How to Present Your Data

NIH StrokeNet Professional Development Webinar
August 23rd, 2018

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Associate Dean of Faculty Development
and Women's Initiatives
Professor of Neurology

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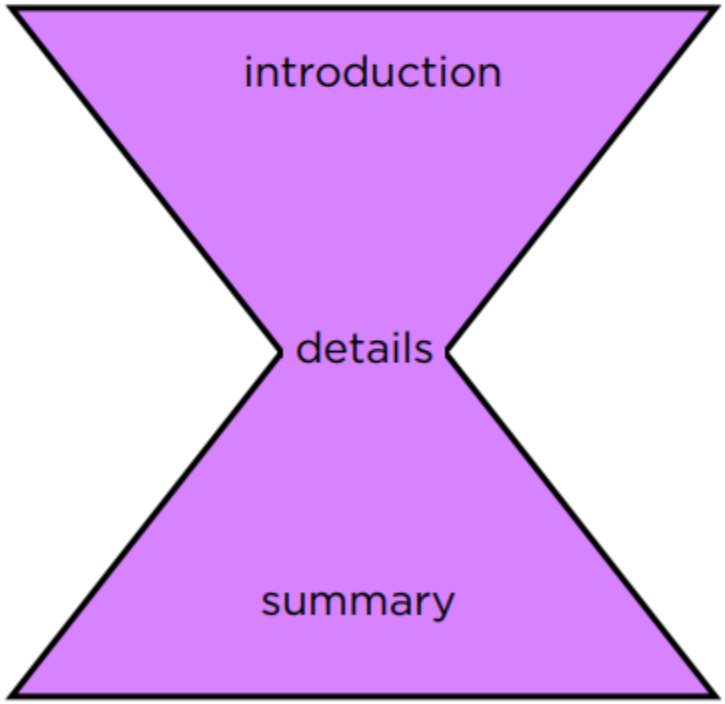
Seminar structure

Tell them what you are going to tell them

Tell them

Summarize what you have told them



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Outline

CONTENT

- Goals
- Framework
- Common Pitfalls

FORMAT

- Font & Typeface
- Color
- Tables
- Optimize Graphics
- Tips for Oral Presentation
- Tips for Posters

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Features of Good Presentation

- Engages the audience
- Simple delivery: “less is more”
- Has a central message
- Logical Flow
- Capitalize on images
- Compassion!

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Compassion in a scientific seminar

Make sure they understand.

Do not go over your time.

Golden Rules

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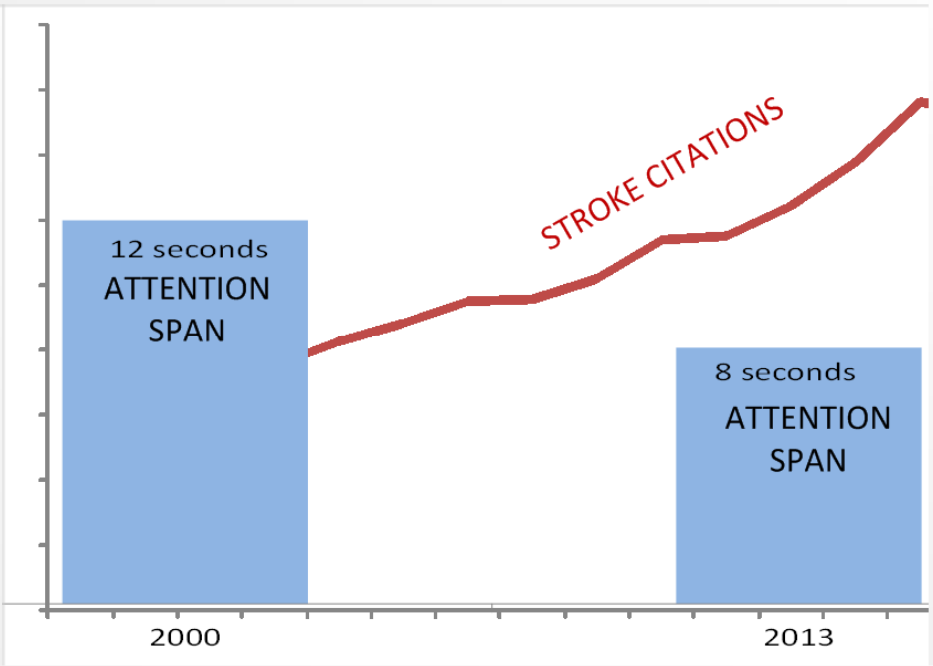
The Challenge



National Center for Biotechnology 2013
Pubmed

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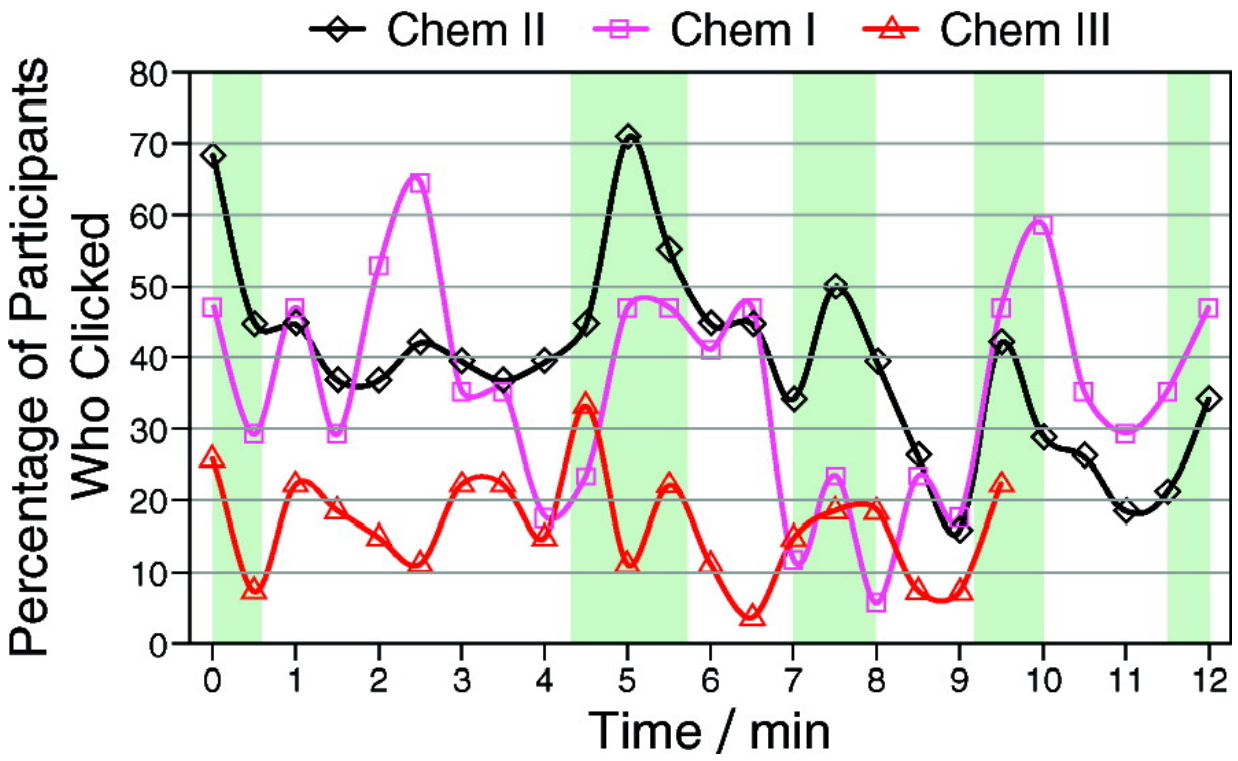
Keep Earning your Audience's Attention



Bunce et al. Journal Chemical Education 2014

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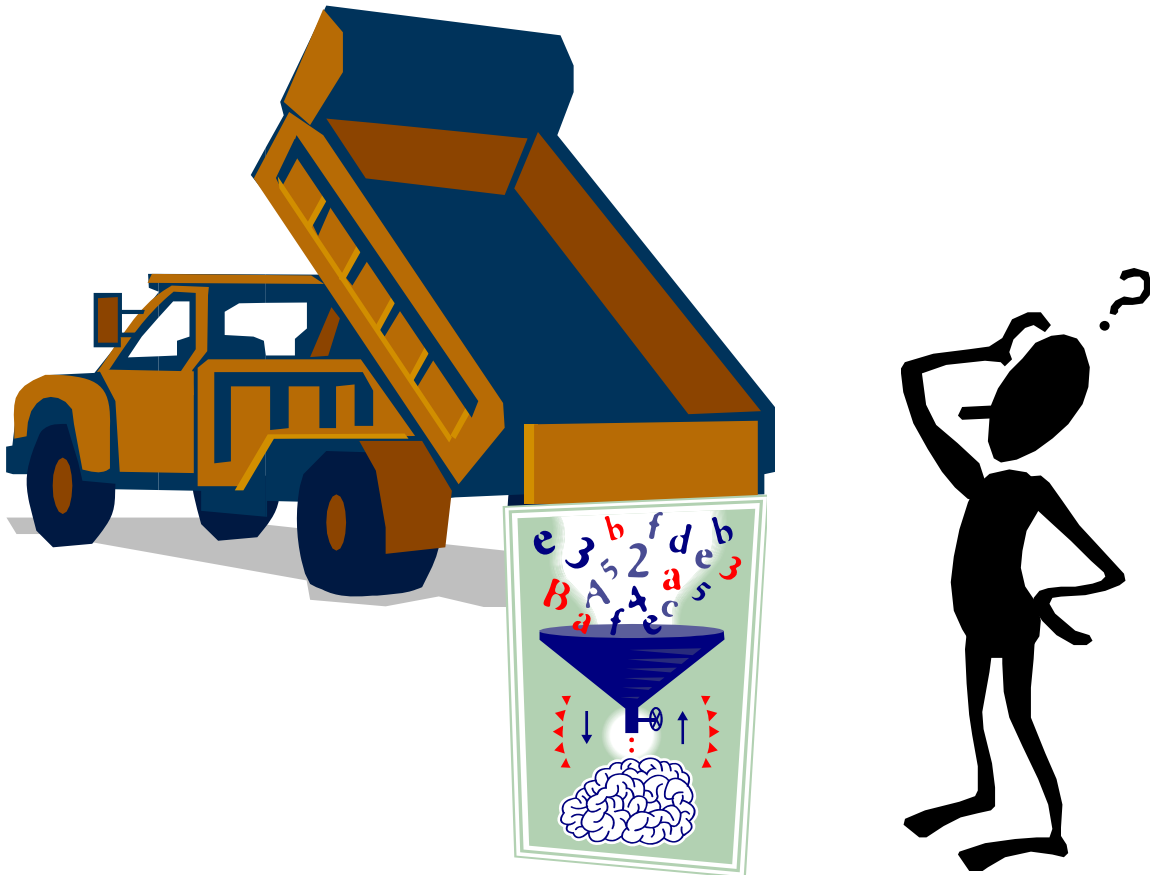
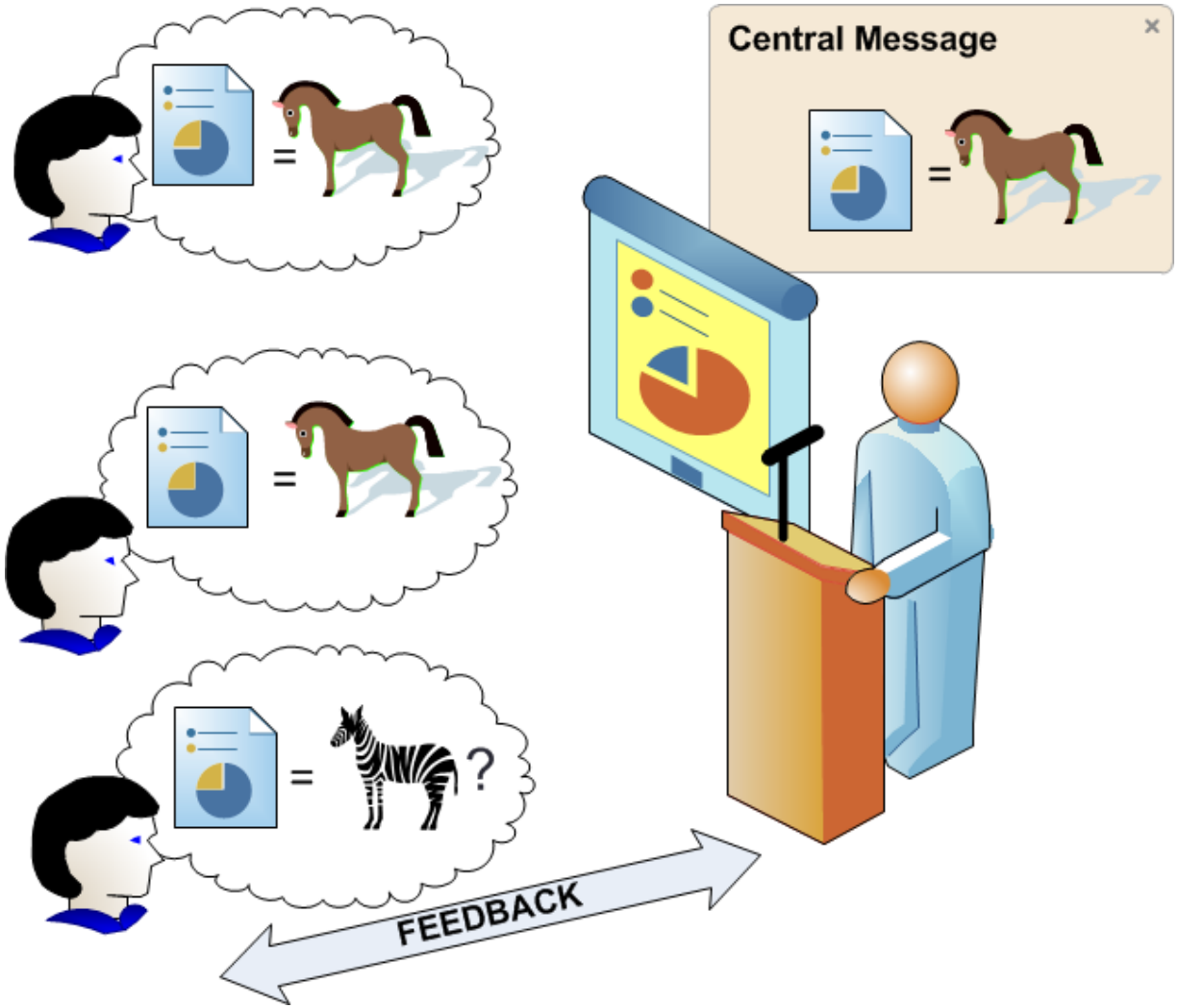
Presentation ≠ Dumping Data



Presentation = Communication



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Test for Central Message

25 WORD TEST

CENTRAL MESSAGE?

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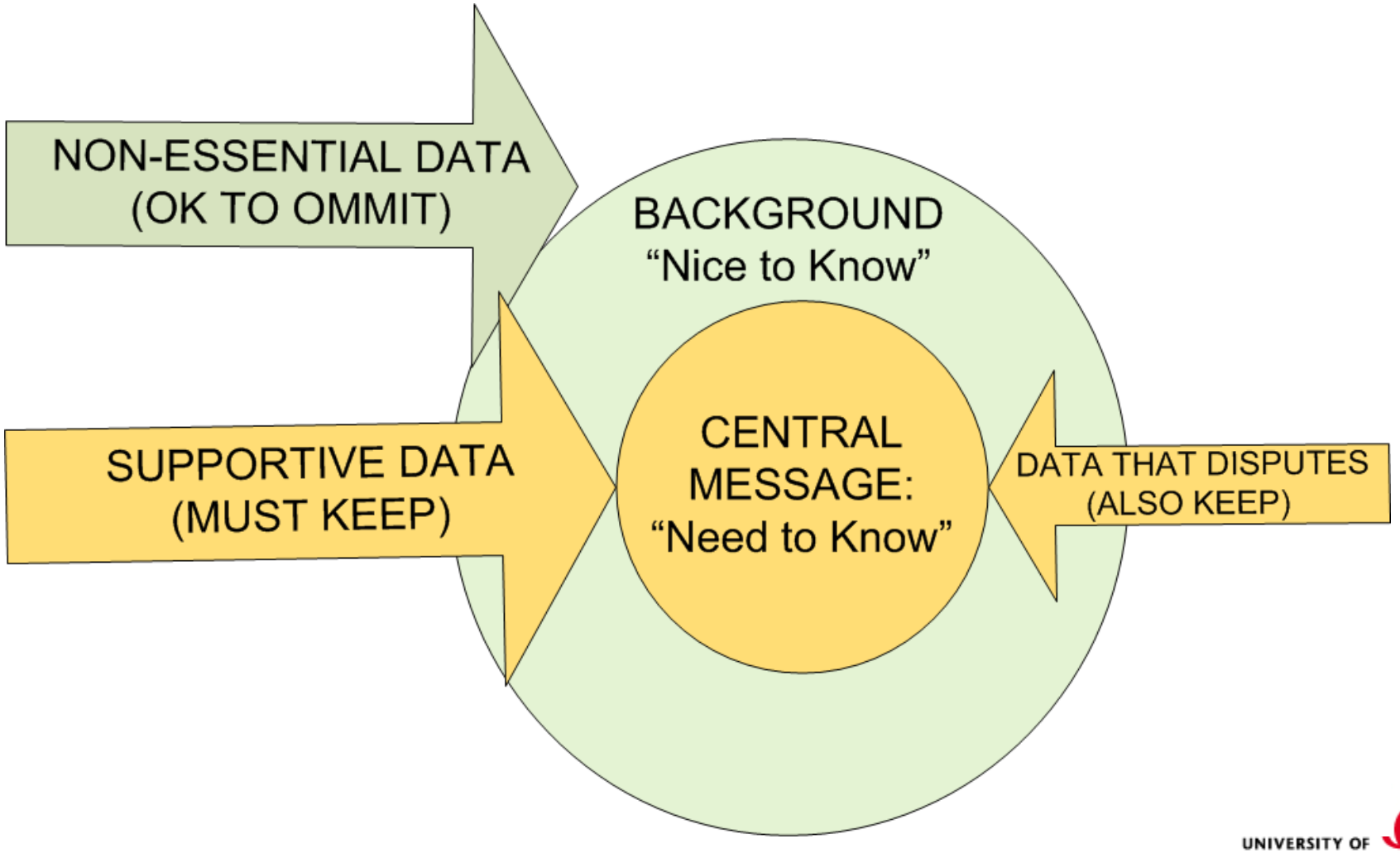
Enhance Central Message



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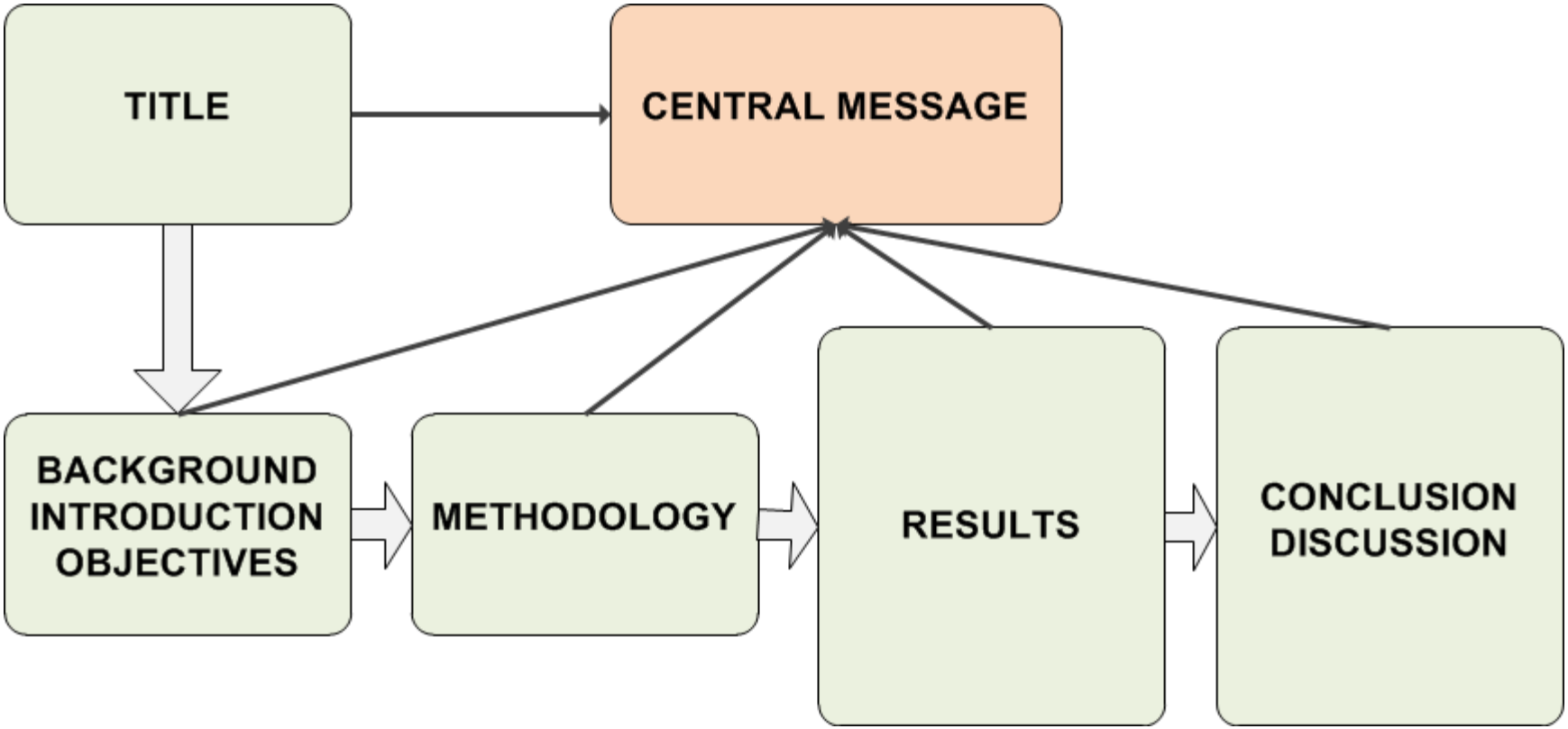
Ideal Framework



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Poor Presentation

TITLE

CENTRAL MESSAGE?

BACKGROUND
INTRODUCTION
OBJECTIVES

METHODOLOGY

RESULTS

CONCLUSION
DISCUSSION

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Title: Spend time on it

- Influences reviewers & graders
- Selects audience
- Predisposes audience
- Disseminated by search engines
- Some people only read title!

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Which Title Do You Prefer?

A Impact of a stroke trial network on recruiting rates: a before and after study

B Is a stroke trial network associated with improved recruitment rates?

C A stroke trial network improves recruitment rates

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Title Types

A Impact of a stroke trial network on recruiting rates: a before and after study

DESCRIPTIVE

B Is a stroke trial network associated with improved recruitment rates?

QUESTION TYPE

C A stroke trial network improves recruitment rates

DECLARATIVE

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Choosing Right Title

- Short and Catchy
- Descriptive type = boring (unless novel methods or RCT)
- Question type = too much suspense!
- Declarative type= best (get to the point)

http://static.guim.co.uk/sys-images/Film/Pix/pictures/2013/2/8/1360326092958/Alfred-Hitchcock-010.jpg

Title Types & Impact

Title Type	Median Downloads	Median Citations
Descriptive	2,754	14.2
Declarative	2,565	12
Question	3,723	6

Jamali et al. Scientometrics 2011

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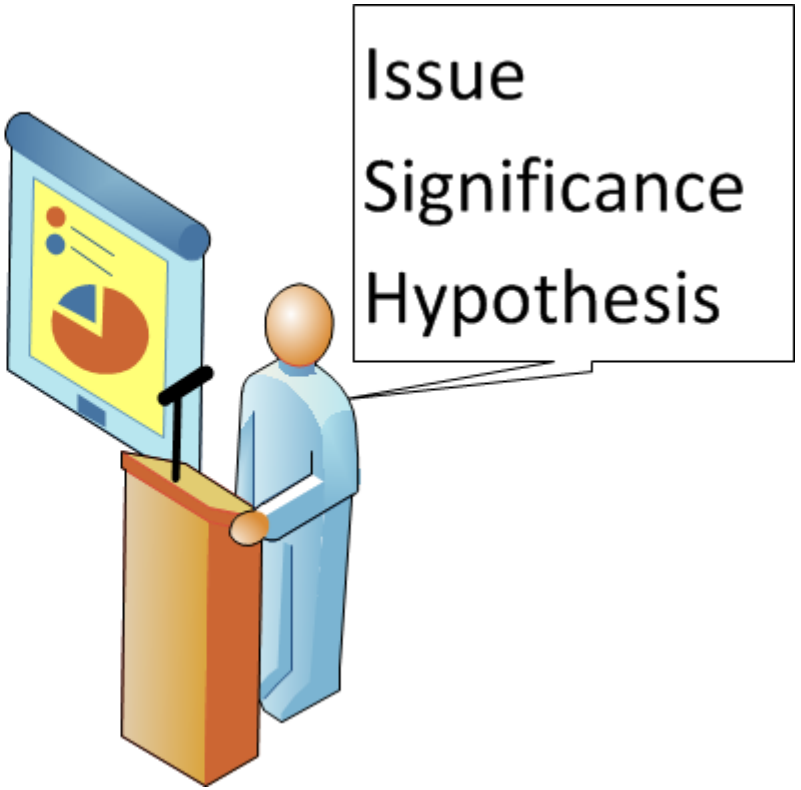
Background Section



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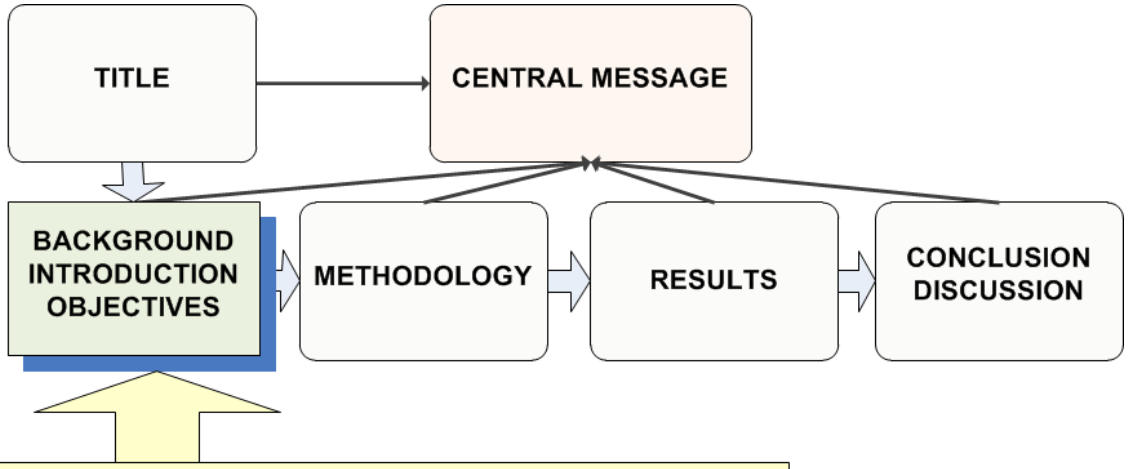
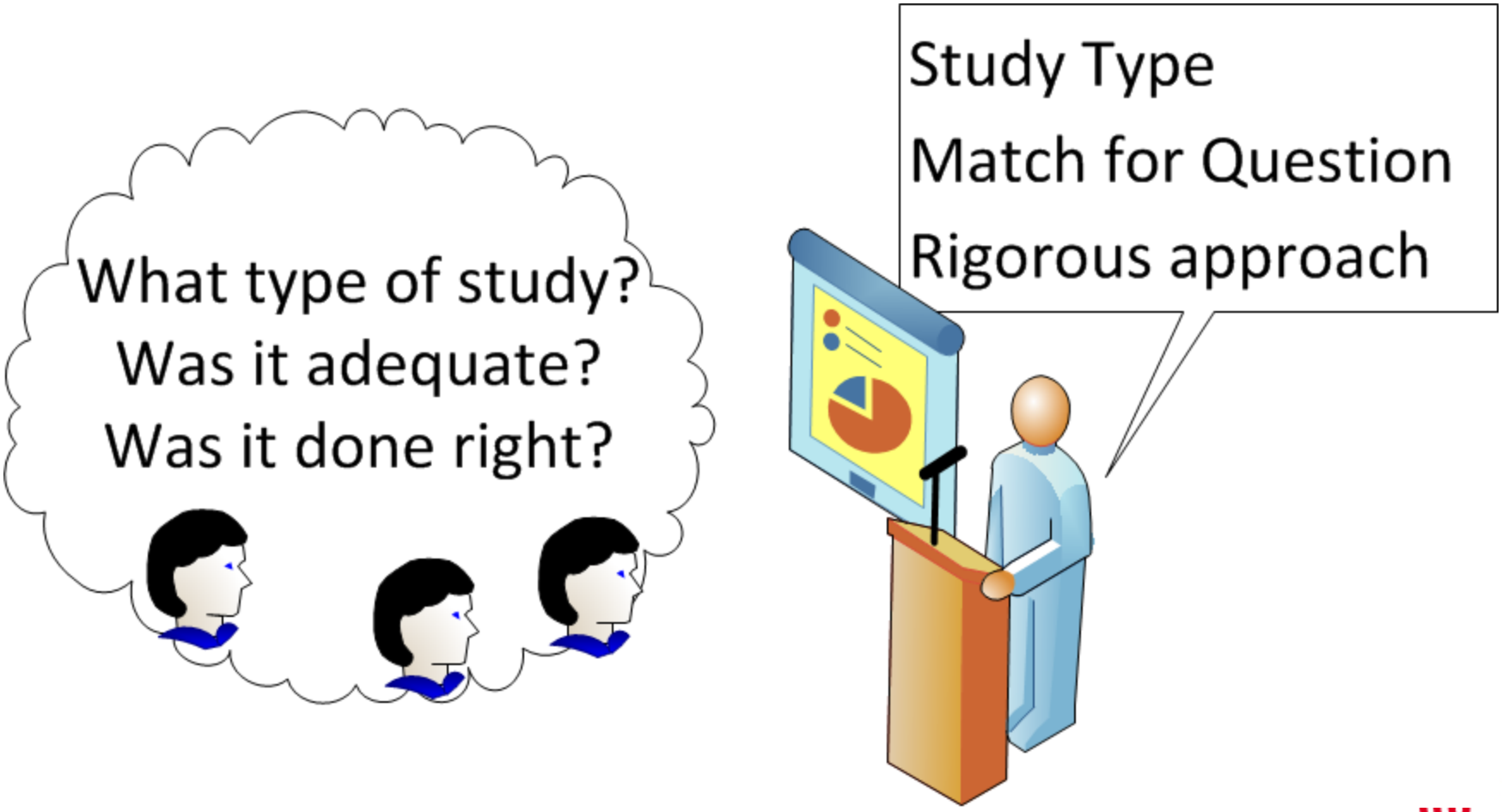
Background: Pitfalls



- Too long
- Too much history
- Fails to convey relevance
- Stalls interest

Methodology



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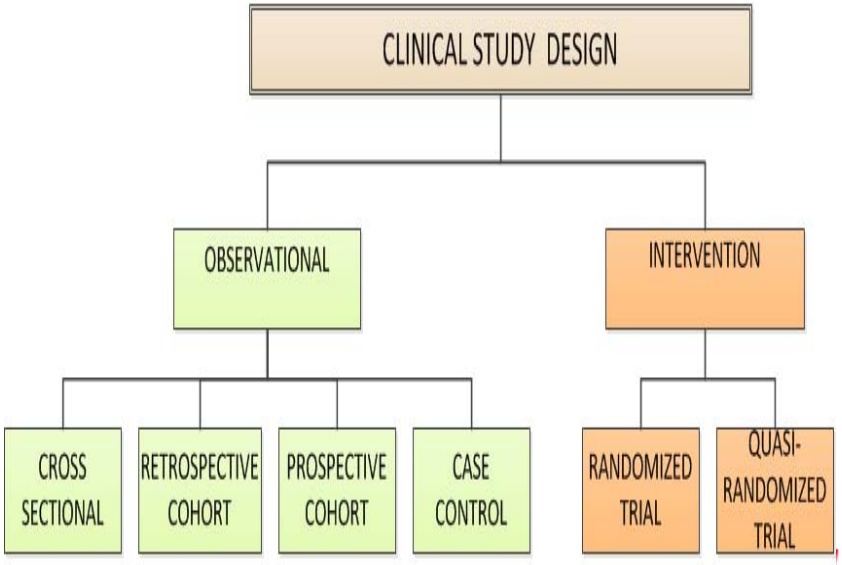
Pitfall: First Sentence

CONCEALED METHODS

- We identified all the patients diagnosed with Moya-Moya in our prevention clinic from 1996-2013 and compared it with patients seen in that same period…

DECLARATIVE

- This was a case-control study..



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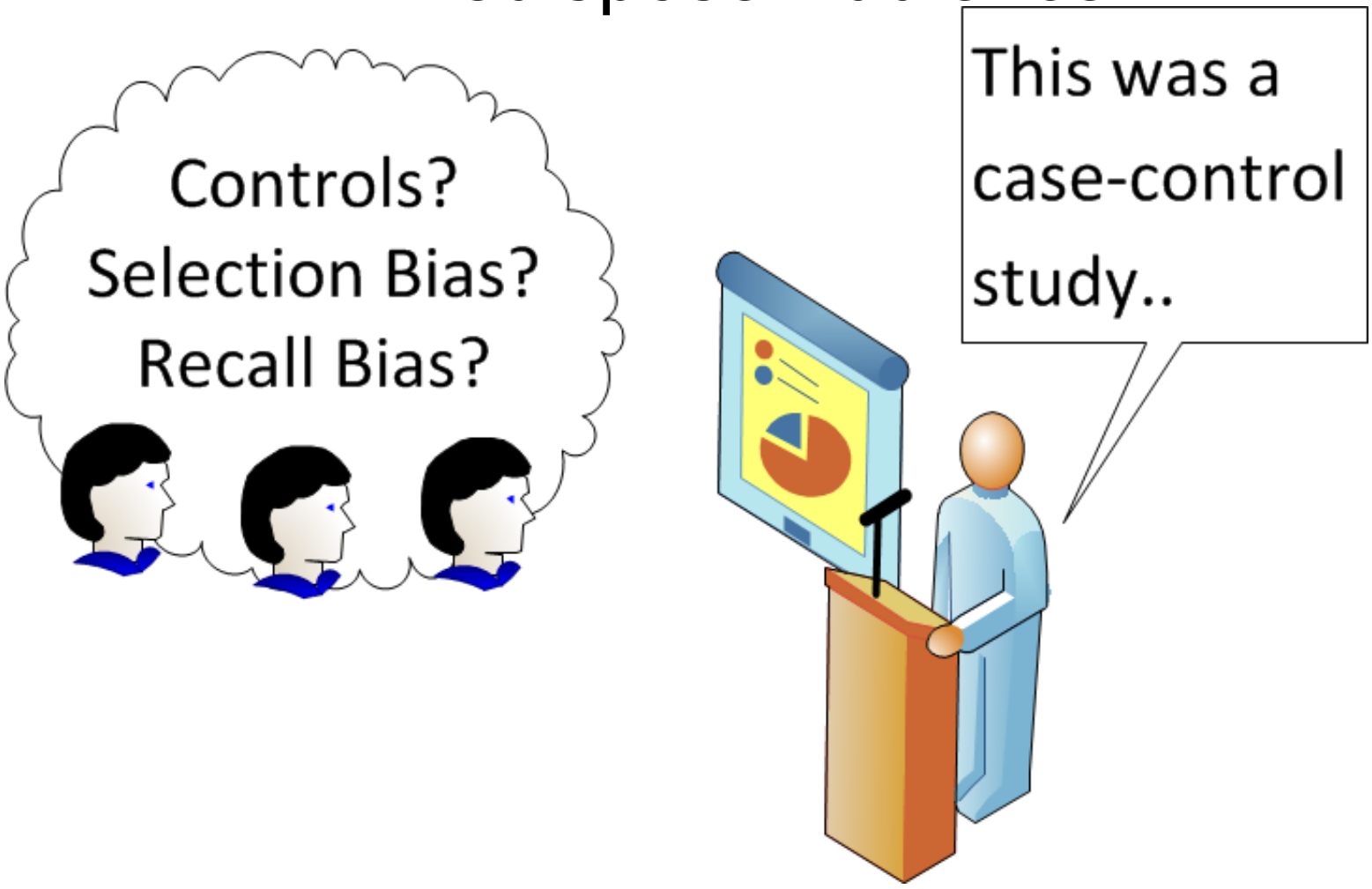
Predispose Audience



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Pitfall: Contamination with Results

BAD

- We analyzed 1254 consecutive patients admitted to our stroke service…

BETTER

- We analyzed consecutive patients admitted to our stroke service…
- Results: 1254 patients were analyzed

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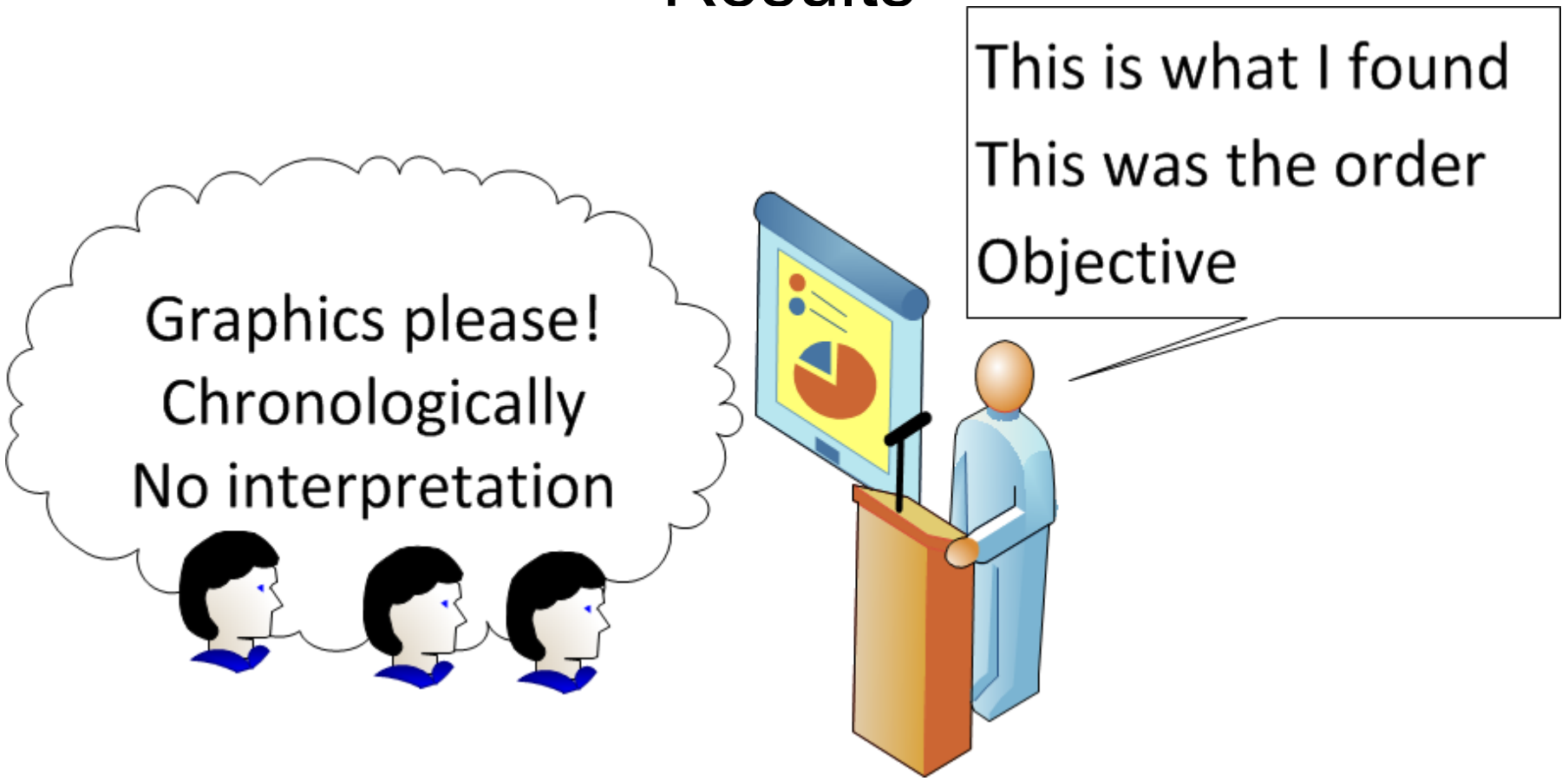
Results



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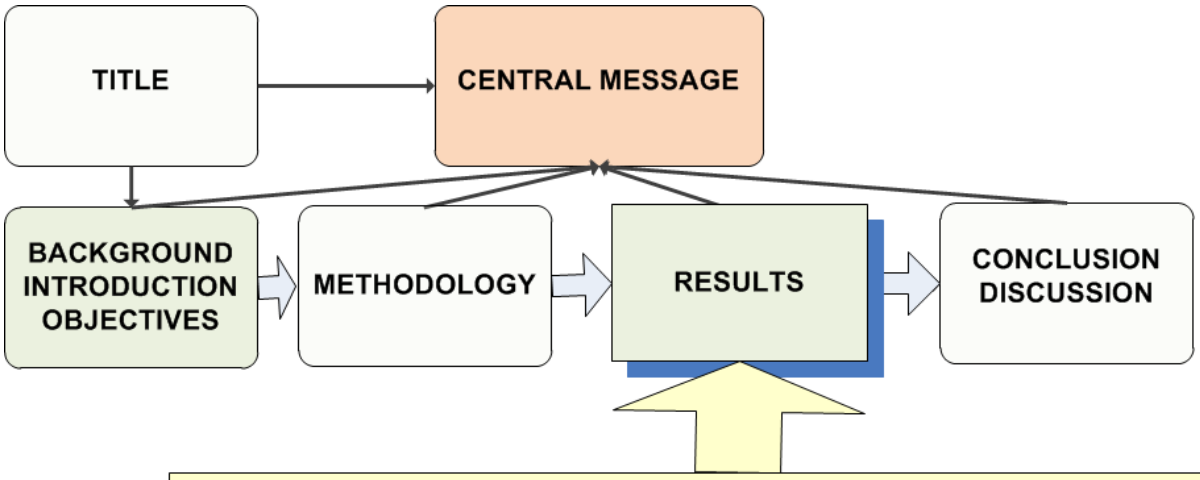
Results: Pitfalls



- Interpretation ("significant")
- Ineffective Graphics
- "I know this is a busy slide.."
- Redundancy text-graphic

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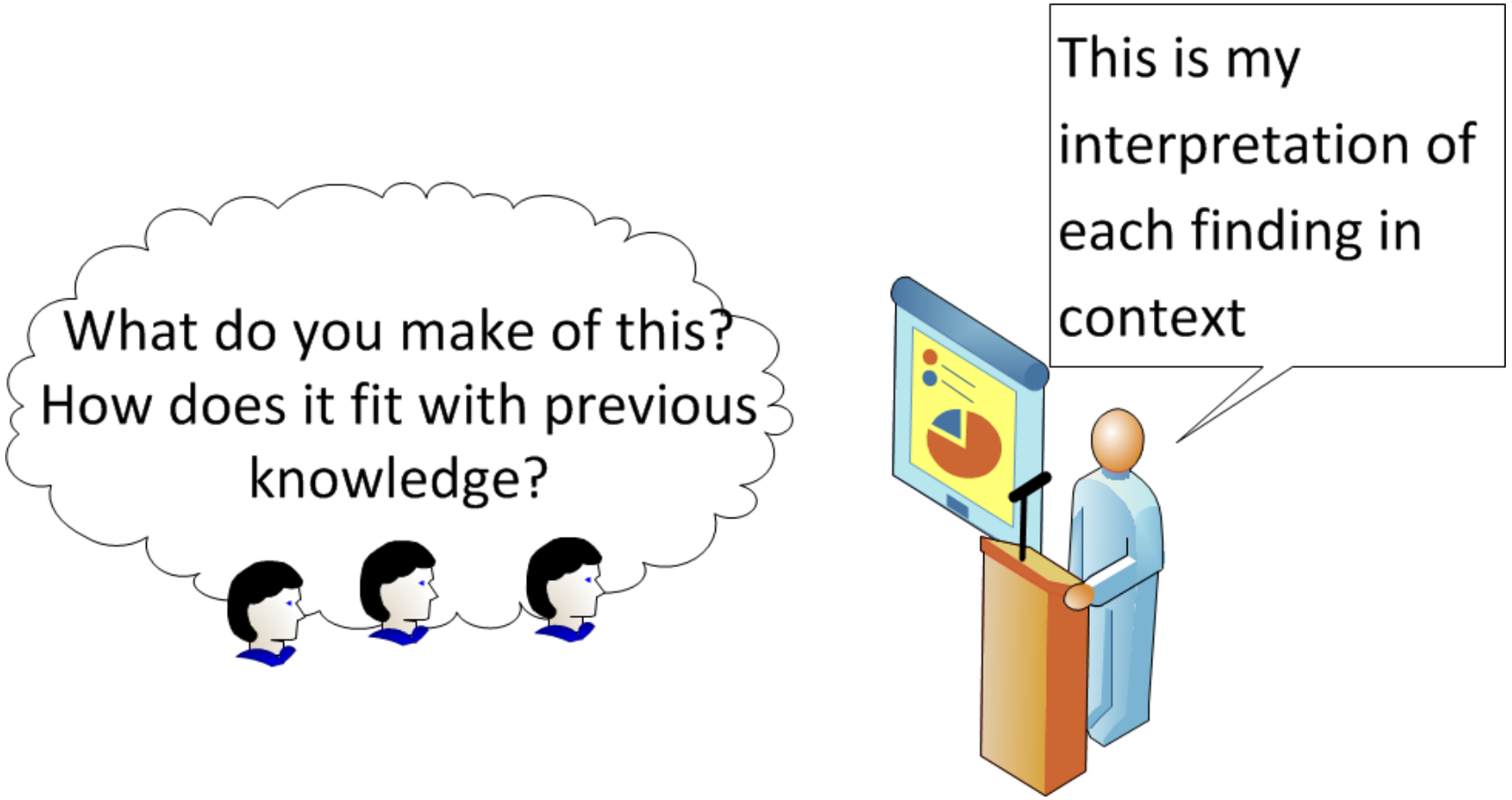
Conclusion



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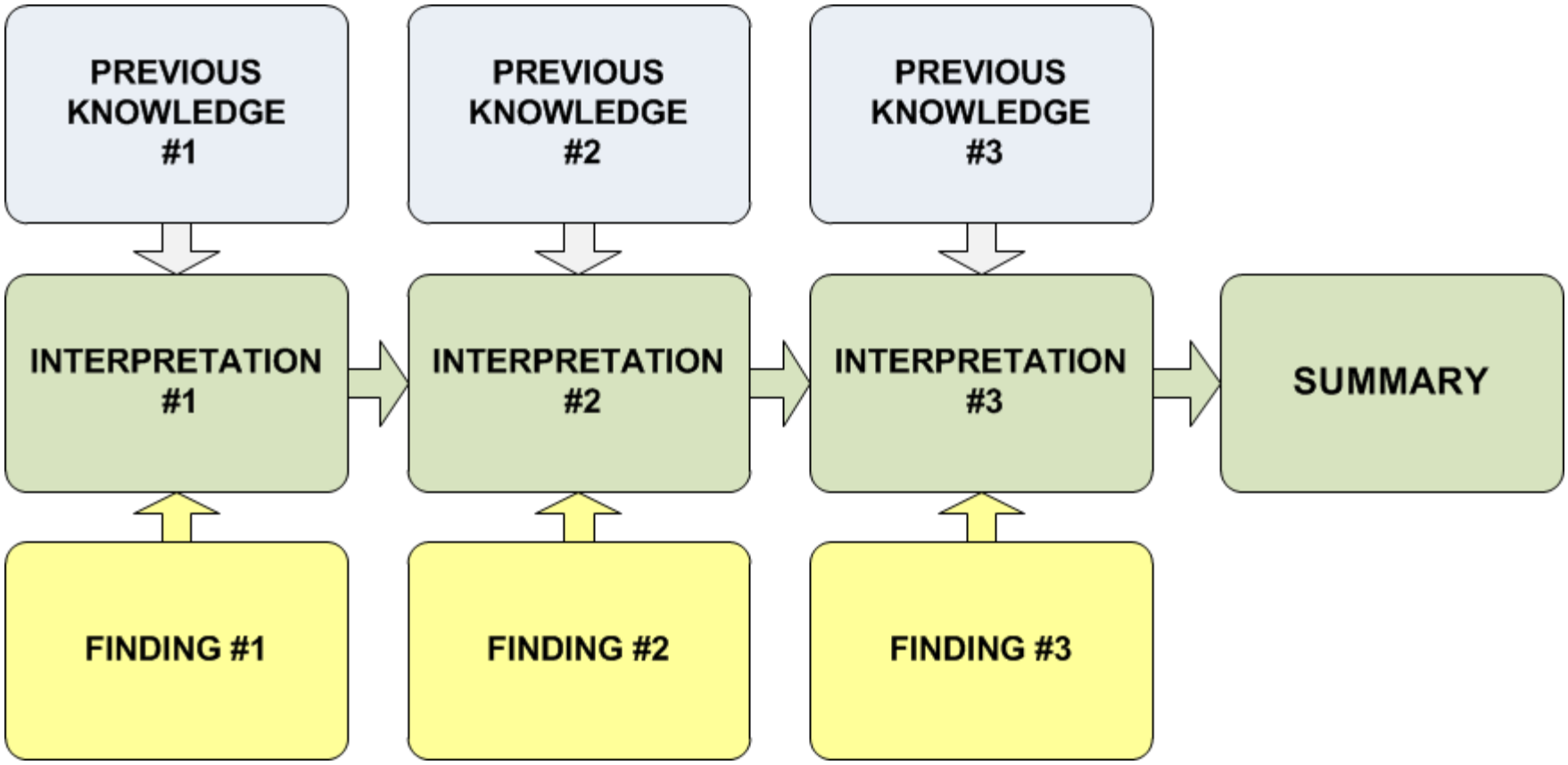
Conclusion: Flow



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Conclusion: Pitfalls

- Too little interpretation
- Does not interpret the results in context
- Introducing new results
- Disorganized flow
- Ending with “more research is needed...”

Which is Easier to Read?

TEXT 1

THE STROKE TRIALS NETWORK (NIH STROKENET) IS DESIGNED TO MAXIMIZE EFFICIENCIES TO PRIORITIZE, HARMONIZE AND STREAMLINE THE DEVELOPMENT OF HIGH-QUALITY, MULTI-SITE CLINICAL TRIALS FOCUSED ON KEY INTERVENTIONS IN STROKE PREVENTION, TREATMENT, AND RECOVERY. EARLY PHASE 1-2 EXPLORATORY AND COMFIRMATORY PHASE 3 TRIALS AS WELL AS BIOMARKER-VALIDATION STUDIES THAT ARE IMMEDIATELY PREPARATORY TO TRIALS WILL BE COORDINATED THROUGH REGIONAL COORDINATING STROKE CENTERS, THE NATIONAL CLINICAL COORDINATING CENTER, AND THE NATIONAL DATA MANAGEMENT CENTER.

TEXT 2

The Stroke Trials Network (NIH StrokeNet) is designed to maximize efficiencies to prioritize, harmonize and streamline the development of high-quality, multi-site clinical trials focused on key interventions in stroke prevention, treatment, and recovery. Early phase 1-2 exploratory and confirmatory phase 3 clinical trials as well as biomarker-validation studies that are immediately preparatory to trials will be coordinated through Regional Coordinating Stroke Centers, the National Clinical Coordinating Center, and the National Data Management Center

TEXT 3

The Stroke Trials Network (NIH StrokeNet) is designed to maximize efficiencies to prioritize, harmonize and streamline the development of high-quality, multi-site clinical trials focused on key interventions in stroke prevention, treatment, and recovery. Early phase 1-2 exploratory and confirmatory phase 3 clinical trials as well as biomarker-validation studies that are immediately preparatory to trials will be coordinated through Regional Coordinating Stroke Centers, the National Clinical Coordinating Center, and the National Data Management Center

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Fonts & Typeface

- ALL CAPITALS DECREASE SPEED BY 14%
- *Italics difficult to read*
- Use ≥22 point font for text
- Uppercase with bullets

Typeface Choices

SERIF

FASTER TO READ: BEST TEXT

- Times New Roman
- Georgia
- Cambria
- Constantia

SANS-SERIF

SLOWER TO READ: BEST HEADLINES

- Arial
- Calibri
- Tahoma
- Verdana
- Century Gothic

Paterson and Tinker, J Appl Psych
1932

Background/Design

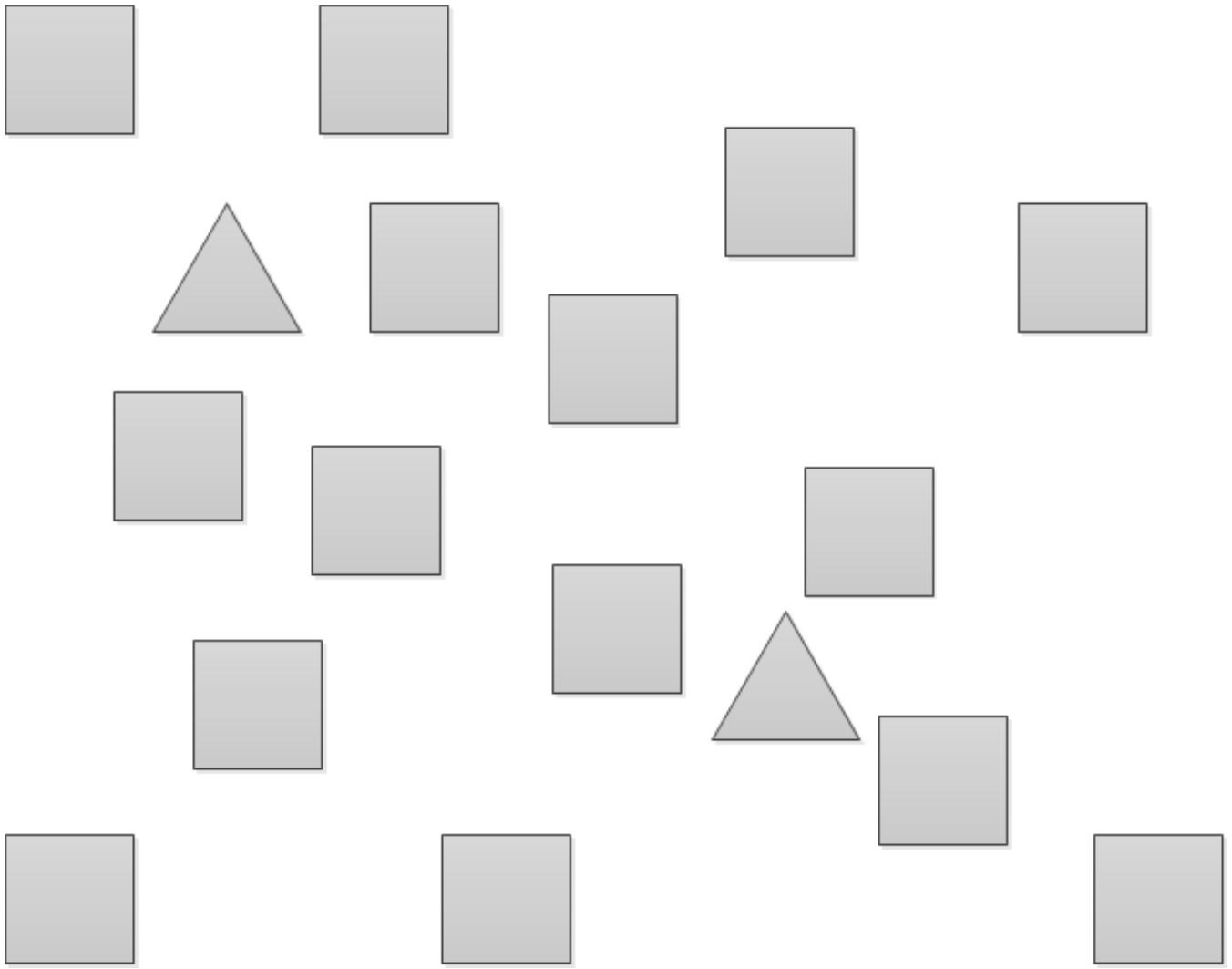
- Brightness crucial in the search speed
- High contrast text-to-background
- Dark text, light background better
- Yellow text, blue background optional
- Avoid red/green (8% of men deficiency)

Courtesy of Michael Wall MD

Use of Color

- Color has to code a message
- Color is superior to brightness, shape, underlining and other forms of coding
- Use to help visualize different variables
- Too many colors slows visual search

Smith 1967



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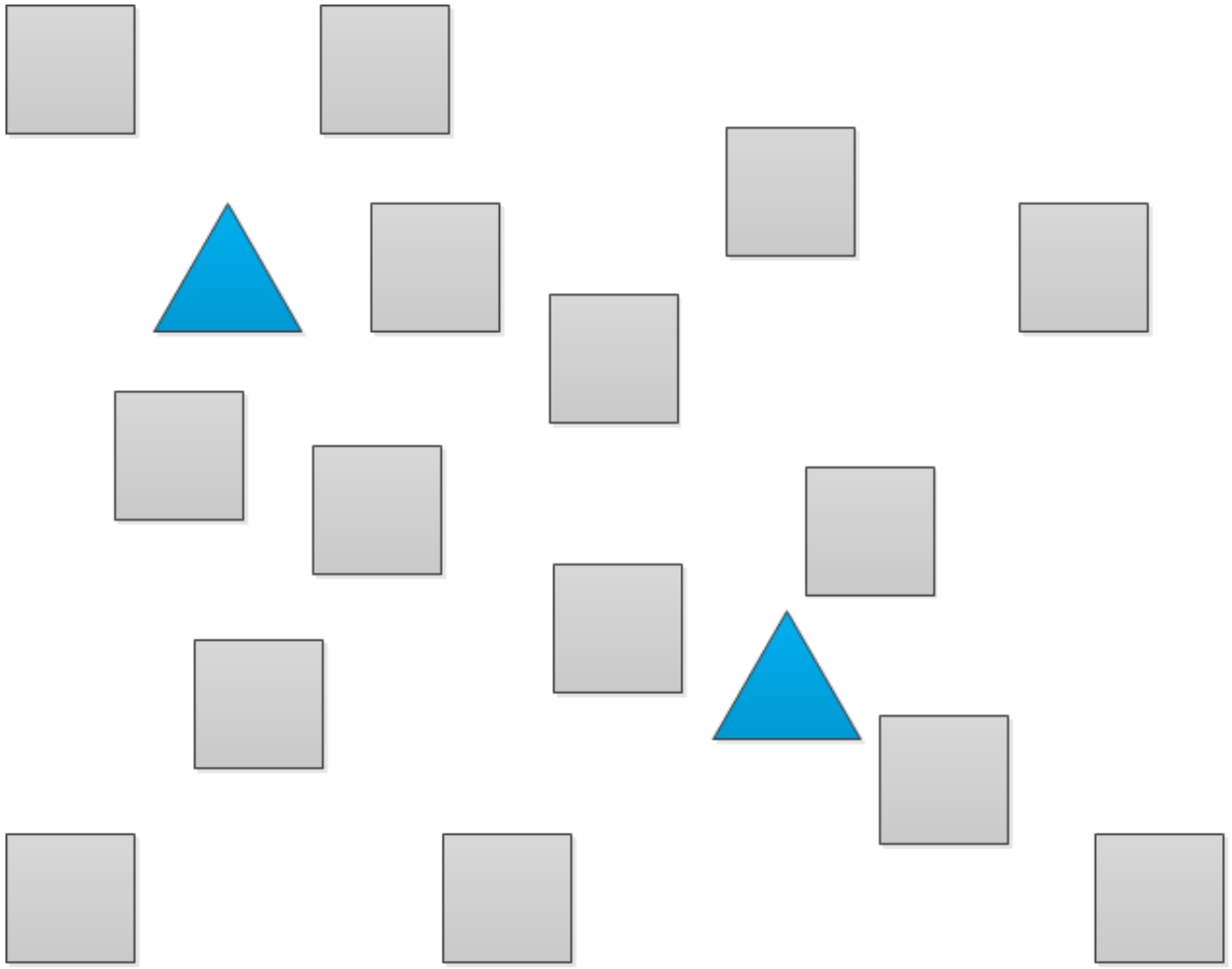

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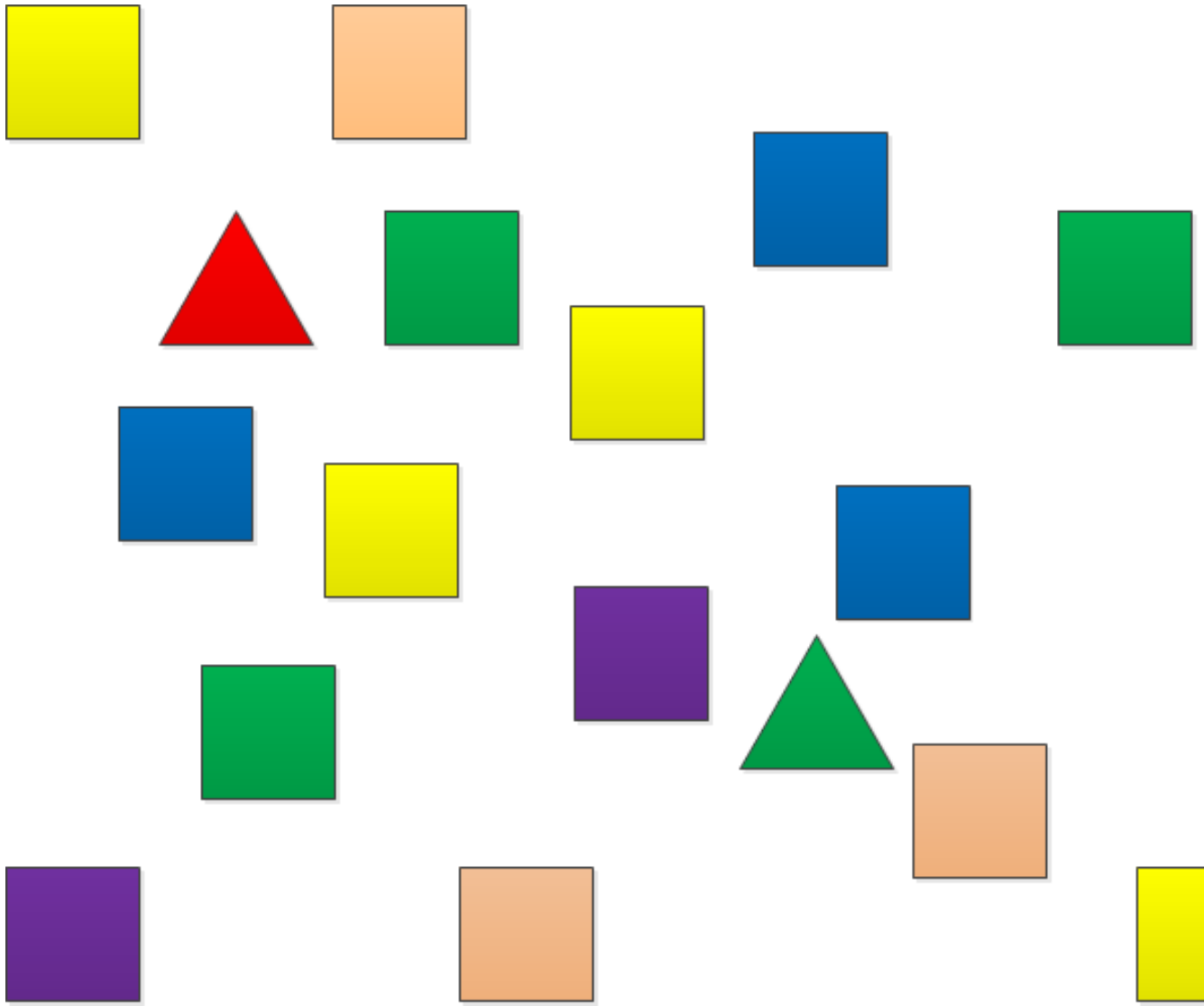

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y you really ought to test your s

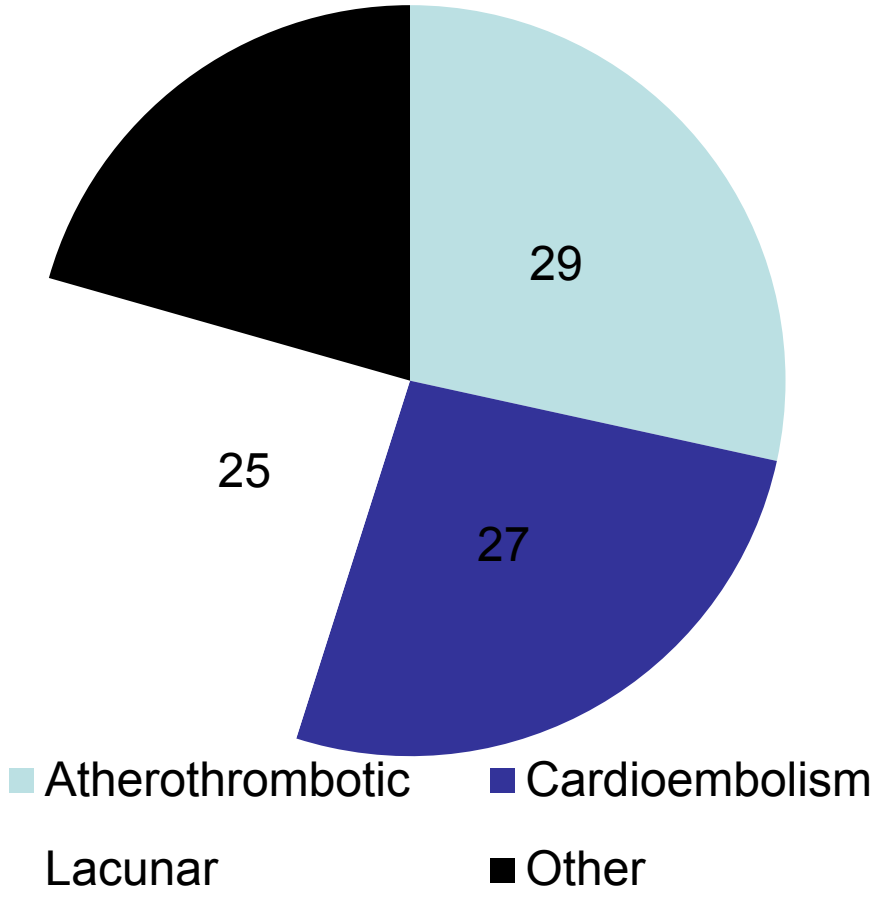
- ✓ Text and graphics near the edges may get cut off
- ✓ Not every colour combination is visually appealing or easy to read, and what looks good on your bright laptop monitor might look pretty crappy on a duller projector.

Tables

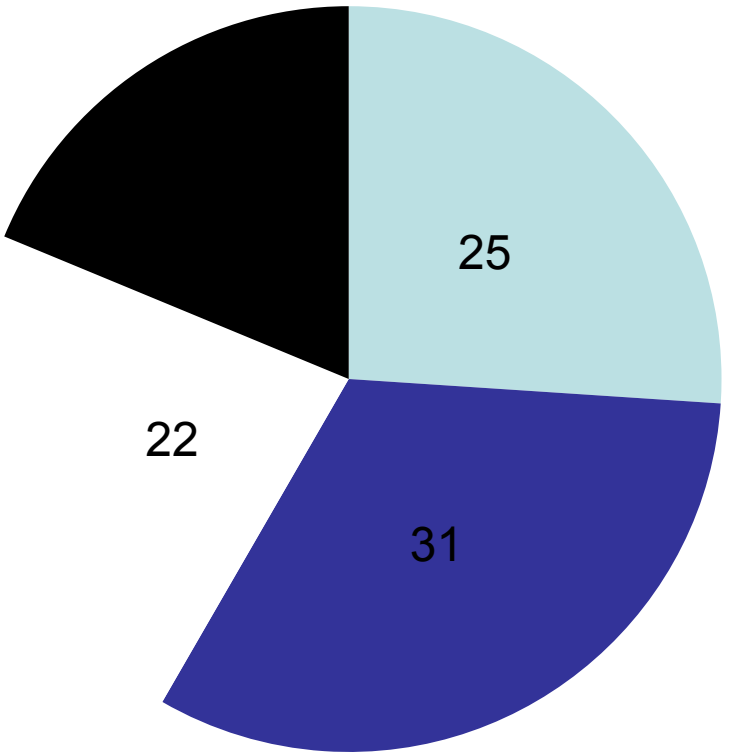
- Sentence best for showing 2 values
- Tables best small data sets
- Allows comparisons
- Gives exact values
- Usually better than a pie chart

Pie Chart Not Precise

PRE- MONITORING



POST-MONITORING



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Tables More Accurate

SUBTYPE	PRE-MONITORING	POST-MONITORING
Atherothrombotic	28%	26%
Cardioembolic	26%	32%
Lacunar	25%	23%
Other	21%	19%

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Features of Good Graphics

- Communicates complex data with clarity
- Encourages comparisons of data
- Keeps focus on substance
- Are efficient: short time & little ink
- Integrity: tells the truth

Tufte ER. The visual Display of Quantitative Information

Features Good Graphics (2)

- Data/Text integration
- Respect scale
- Eye friendly
- Horizontal trend

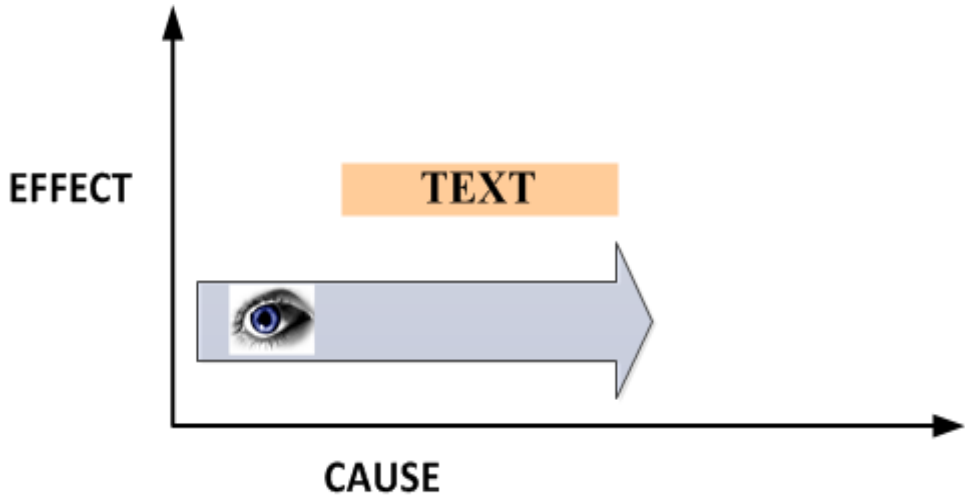
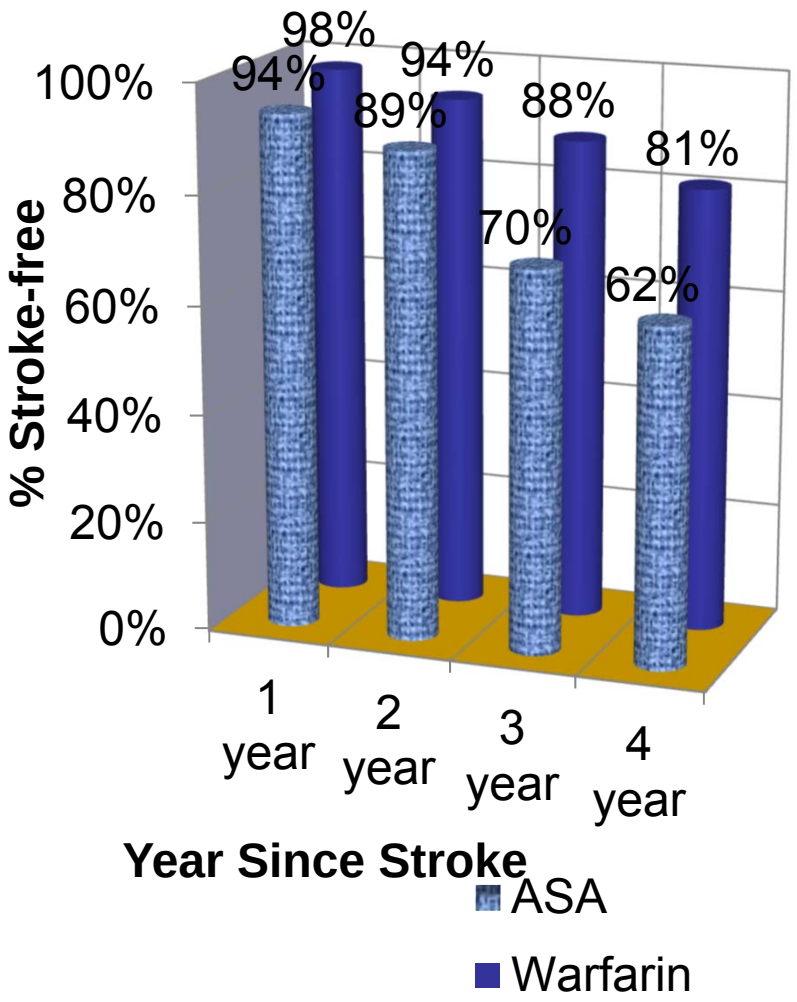
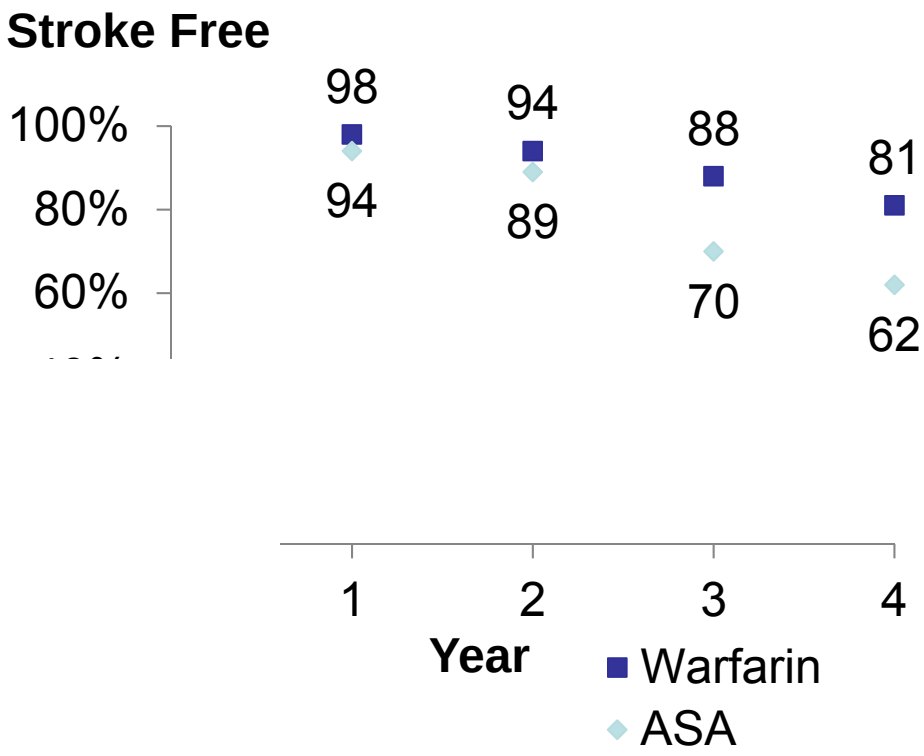


Chart Efficiency

POOR



BETTER



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About Chronic Boredom Syndrome

this is an example of a bad slide that uses too many words and no pictures)

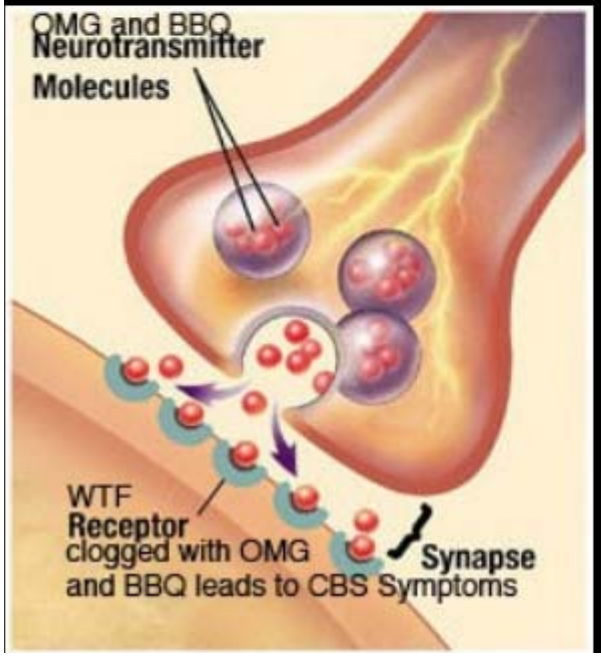
- Chronic Boredome Syndrome, or CBS was first identified in 2010 by a research group in Switzerland.
- The symtpoms of CBS include ennui, malaise, general feeling of world-weariness
- It was found to be caused by overly strong interaction of certain OMG and BBQ ligands with the WTF receptors in the brain
- WTF inhibitors are found to reduce symptoms of CBS up to 73% in double-blind controlled mouse studies.

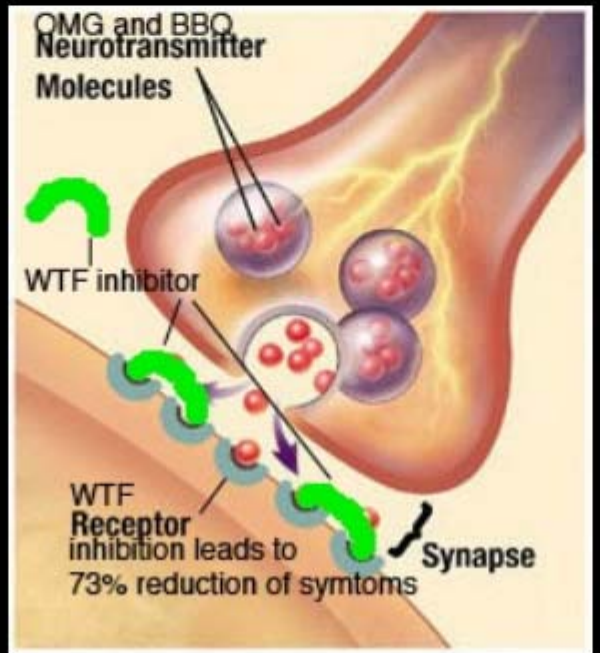
About Chronic Boredom Syndrome

(picture version - note all points in previous slide have visual cues on this one)

- ✓ Identified 2010 in Switzerland.

There is some hope:





Include references on the individual slides, with enough detail that someone could find the paper. This is strongly preferred over a "references" slide at the end.

Viirre et al. *JCBS*, **2010**, 1230

http://usableworld.com.au/2009/03/16/you-look-where-they-look/

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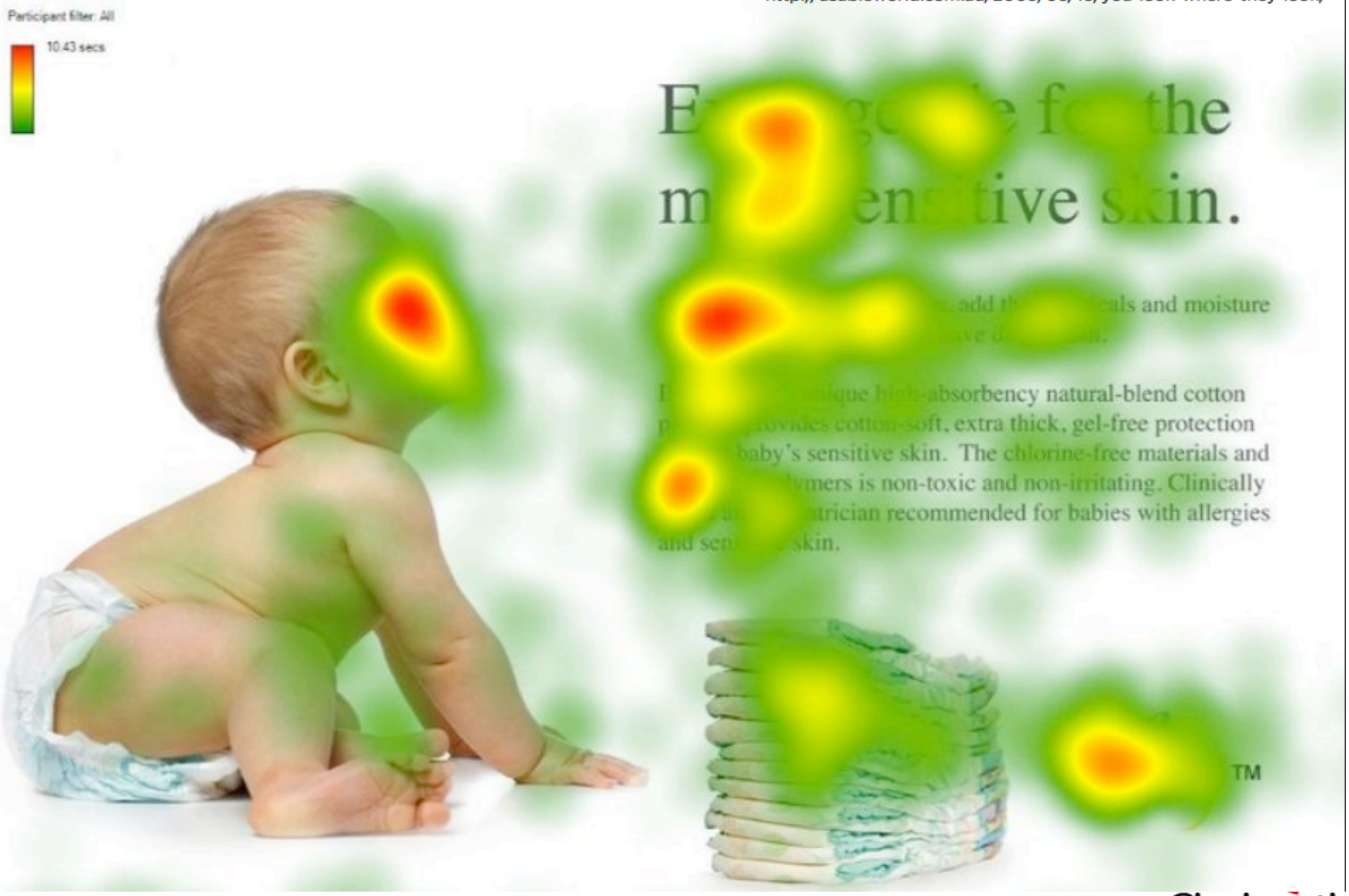
http://usableworld.com.au/2009/03/16/you-look-where-they-look/



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Graphic Integrity

http://lawinthereelworld.wordpress.com/2013/04/18/justice-served-in-the-legal-comedy/

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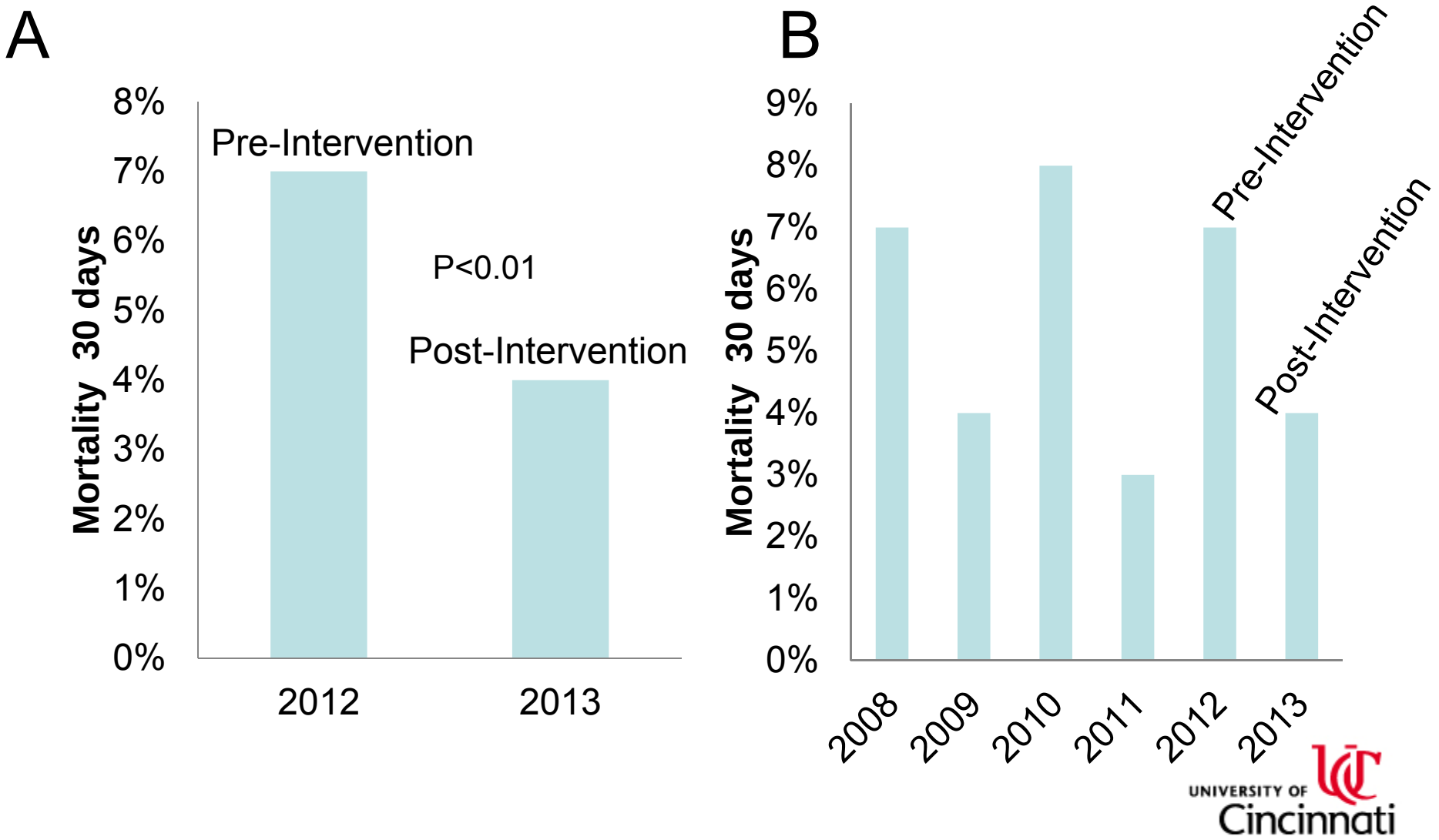
Integrity: Lack of Context



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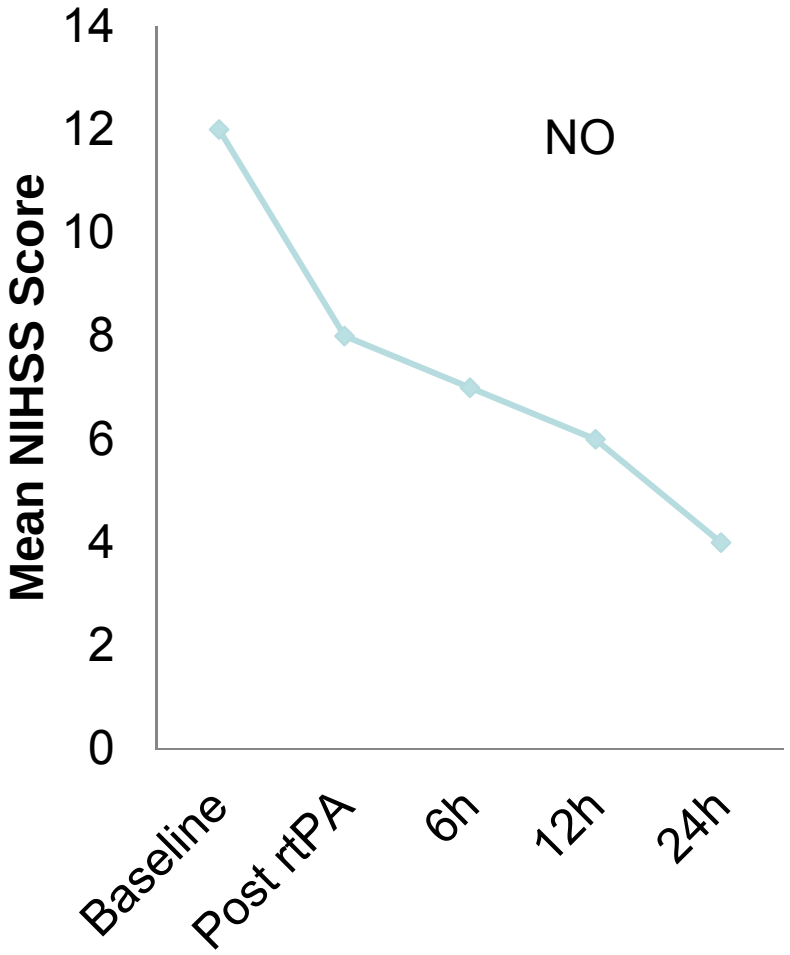
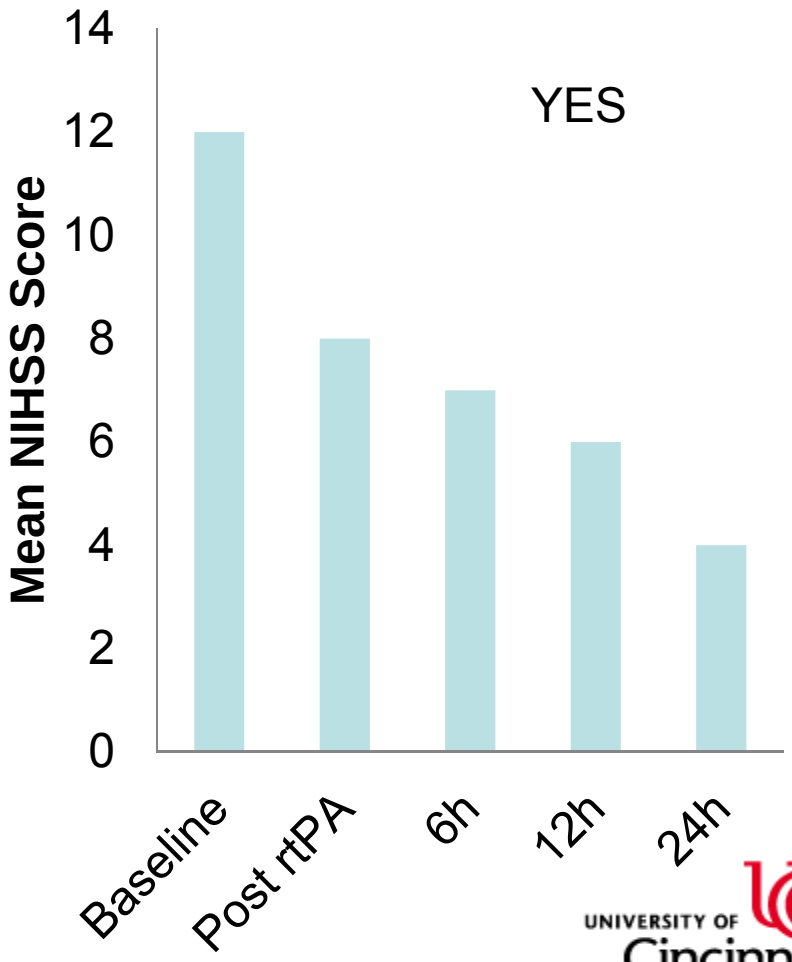
Integrity: Respect Discrete Data

A



B



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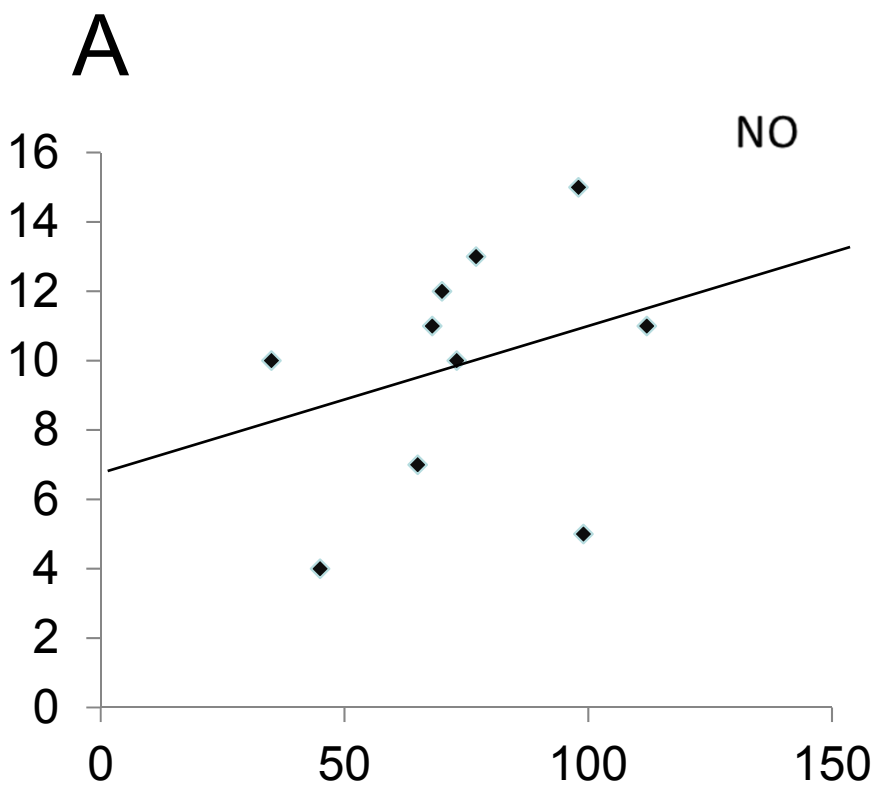
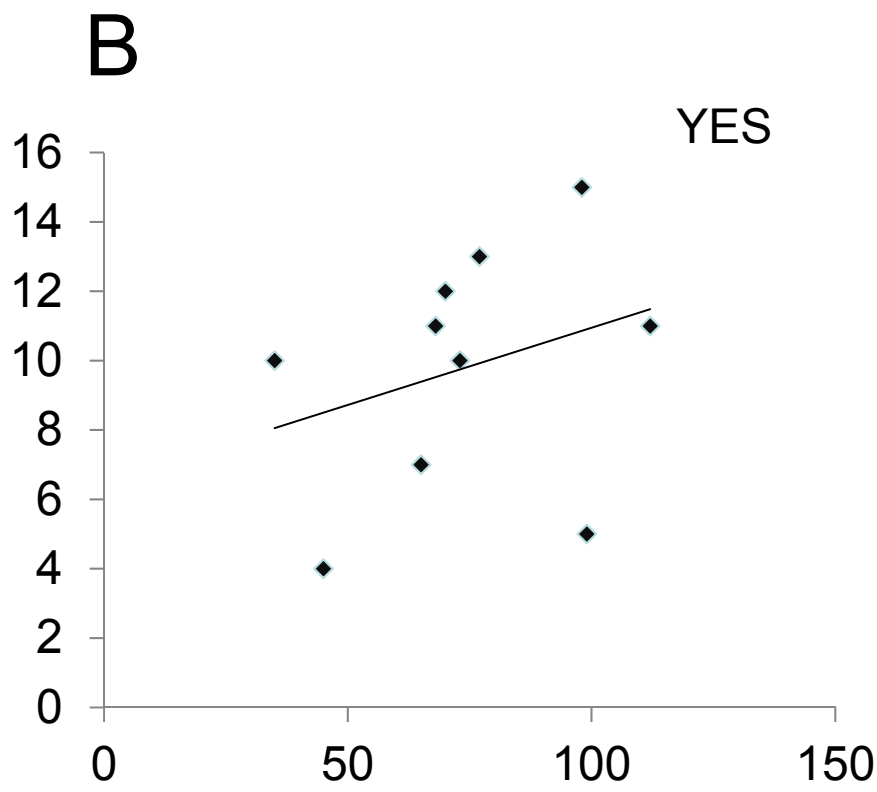
Integrity: Limit Graphic to Data





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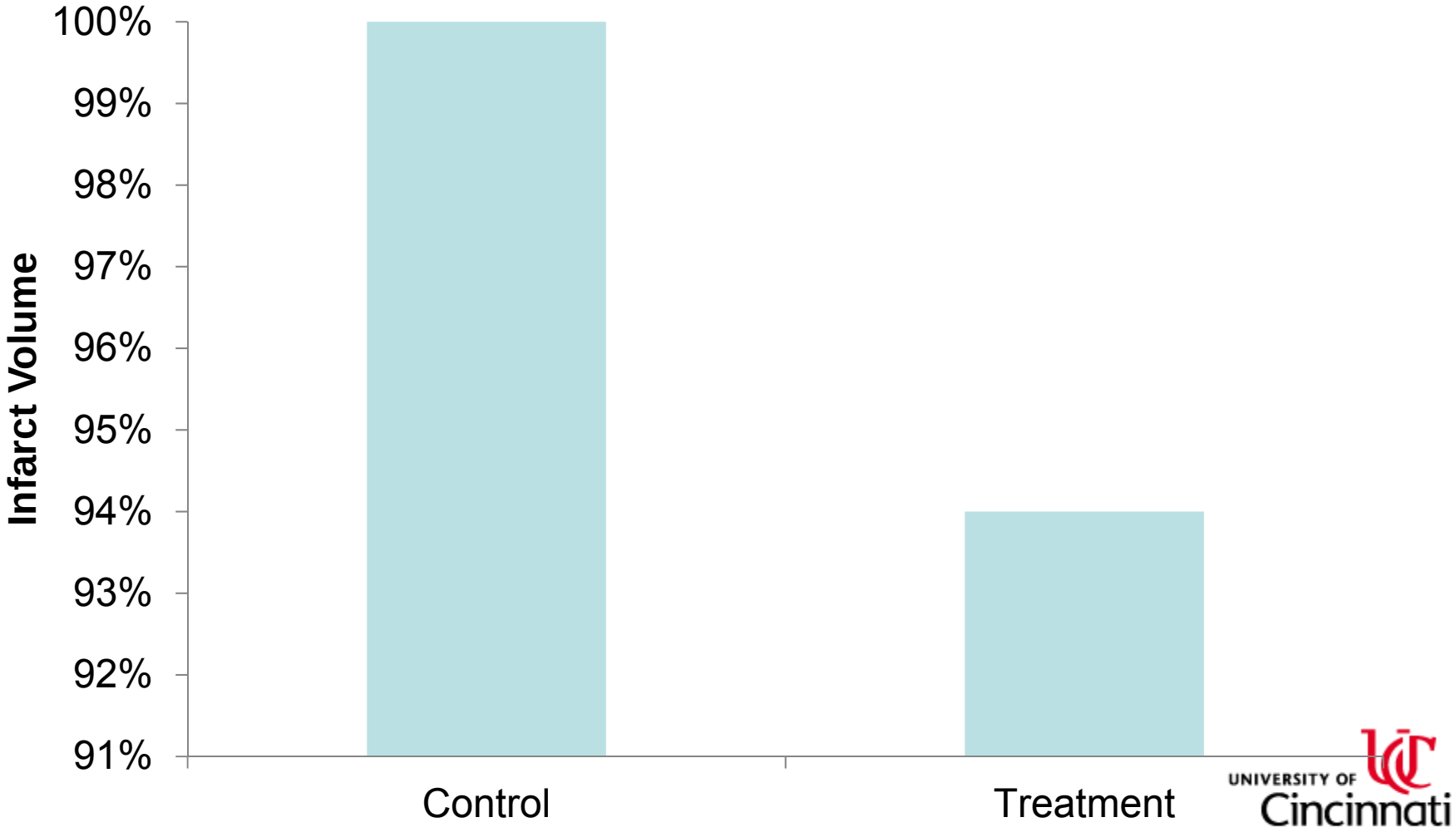
Axis Out of Scale



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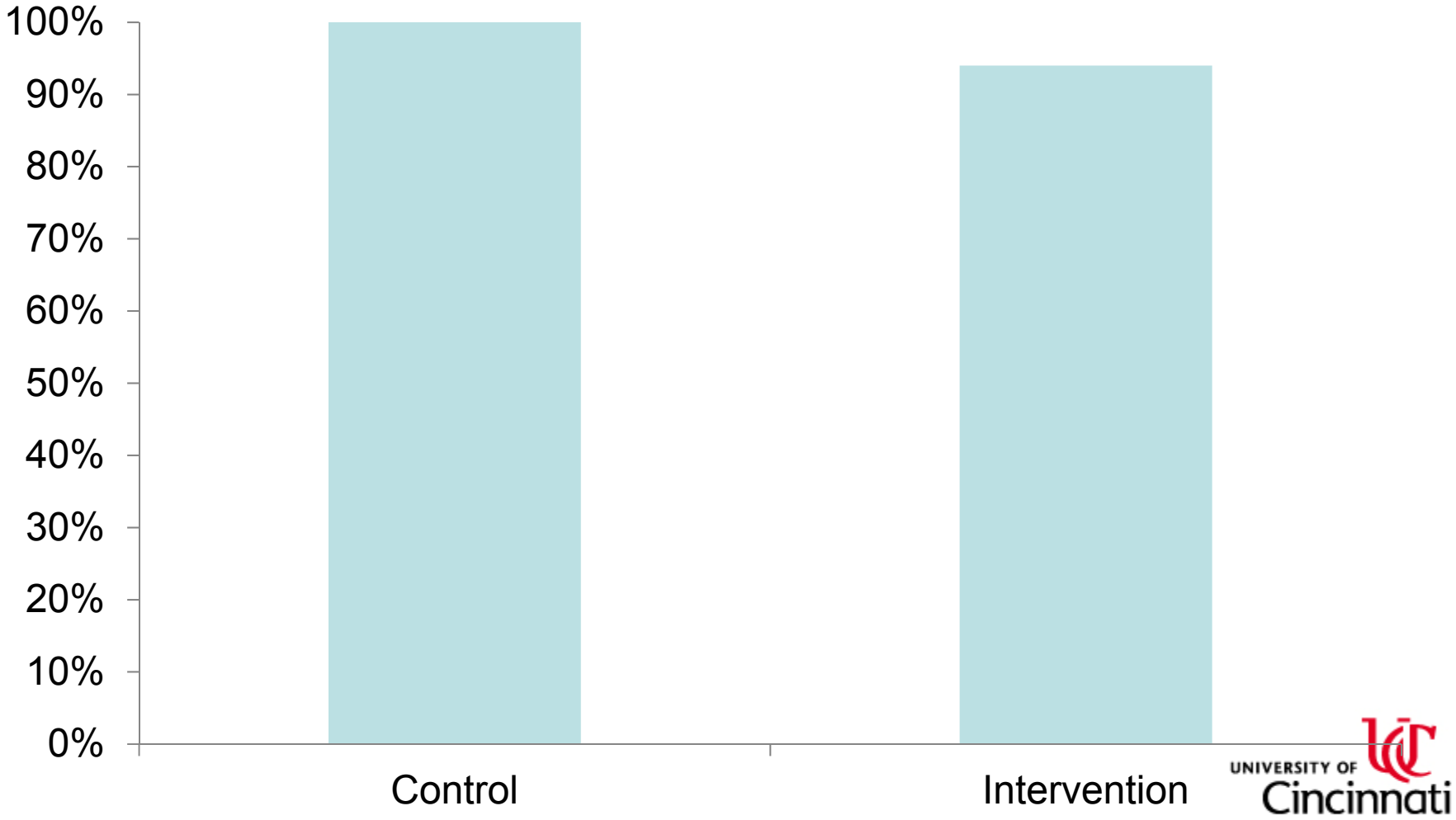
Integrity: Adjusted Scale



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Acknowledgements

- Thanking those who helped you get to this point
  - Especially sources of funding!

- Includes logos, photos of labmates,etc

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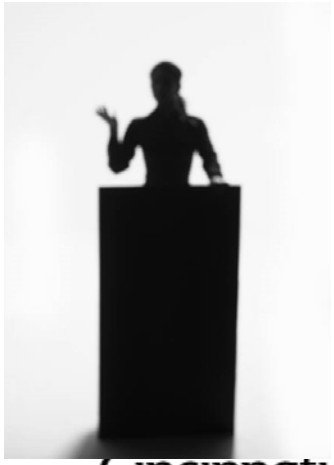
Oral Platform

- Localized in space and time
- You have an audience
- Control sequence and rhythm
- Expect some level of interaction



Oral Platform: Delivery

- Practice, practice
  - Time yourself when giving talk to coauthors or colleagues
  - Practice taking out the “ums”, silence is preferable

There is no such thing as good luck…

Luck is when preparation meets opportunity

Practice, makes perfect….

Perfect practice, make perfect!

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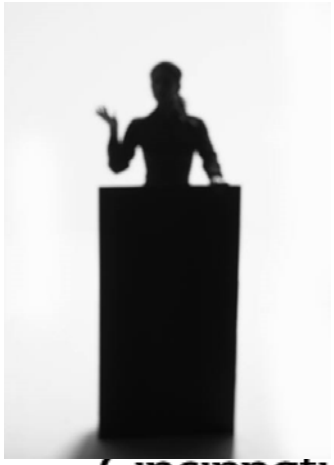
Delivery Tips

- Engage Audience
- Make eye contact
- Speak clearly & calmly
- Convey enthusiasm
- Rhythm: 1 min/slide (slow down!!)
- Use your microphone well (test ahead of time)
- Good posture
  - Don’t look at the screen behind you

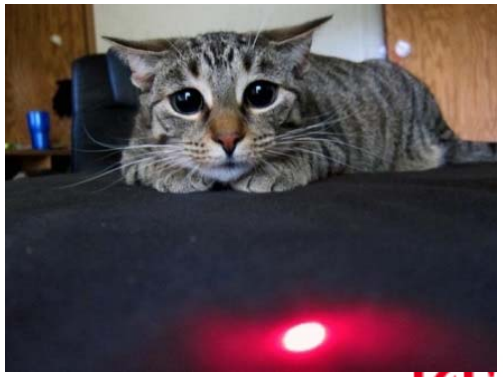


Oral Platform: Format

- Few words
- Text supports speech
- Bullet statements
- </=Six bullets/slide
- No special effects! Avoid videos at all costs!
- Explain all axis labels

Oral Presentation: don't

- Read the slides
- Play with laser pointer
- Lose your calm during questions
- Say "I don't need a microphone"
- Say "this is a busy slide…"



http://s3-ec.buzzfed.com/static/2014-05/enhanced/webdr06/27/11/enhanced-buzz-18743-1401206015-60.jpg

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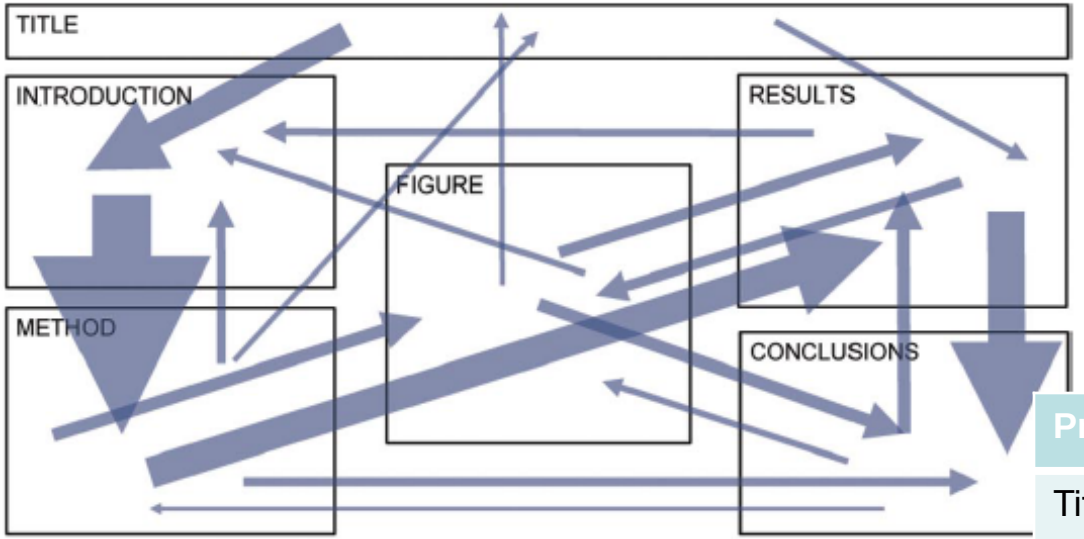
Question time

- Be prepared. Be very prepared.
- Look cool, calm, smile, welcoming.
- Use feedback from peers/mentors to help identify likely questions
- Acknowledge weaknesses in data
- Important: repeat the question (or else)
- Consider ninja slides

Tips for Posters

- Highly localized in space, spread in time
- You have to capture your audience
- Few seconds opportunity
- Control the sequence but no rhythm
- Most people don’t interact

Eye Tracking in Posters

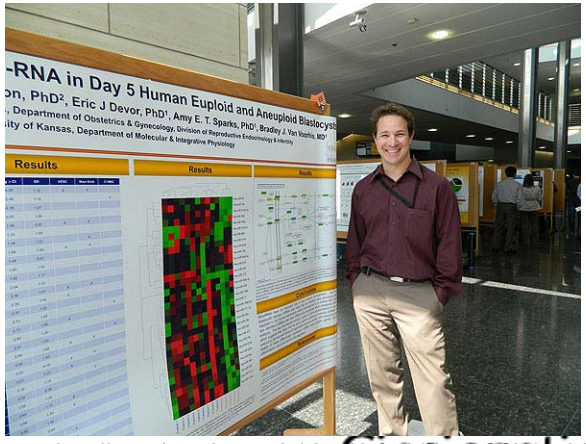


Proportion Time Fixating	%
Title	4.2
Introduction	24.3
Methods	19.3
Figures	8.9
Results	19.9
Conclusions	23.2

Foulsham T & Kingstone, Perception
2011

Effective posters

- Visually Appealing: Get attention
- Focused: Only “need to know” text
- Bullets and LARGE FONTS
- Use plenty of white space
- 50% Graphics/pictures
- Follow meeting guidelines



http://www.icts.uiowa.edu/sites/default/files/DSC_1349.jpg

Don’t in Posters

- Use logos with title
- Distracting arrangements
- Too busy
- Too little graphics
- Poster guard & stare

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Summary

- Be relaxed and enthusiastic
- Have a clear central message
- Work on a good title
- Use a balanced framework
- Optimize color/text
- Plenty of excellent graphics

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  - Josh Neufeld, Waterloo University

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