

AHA Presenter Disclosure Information

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“How to Write a Scientific Abstract”

Disclosure Information:
No conflict of interest to disclose

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Goals for this Webinar

- Learn how to ask a meaningful scientific question that is hypothesis driven
- Learn what is meant by the “null hypotheses” so that you can design your experiments to ask a “testable” questions
- Learn how to write “a successful abstract”
- An example of how to design your study
- Tips for poster presentation

The Major Issue

- Learn the difference between a descriptive study that describes associations versus a hypothesis-driven study
- Example: Increasing tPA use and increase in a hospital's community education efforts
- Causality vs. association
- See-S. J. Pressler, University of Michigan School of Nursing-see weblink

BEFORE you start

- Review the Call for Abstracts guidelines
 - What is the purpose of the meeting?
 - Who is the audience?
 - What is the format, including word limit?
 - How is the abstract submitted?
 - Only data-based studies?
 - Only completed studies?

How to start

- It takes time to write
 - Plan ahead and start early (earlier next year!)
 - Often need analyses and input from others
- Experience helps
 - Work with a mentor or colleague
 - Research Administration
- Review examples of other abstracts
 - Several on NECC website, also look to stroke (ISC)

Practical Tips

- Do not go over length
- Proofread carefully
- Follow font guides
- Watch abbreviations (can be hard to follow)
- Make as succinct as possible
- Take home point emphasized in the title
- Numbers help!

Parts of the abstract

1. Title
2. Background
3. Objectives/Purposes/Aims
- 4. Methods**
- 5. Results**
6. Conclusions

The exact headings may vary according to the organization's guidelines

How to get your abstract accepted

- “Structured abstracts”
- These use the main headings to separate parts of the abstract
- This method
 - Makes the abstract easier to read
 - Clearly identifies parts of the study
 - Emphasizes your points and conclusions
 - Makes reviewers happy
 - Makes you happy-paper/poster outline

A few words on poster style

- Get measurements-most differ for each conference
 - Do not use small font
 - Do not crowd your font
- People will be standing far away
- Not too much text
- “Liven it up” with graphs
- Watch colors

The Title

- *Make it descriptive*
- *Make it important*
- *Make it compelling*
- *Make it accurate*
- *Make it easy to READ!*

Examples of Titles

- *Quality of life among stroke survivors*

OR

- *Depression and functional status predict quality of life in stroke*

OR

- *Do depression and functional status predict quality of life in stroke survivors?*

Background

- Usually limited to 2-3 sentences so make it specific
- Use a problem statement approach
 - Despite the fact that aging is the most important risk factor for stroke,*
 - *Little is known about ...*
 - *Information is lacking about...*

Background

1. Little is known about the relationship between variable 1 and variable 2 in [sample].
2. Hypertension contributes to mortality in patients after stroke, but measuring the success of interventions to improve antihypertensive medication adherence is lacking

Objectives/Purposes

- Limit to 1 or 2 sentences; these can be directly from a study
- Flow directly from the problem statement that you identified in the background
- Critical element because
 - *it tells the reviewer exactly what to expect in the rest of the abstract*
 - *reviewer makes judgment about the importance of the topic based on this part*

Objectives/Purposes - Examples

Background: HTN contributes to mortality in patients after stroke, but interventions to improve antihypertensive medication adherence in these patients are lacking

Objective: *To test a nurse-based computerized intervention designed to improve adherence to antihypertensive medications and improve survival among stroke survivors*

Methods

Succinctly tells the study's:

- Design
- Procedure
- Sample
- Measures
- Statistical analysis

Methods (Cont.)

- Critical component because
 - *it tells the reviewer what to expect in the results section*
 - *it gives us information about the quality and strength of the study*
 - *You must have numbers*

Abstract ISC 2008 Example

- **Title:** Gender Differences in the time of presentation to the Emergency Department and Outcome in patients with acute ischemic stroke.
- **Background:** Marked gender discrepancies are present in the awareness, treatment and outcome of stroke. Historically, male gender has been considered a risk factor for stroke, however, in 2004 the majority of deaths secondary to stroke were in females – 60.9% versus 39.1%. Of the 5.7 US stroke survivors, 3.3 million are women and 2.4 million are men. Previous studies have found that being a woman was associated with a 3-fold risk of delay in reaching the hospital. If women present to the Emergency Department (ED) later, they are often under-treated, and have poorer functional outcomes than males.

Objective

- The objective of this study was to determine if women admitted to a large stroke center with ischemic stroke symptoms arrive later to the Emergency Department (ED) than males. Functional outcome at different stages of recovery were analyzed to determine if there is a difference in stroke recovery across gender lines.

Methods

- 2,169 patients were identified with Ischemic Stroke that had a definitive Symptom Onset Time, Emergency Department Arrival Time, and a NIH Stroke Scale Score. Of the 2,169 entries satisfying these parameters, 1,940 had a NIH Stroke Scale Score on Admission. As we were interested primarily in patients presenting within a time window for treatment, patients presenting >6 hours were excluded in some analysis. 212 men and 223 women met the criteria for full analysis.
- Descriptive analyses with independent samples and equivalence were performed. T-tests were done to examine whether there was a significant difference in: NIH-admission score; Age-at-admission; Onset-to-ER time; Pre-stroke; Barthel score; Admit Barthel score; 3-month and 12-month Barthel scores by gender with post hoc corrections when necessary. Data are expressed as SEM.

Results

- In our sample (>45 yo and presenting within 6 hours) we analyzed 445 patients, 215 (48% men) and 230 (52%) women. Women were significantly older ($76.15 \pm .733$ vs. $71.8 \pm .77$, $P < .001$). Onset to ED was not different in this cohort (Males; 96.42 ± 4.869 vs. Females 108.8 ± 5.7 , $P > .05$). No differences were found in the time to be seen by a physician, time to Neurology consult or time to treatment.
- Females had a higher admission NIHSS ($8.3 \pm .47$) than males ($7.29 \pm .47$) and a significantly lower admission Barthel (13.6 vs 10.6) demonstrating that females had more severe deficits. This difference persisted at 3 months, but by 12 months, there were no significant differences in the BI between males and females.

Conclusions

- Females are older than males at the time of their stroke and present with higher NIHSS and functional impairments. These deficits persist for several months, but by one year post stroke females have recovered to the same extent as males.
- Women are becoming more aware of acute stroke symptoms and are presenting to the ED early after stroke. Women are evaluated with the same speed by ED physicians upon arrival.

Results are IMPORTANT

- **Results**
- **Using tables and graphs**
- **Conclusion**
- **What reviewers look for**

What to put in the results

- **Data are essential**
- **Data are presented that directly address the hypothesis**
- **Detail needed to assess the specific aim**
- **Do not say “findings will be discussed”**
- **Avoid burying reader in minutiae**
- **You need to ask an important question (not just “does x do y”-ie., are our stroke patients getting older –comparing 2004 to 2008...**
- **More like “are aspirations reducing since we changed our speech screening”-although this is not CAUSAL it is important.**

Table and Figures

My opinion...save for the poster

- Make a powerful visual statement
- Easy to interpret without lots of reading
- Catch reviewers' attention
- Take up lots of space
- If not properly set-up and adequately labeled, are incomprehensible
- Irritate reviewers

What to put in the conclusion

- **Do not simply repeat the results**
- **Some interpretation of the results and what they mean as far as changing care etc.**
- **The “Take Home Message”**

Example

- Question-not clear.
- Initially descriptive of care initiative at HH to “triage” stroke pager calls to “activated” and “inactivated”.
- Quality initiative with no quality outcome
- Primarily done to reduce resource use-based on hemiparesis and time of 6 hours
- Was descriptive

Example

- Must ask a testable question
- i.e., “does use of this system increase the number of patients treated?”
- Does this system improve time to treatment?
- Does this system spare resources?
- NEED DATA-how do you assess each of these?

How to do statistics

- Is there a difference?
- Is this difference significant ($p < .05$)?
- Most get with the Guidelines data is entered as percentages
- YOU can use a chi square
- YOU can do this yourself
- Graphpad.com

How are abstracts “graded”?

- **Immediate impact**
 - **Informative title**
 - **Significant problem**
 - **Clearly written abstract**
 - **Data**
 - **Striking conclusion that builds on data**
 - **If you do not sell it early you will never get to the poster!**

How are the reviewers evaluating me?

- **Evaluation based on**
 - **significance and novelty of problem**
 - **clearly defined purpose**
 - **methods (design, sample size, measures, statistical methods)**
 - **results that answer the question with data**
 - **conclusion that interprets and has impact**

How to increase your chances

- Target your audience
- What is an important question to them (ie., geriatricians)
- Follow the directions exactly
- Get input from all authors and other colleagues
- Proofread several times
- Get other colleagues to proofread, especially those not involved in the study or who are not “experts” in the area
- Cut out a few words each time you read it
- “Sell”

Really useful....

- <http://www.graphpad.com>

- Go to “Free software”

- Quick calcs

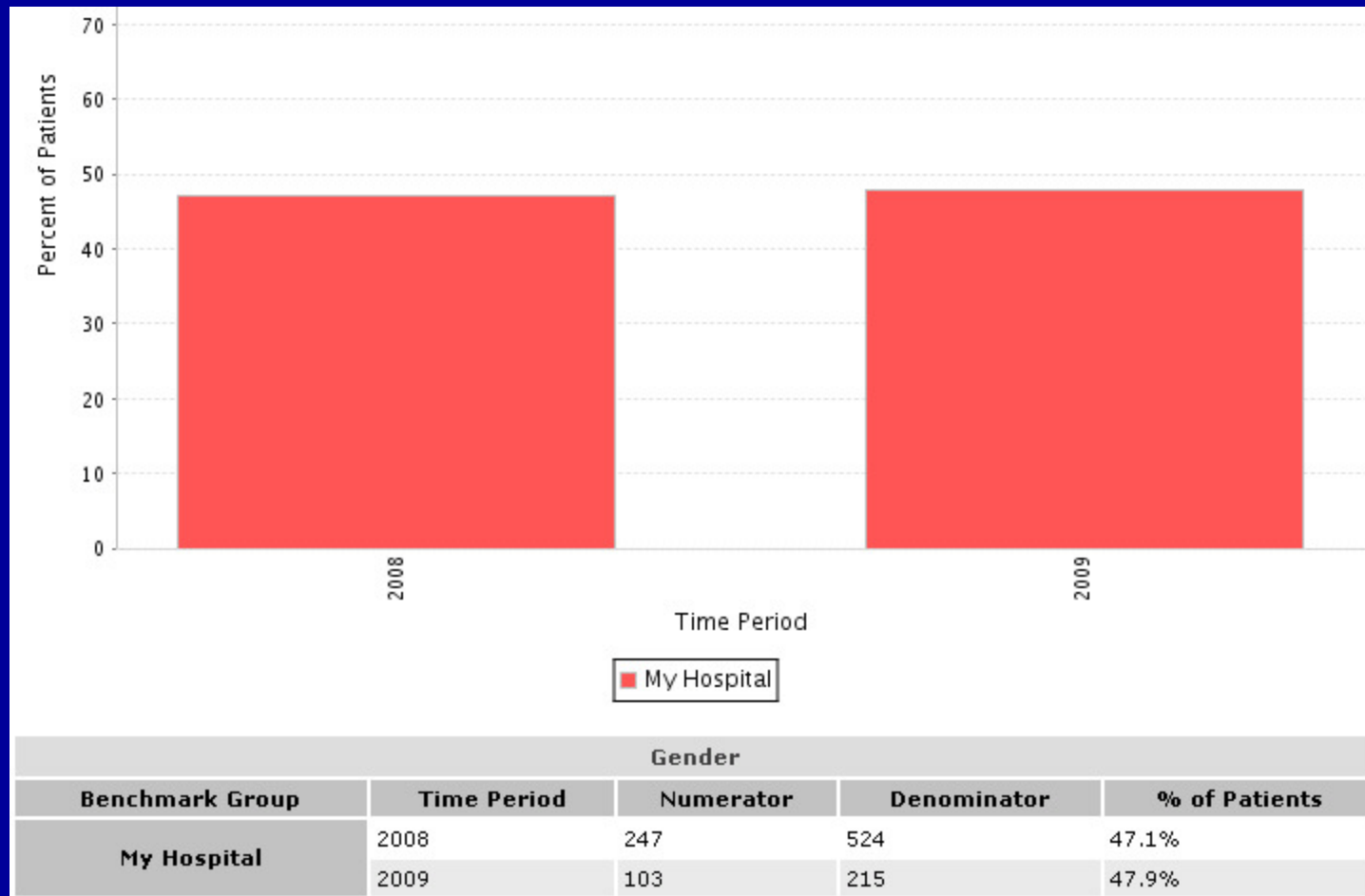
- Continuous data

Descriptive statistics, detect outlier, t test,
CI of mean/difference/ratio/SD, post tests.

Statistics 101

- A t test compares the means of two groups. For example, compare whether systolic blood pressure differs between a control and treated group, between men and women, or any other two groups
- Don't confuse t tests with correlation and regression. The t test compares one variable (perhaps blood pressure) between two groups. Use correlation and regression to see how two variables (perhaps blood pressure and heart rate) vary together.
- Don't confuse t tests with ANOVA. The t tests compare exactly two groups. ANOVA (and related nonparametric tests) compare three or more groups.
- Finally, don't confuse a t test with analyses of a contingency table (**Fishers or chi-square test**). Use a t test to compare a continuous variable (e.g., blood pressure, weight or enzyme activity). Use a contingency table to compare a categorical variable (e.g., pass vs. fail, viable vs. not viable).

How to use statistical program



You will use this if data is % GWTG data

- Contingency tables summarize results where the outcome is a categorical variable such as disease vs. no disease, pass vs. fail, artery open vs. artery obstructed.