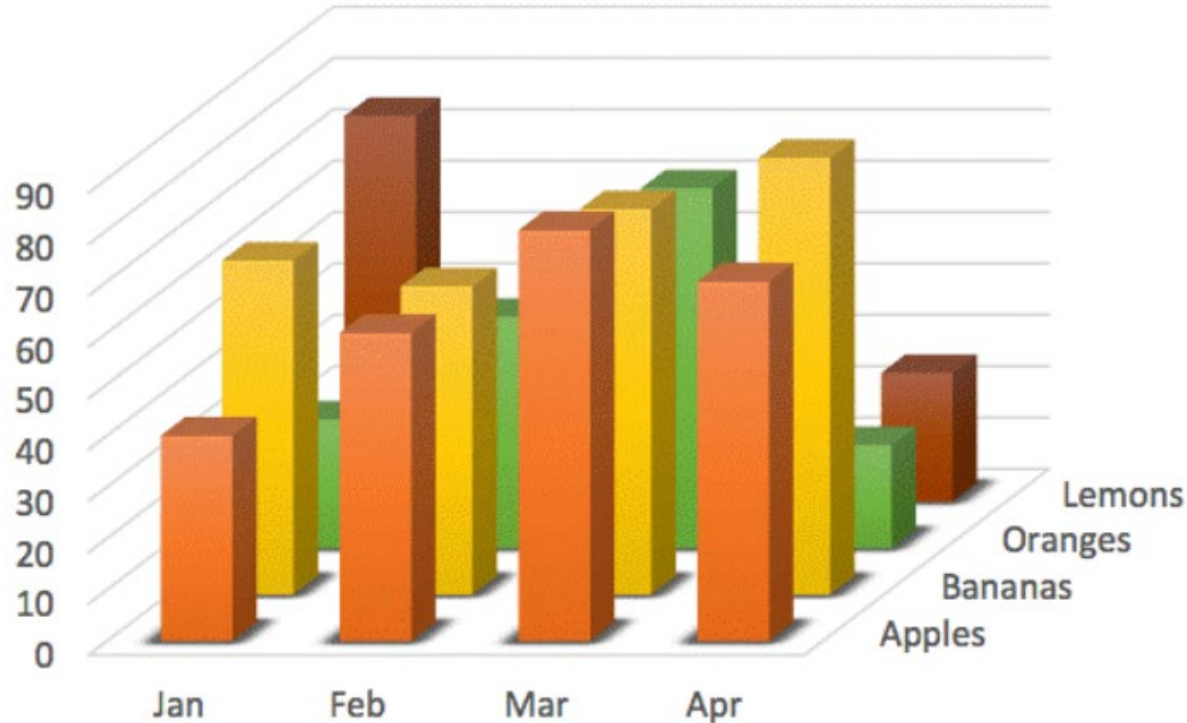
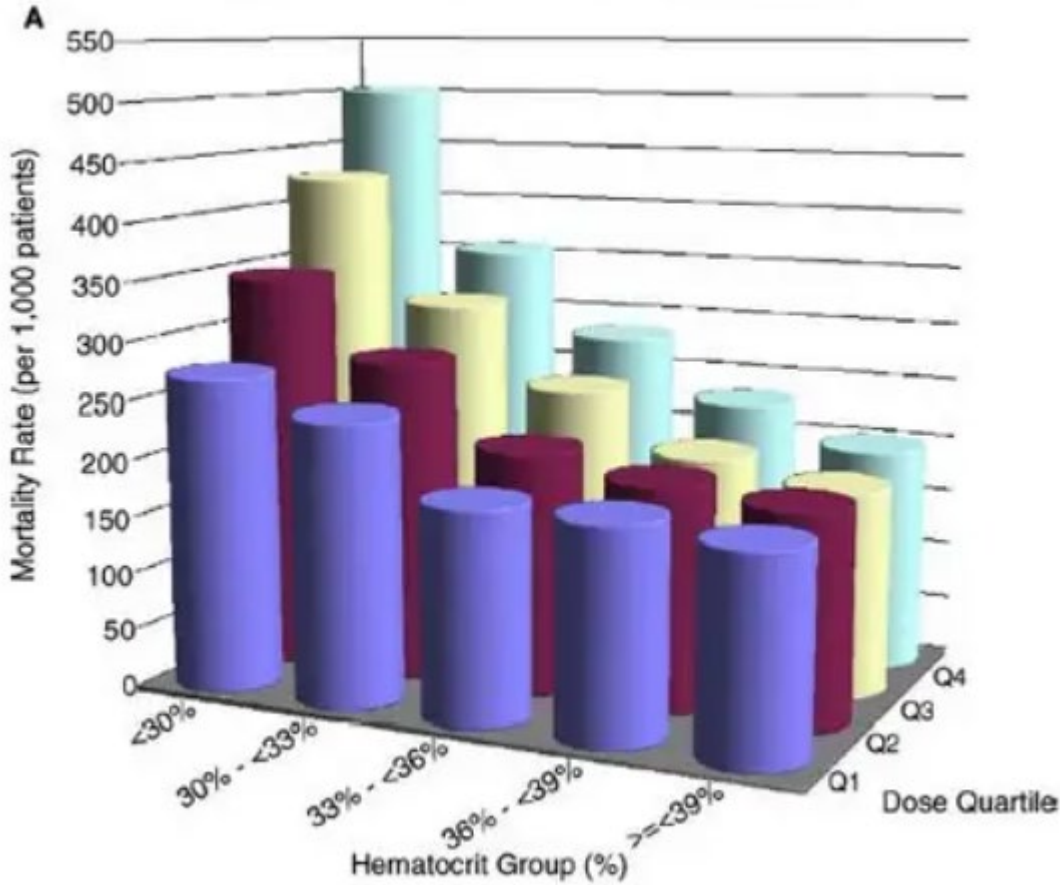


# Tips for Creating Effective Figures

- Choose the appropriate figure type for your data/story.
- Don't try to cram too much into one chart.
- **3D figures NEVER work.**

# 3D Figures are Awful!

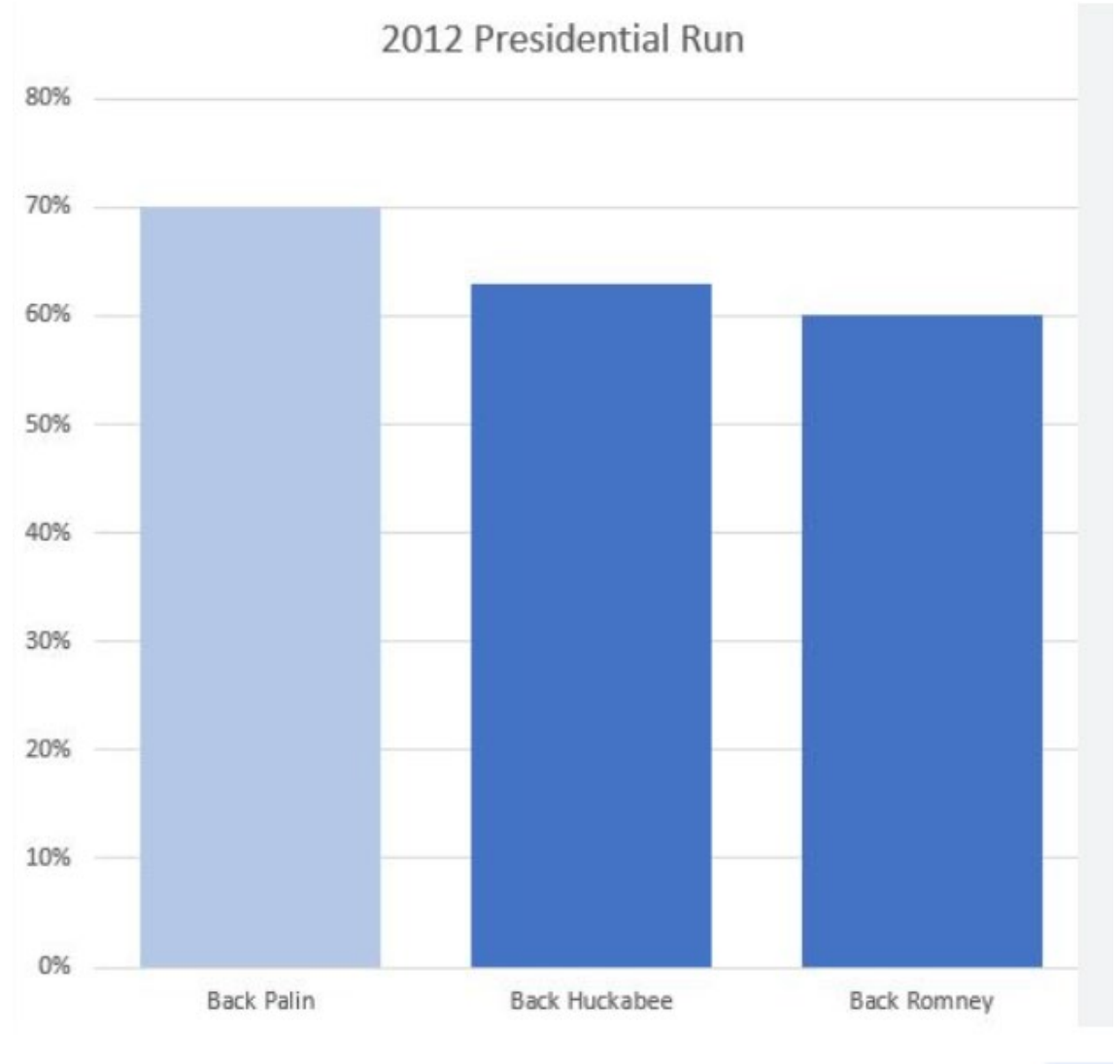
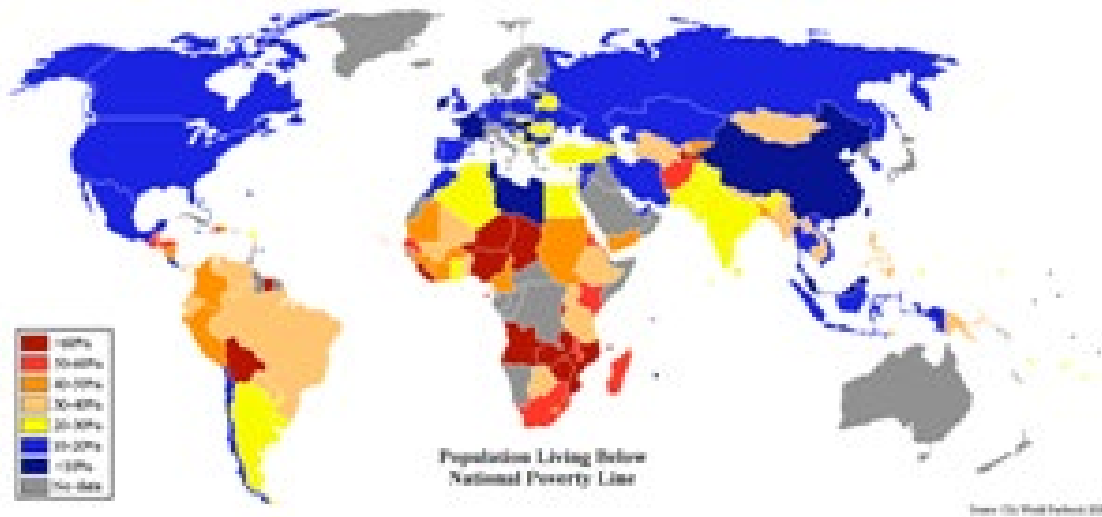
*D.J. Cotter et al. / Journal of Clinical Epidemiology 57 (2004) 1086-1095*



# Tips for Creating Effective Figures

- Choose the appropriate figure type for your data/story.
- Don't try to cram too much into one chart.
- 3D figures NEVER work.
- **Be intentional about color choices (the default in Excel is usually not the best)**
  - Use same color with gradation for showing ranked variables or degrees of values (e.g., ordinal or continuous variables).
  - Use different colors for nominal variables with no inherent ordering/ranking.
  - Be aware of colorblindness.

# These Color Choices Make No Sense!



# Tips for Creating Effective Figures

- Choose the appropriate figure type for your data/story
- Don't try to cram too much into one chart.
- 3D figures NEVER work
- Be intentional about color choices (the default in Excel is usually not the best)
  - Use same color with gradation for showing ranked variables or degrees of values (e.g., ordinal or continuous variables)
  - Use different colors for nominal variables with no inherent ordering/ranking
  - Be aware of colorblindness
  - Use colors that will still be discernible when printing in black, white, and greyscale
- **Use large font sizes.**

# Visualizing Qualitative Research

- Same general principals apply.
- DO:
  - Include photos (to represent your respondents or ethnography sites).
  - Use icons and/or color coding to categorize themes.
- DON'T
  - Cram the poster with quotes.
  - Use word clouds.

# Who Works Here? Refugee Integration and Relational Work of School-Age Children

Iwona Franczak (ifranca@syr.edu) and Dr. Amy Lutz (aclutz@syr.edu)/ Sociology, Syracuse University

## INTRODUCTION

Feb 24, 2022

Mar 24, 2022

Jun 2022

INVASION

1.1 MLN URC

170K URC in Schools

### HOST SCHOOLS

- Site of education, social integration, and social inclusion

### PAST RESEARCH

- Structural inclusion of refugee students, role of children in the integration process

### GAP

- The **work** younger children do to integrate from the *relational integration* perspective

## RESEARCH INQUIRY

### PURPOSE

- To explore the integration process of Ukrainian refugee students in Polish host elementary schools

### FRAMEWORK

- Relational Work - "establishing, maintaining, negotiating, transforming, and terminating interpersonal relations" (Zelizer 2012, p. 149)
- Forms of Social Capital - social bridging and social bonding (Coleman 1988; Putnam 2000)
- Social Network Theory - social brokering (Brut 1992)

### QUESTION

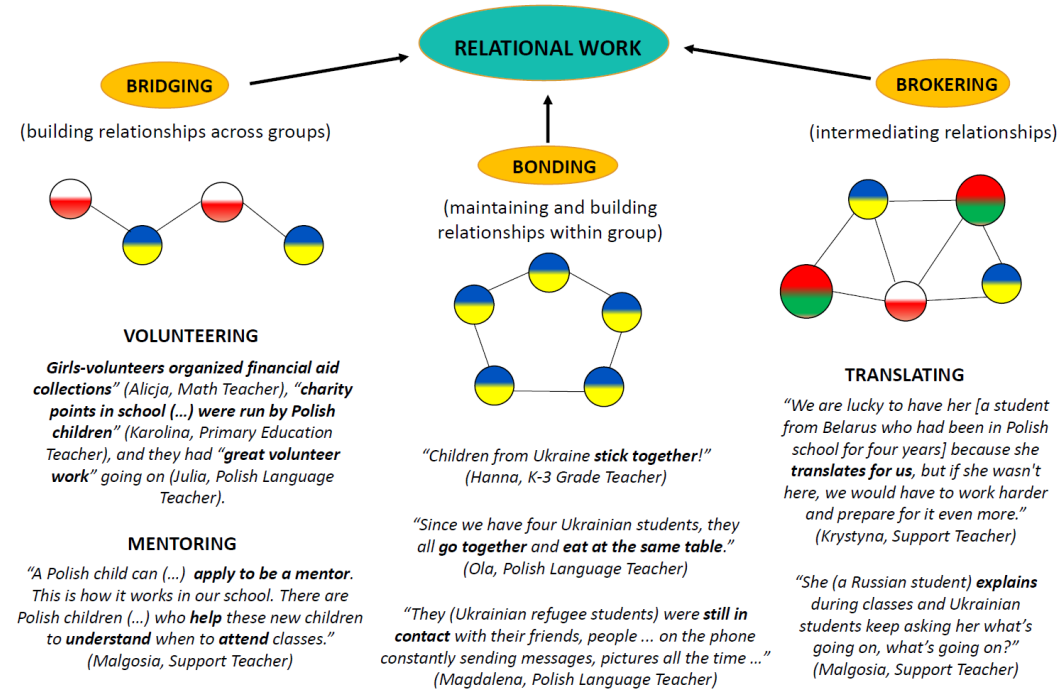
- How do young students engage in integration process of Ukrainian refugee school-age children in host schools?

## DATA and METHODS

- 24 semi-structured interviews with mothers (U) and teachers (P)
- 3 public elementary schools in a large city in Poland
- Constructivist grounded approach (Charmaz 2001; Tie et al. 2019)
- Purposive sampling

## FINDINGS

### INTEGRATION OF REFUGEE STUDENTS



## KEY TAKEAWAYS

- Children's **efforts** to integrate refugee students into host schools constitute "**work**" since these efforts are purposeful, means to an end, done of out necessity, and encouraged by schools.
- In the process of social integration of young refugee students into host schools, some school-age children engage in *relational work* which can include *bridging, bonding, and/or brokering*.
- Conceptualizing children's efforts to integrate as "**work**" illuminates the broader ramifications of war which extend beyond the physical zone of conflict.

**FURTHER INFORMATION:** Paper Presentation – American Sociological Association, NYC, NY (August 2026)

- Nicely pared down presentation of research purpose and methods.
- Uses bulk of poster to present findings.
- Uses country flag colors to illustrate relationships (Poland, Ukraine)
- Effectively uses quotes to illustrate key themes.
- Bolds most important aspects of quotes.

## Introduction

If screening for cervical cancer is to be effective, women with low-grade abnormal cervical smears require follow-up. One common follow-up option is referral for a hospital-based colposcopy examination. Some women may also require punch biopsies or other procedures like a LLETZ (large loop excision of the transformation zone) to remove cervical abnormalities. It is widely known that undergoing colposcopy and related interventions can be a distressing experience for women. Much less is known about the psychological after-effects.

## Methods

In-depth Interviews were conducted with women who had undergone colposcopies at two colposcopy clinics in Dublin, Ireland. A total of 23 women were interviewed. Interviews were face-to-face and semi-structured around a topic guide developed from literature review. Interviews were audio-recorded, transcribed verbatim and anonymised. Transcripts were analysed thematically using the Framework Approach.

## Results

A key dimension that emerged in relation to women's differing experiences of distress following colposcopy was duration. This led to the development of a typology of psychological after-effects, based on women's experiences of short- or long-term distress: (1) women with short-term distress (2) women with both short- and long-term distress and (4) women without distress. Women with short-term distress were distressed immediately following their colposcopy and were upset while still at the clinic or when they left the clinic to go home. These women described crying, feeling 'shaken up' or being in 'shock' after the procedure. Women with long-term distress were worried about longer-term issues like their fertility, cervical cancer and having sex. Many women in this group had these worries despite their procedure being performed awhile back. The factors that emerged from the analysis as being important for each of the four groups are shown in Figure 1.

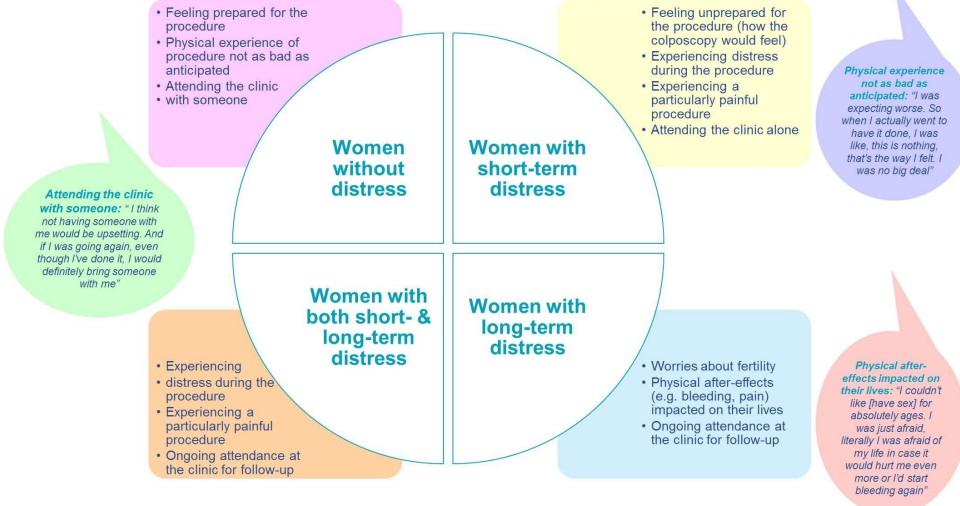
## Aims

(1) To examine women's differing experiences of psychological distress and (2) to explore what factors are associated with, or protective against short and long-term distress following colposcopy and related procedures.

Feeling unprepared for the procedure: "Maybe if I had known it [colposcopy] was going to be more painful, I would have prepared myself mentally for it"

Experiencing a particularly painful procedure: "I found it really painful and it's not something I wanted to repeat again... it did shake me up, I just wasn't expecting the level of pain"

Figure 1. Categories of unanswered questions, with illustrative quotes from interview transcripts



## Conclusions

Our qualitative data show that colposcopy and related procedures can lead to short-term and/or long-term post-procedural distress. These results suggest a lack of sensory and procedural preparation, lack of support while attending the clinic, fertility worries and on-going monitoring by the colposcopy clinic may affect post-colposcopy psychological distress. Targeted psycho-educational interventions to help alleviate distress after colposcopy are required. If these issues are not addressed, women's experiences of colposcopy and distress following colposcopy could impact negatively on their long-term psychological well-being.

- Nice layout that mixes text with shapes.
- Good use of quotes to illustrate themes.
- Some odd font color choices that make text difficult to read.

# Examining the Use and Perception of Harm of JUULs by College Students: A Qualitative Study

Kendall Dapprich, Department of Health Management and Policy, University of New Hampshire. Faculty Advisor: Ann-Marie Matteucci

Purpose	Themes	Student Perspectives	Student Quotes
<p>This study investigates how and why college students use Electronic Nicotine Delivery Systems (ENDS), particularly JUUL brand. It further explores how students perceive the safety and harm of JUUL use, how they define the term e-cigarette, and why they continue to use ENDS despite risks.</p>	<p><b>E-cigarette Definition</b></p> <ul style="list-style-type: none"> <li>JUUL is not an E-cigarette</li> <li>E-cigarettes look like traditional cigarettes, have a set nicotine content, and are used for smoking cessation</li> <li>Vapes have variable nicotine content and are used for enjoyment</li> </ul>	<p><b>Perceptions of Harm and Safety</b></p> <ul style="list-style-type: none"> <li>JUUL is highly addictive</li> <li>JUUL is either safer than or equally as dangerous as traditional cigarettes</li> <li>Negative side effects included addiction, nicotine overdose, and physical discomfort from JUUL use or cessation</li> <li>There is a lack of ENDS safety research</li> <li>Because of the lack of safety research, students questioned the credibility of ENDS safety information</li> </ul>	<p>"[People use] the vape for the flavor or the e-cig to wear you off hard cigarettes. But when there's a JUUL involved, it's definitely a combination of both...especially because kids who have never picked up a cigarette or a vape in their lives are picking up JUULs."</p> <p>"Even talking about it makes me want to do it."</p>
<p><b>Background</b></p> <ul style="list-style-type: none"> <li>Past month ENDS among high school students use has increased from 1.5% in 2011 to 11.7% in 2017.<sup>1</sup> Among college students as of Fall 2018, ever ENDS use was 22.6% and past month ENDS use was 12.9%.<sup>2</sup></li> <li>Research and prevention efforts often refer to ENDS generically as "e-cigarettes". However, adolescents and young adults use more specific terms to describe subgroups of ENDS, and may perceive them as distinct from e-cigarettes.<sup>3</sup></li> <li>The JUUL was introduced in 2015. As of August 2018, JUUL captured 72% of all ENDS sales, up from 55% the year prior.<sup>4</sup> All ENDS sales increased 47% from 2016-2017, driven by JUUL sales.<sup>5</sup></li> </ul>	<p><b>Reasons for Use</b></p> <ul style="list-style-type: none"> <li>Non-smoking students start using ENDS because of curiosity or peer invitation</li> <li>Smoking students start using ENDS because of curiosity and smoking cessation</li> <li>Nicotine use and JUUL flavors are physically enjoyable, especially with alcohol</li> <li>JUULs are discreet, portable, and can easily be used in non-smoking places</li> </ul>	<p><b>Patterns of Use</b></p> <ul style="list-style-type: none"> <li>There are "categories" of JUUL users, generally divided into one-time users, social/party users, and addicted users</li> <li>Young people use JUUL – generally, those age 15-25</li> <li>Social users use JUUL at parties and bars</li> <li>Addicted users use JUUL in all locations, including nonsmoking areas</li> <li>JUUL use is a social activity and students expect to share JUULs</li> <li>Common combination of alcohol and nicotine</li> <li>JUULs and JUUL pods are expensive, but cheaper than cigarettes</li> </ul>	<p>"I think some people get addicted a lot easier than others. Like I have friends who say they like took one hit at a party and then they had to get a JUUL."</p> <p>"I've never actually seen like tangible evidence that it's bad for you. I can't imagine it would be good for you, but I remember [seeing] the black lungs and they said, 'this is what happens when you smoke.' But we have never seen anything like that for Juuling. So a lot of people don't like pay attention to that stuff because they don't have the tangible data."</p> <p>"One of the attractions with the JUUL is it's convenience. As long as it's charged, it's going to work. You can use it inside. It's not like smoking where you have to go outside, light your cigarette, that's not easy to do in a social setting. But Juuling, you can just have it in your hand or in your pocket and take it out whenever, rip it, and put it back"</p> <p>"I used to smoke cigarettes and my coworker used an e-cigarette and she told me about it and she was like, I should switch just to try and cut down on cigarettes."</p> <p>"I was at a party, one of my roommates had one and I was like, okay, I'll just try it. And you immediately get this huge head rush. Your whole body goes numb and it can be a feeling that you enjoy. It makes you feel a little bit more drunk than you are."</p> <p>"There's no better combination than alcohol and a cigarette. So I feel like Juul has just been a substitute for it."</p> <p>"It's \$20 just for a little starter pack thing, and then a pack of five [pods] it's like \$16. It's really expensive. Blows my mind."</p> <p>"I did notice this past weekend... people can ask the bartender to charge their JUUL for them... I've seen people like, can you charge my phone?... But I've never seen people actually ask to charge their JUULs"</p> <p>"I actually know someone who has a JUUL for himself and a JUUL he brings to parties. Just so if other people want to hit a JUUL, he has a party JUUL and his own personal JUUL."</p>
<p><b>Methods</b></p> <ul style="list-style-type: none"> <li>49 UNH students were recruited from classes, online postings, and on-campus workplaces.</li> <li>Participants attended one of five hour-long focus groups.</li> <li>Focus group discussion was recorded, transcribed by a text to speech service, and edited to ensure accuracy.</li> <li>Participant responses were coded for content, then organized into major themes.</li> </ul>	<p><b>Participant Gender</b></p> <p><b>Participant College</b></p> <p><b>Class Standing</b></p> <p><b>JUUL and Cigarette Use</b></p>	<p><b>Discussion</b></p> <ul style="list-style-type: none"> <li>This research validates previous findings that young adults use specific language for ENDS, not only the term e-cigarette.<sup>3</sup> Students likely do not apply harms identified in e-cigarette research to JUULs.</li> <li>Students are savvy about the validity of safety claims. They look for research and do not believe claims of JUUL harm that are not supported by credible research. However, they are very aware that JUUL is likely unhealthy.</li> <li>Nicotine use is physically enjoyable and a common social activity, especially in combination with alcohol. These benefits attract college students to JUUL use.</li> <li>Prevention activities to address student use and perceptions of harm should include JUULs specifically.</li> </ul>	<p><b>Limitations</b></p> <ul style="list-style-type: none"> <li>Participants were drawn from a convenience sample of students who chose to participate in focus groups.</li> <li>Focus groups were conducted on one public four year college campus in the northeast. Results may not be generalizable to other populations.</li> <li>The sample size of this study was relatively small due to its qualitative nature.</li> </ul>
<p><b>Student Demographics</b></p>	<p><b>References</b></p> <ol style="list-style-type: none"> <li>Wang, T., Gentile, A., Shapson, S., Cullen, K., Ambrose, B., &amp; Jamal, A. (2018, June 8). Tobacco Product Use Among Middle and High School Students - United States, 2011-2017   MMWR. Retrieved April 23, 2019, from <a href="https://www.cdc.gov/mmwr/preview/mmwrhtml/6709a1.htm">https://www.cdc.gov/mmwr/preview/mmwrhtml/6709a1.htm</a></li> <li>American College Health Association. American College Health Association National College Health Assessment II: Reference Group Executive Summary Fall 2018. Silver Spring, MD: American College Health Association; 2018.</li> <li>Wang, T., Gentile, A., Shapson, S., Cullen, K., Ambrose, B., &amp; Jamal, A. (2018, June 8). Tobacco Product Use Among Middle and High School Students - United States, 2011-2017   MMWR. Retrieved April 23, 2019, from <a href="https://www.cdc.gov/mmwr/preview/mmwrhtml/6709a1.htm">https://www.cdc.gov/mmwr/preview/mmwrhtml/6709a1.htm</a></li> <li>Cohen, R. (2018, August 25). Juul e-cigarette market share goes with 'Reignite' wave. Retrieved April 23, 2019, from <a href="https://www.journalnews.com/news/local/industry/2018/08/25/juul-e-cigarette-market-share-goes-with-reignite-wave/">https://www.journalnews.com/news/local/industry/2018/08/25/juul-e-cigarette-market-share-goes-with-reignite-wave/</a></li> <li>Huang, A., Shah, E., Kwon, J., Bhatt, S., Shea, L. F., Kim, K., ... &amp; Emery, S. L. (2018, March 02). Vaping versus eCIG: How the embryonic growth and marketing of EDS transformed the US retail e-cigarette market. Retrieved from <a href="https://doi.org/10.1016/j.tobacco.2018.03.001">https://doi.org/10.1016/j.tobacco.2018.03.001</a></li> </ol>		

- Good use of figures to show participant characteristics.
- Good use of color to distinguish themes (though I would use diff colors).
- Too many quotes makes poster seem overwhelming.
- References not necessary.

# Checklist for Assessing Your Poster

## Attracting your Audience

- ✓ Is the poster title concise and in larger font than the rest? Does it stand out?
- ✓ Does the title section include presenter's name and affiliation?
- ✓ Is the poster's subject matter quickly obvious?
- ✓ Is the poster layout visually appealing?

## Delivering the Message

- ✓ Would you want to stop to look at this poster?
- ✓ Is the subject matter presented clearly and concisely?
- ✓ Does the information flow logically?
- ✓ Is the text readable in terms of linguistic difficulty, jargon?
- ✓ Is the text legible in terms of font choice, size, color, and spacing?

## Creating Visual Impact

- ✓ Are the graphics large enough to be seen from 10 ft away?
- ✓ Are your key points in bullets?
- ✓ Are the graphics attractive and relevant?
- ✓ Have you used legends or captions to guide the visitor?
- ✓ Are sections clearly defined with adequate space around them?
- ✓ Are items/sections aligned?
- ✓ Do you have concise conclusions/takeaways?

# Presenting your Poster

- Don't block the poster.
- Don't stand there sad and silent. Instead: "Hey, can I tell you about my project?"
- Treat your poster presentation like a conversation.
  - Prepare a mini presentation (2-3 sentence overview of the problem, what you did, and what you found). No longer than **90 seconds**.
  - Think about where you will point on your poster to support what you are saying.
- Practice
  - Anticipate questions and practice answers.
- You are the expert...sort of (Be confident, but acknowledge limitations)
- Other
  - Dress appropriately
  - Have water
- Have fun!

# RSS Poster Awards Scoring Criteria

- Importance of the question(s)/aim(s)
- Rigor/quality of the research
- Innovation
- Visual appeal and effectiveness of poster
- Oral presentation/ability to answer questions
- Overall contribution to knowledge

# Additional Resources

- [How to Create a Research Poster](#)
- [How to Make an Effective Academic Poster-AKF](#)
- [Creating an Effective Scientific Poster \(PDF\)](#)
- [Designing Conference Posters](#)
- [How to Visualize Qualitative Data](#)
- [From Data to Viz](#)
- [Data to Art](#)