

# Today's Presentation



## Writing for the Medical Literature:

### *What Gets Included, what goes where, & best practices*

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# WRITING FOR THE MEDICAL LITERATURE: WHAT GETS INCLUDED, WHAT GOES WHERE, & BEST PRACTICES

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# Disclosures

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none

# Share your writing issues

- Introduce yourself
- Time dependent:
  - Anyone want to share what you hope to learn today and what “trips you up” when it comes to writing

# High level advice

- Start early—A substantial portion of the manuscript can be written before the project is completed. Even though you will revise it later, starting early will help document the methods and guide the analysis.
- Focus on high-visibility components—Pay attention to what readers are most likely to look at: the title, abstract, tables, and figures. Strive to develop a set of tables and figures that convey not only the major results but also the basic methods.

Welch, H. G. (2004). Preparing manuscripts for submission to medical journals: the paper trail. *Spine*, 29(19), E442-E449.

# Realistic Advice

- Figure out what you've got, and who might be interested in your work
- Think about journals at the start
  - ▣ Many journals have publication fees!
  - ▣ Journals have multiple categories (research, QI, cases, etc)
- Small study: perhaps a research or QI brief?
  - ▣ [For Authors | Journal of Maine Medical Center | Medical Education | MaineHealth](#)
- QI work: different journals
- Exploratory work:
  - ▣ Might not be publishable but plan to present at a meeting that publishes the abstract!

# Take a systematic approach

- Develop a systematic approach to the body of the paper—A standard framework can make it easier to write
  - ▣ Typically abstract, introduction, methods, results, and discussion.
  - ▣ But it depends on the publication type
- An obvious organization with frequent subheadings and consistent labels makes the paper easier to read.
- Get input *all along the way*

# Authorship- discuss at start of project

- According to the guidelines of the International Committee of Medical Journal Editors (ICMJE),<sup>4</sup> authorship credit should be based on the following 4 criteria:
  1. substantial contributions to conception or design of the work, or the acquisition, analysis, or interpretation of data for the work; and
  2. drafting of the work or revising it critically for important intellectual content; and
  3. final approval of the version to be published; and
  4. agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

# Author order

- The first author is the project leader and the primary drafter of the manuscript
- The last author, “senior” author, is typically the mentor, and if a funded project, the PI
- The 2<sup>nd</sup> author did the 2<sup>nd</sup> most amount of the work, and so on
- If you have a lot of authors, you can do it alphabetically but they still have to meet authorship criteria

# Starting Early

- You can start writing three components of the paper before the work is completed. Sketch out the **introduction** at the time the investigation is conceived (or when external funding is being sought).
- Draft the **methods** while the research is being conducted as a running account of what is being done as it is being done.
- Finally, develop skeleton forms of numeric data (often called **dummy or shell tables**) early on.

# Section by section specifics

# Abstract

- When you have a good abstract with your high level findings, you should be submitting it to a scientific meeting
- This forces you to refine your central messages and findings
- When you present you'll get feedback on your work

# Outline

- List the key topics, arguments and evidence you want to include.
- Divide into sections with headings so that you know roughly what the paper will look like before you start writing
- A structured outline can help make the writing process much more efficient
- Also if you are co-writing this with other authors, it makes division of labor more clear

# Citations

- Keep track of citations at this stage to avoid accidental plagiarism.
- Learn Endnote and embed the citations as you go
- Our medical librarians are a valuable resource

# Tables and Figures

Make a paper more readable by removing numeric data from the text.



# Introduction

- Motivate the audience to read the paper and to care about the results
- Describes the prior relevant literature
  - EVERY sentence in the first few paragraphs should have a citation associated with it
- Lead the reader to why the current work was done
- Lead the reader to why they should care (and publish your article)

**TABLE 1****Framework for a Three-Paragraph Introduction**

PARAGRAPH	QUESTION	EXAMPLES OF CENTRAL IDEA		
		EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
1	What is the general problem or current situation?	Otitis media is the most common reason that children receive antibiotics.	Evidence is accumulating that carotid endarterectomy reduces stroke risk in many patients with carotid stenosis.	Diabetic nephropathy is the most common cause of end-stage renal disease.
2	What is the specific problem or controversy?	Many patients receiving the diagnosis of otitis media have no microbiological evidence of infection.	Despite increasing information, decision making about carotid endarterectomy remains difficult.	Although screening for microalbuminuria is recommended for all diabetic patients, many physicians do not comply with the recommendation.
3	How will this study help?	To better delineate the vagaries of the otologic examination, we studied interobserver variability in the diagnosis of otitis media.	To help clinicians assess the relative benefits of carotid endarterectomy, we calculated the number of operations needed to prevent one major stroke or death under different conditions.	To investigate a simpler strategy for diabetic nephropathy, we used a decision model to simulate the effects of treating all patients with angiotensin-converting enzyme inhibitors.

# The methods section

A clear overview of what was done

- Pay particular attention to what you name things (and ideas) that appear repeatedly in the text.
- Use subheadings (e.g., overview, setting, exclusions, primary outcomes, secondary outcomes, analysis)
- Consider a figure as a way to depict processes: study design, patient selection, and computer algorithms), consort diagram
- Use appendices to provide details of the analysis or specific data collection

# Methods- in sufficient detail that someone could replicate your study

- Start by describing with the population being studied and how we got the primary data
  - ▣ If there's any 'extra' data describe that too
- Who was included/ excluded
- If a survey, how you found the subjects
- Then, statistical approach
  - ▣ “descriptive statistics” (mean, median, etc)
  - ▣ Chi-square and t-test
  - ▣ Anything fancy. If you're replicating someone else's work, cite it here
- Human subjects statement
  - ▣ Full, exempt, “not research”

# Results

- short and to the point, orderly
  - ▣ No more than 1 decimal place in most instances; give N/N (%) and make direct comparisons
  
- distinguish primary from secondary results and report primary results first.
- Use tables and figures to reduce the amount of text
  - ▣ Don't restate everything in the tables and figures
  - ▣ Keep it in the same order as the tables and figures
  
- In addition to your primary finding, use figures to present multiple confidence intervals or individual data points
  
- For qualitative data, you'll have quotes in the text and sometimes tables too

# Discussion- this is VERY scripted

- First para: restate the major finding of the paper without #s
- Second para: compare what you found to findings in reports from similar studies
  - ▣ Explain why your findings might be different (newer treatment, younger patients, etc)
- Third para- talk about anything surprising that you found
- Fourth para- describe potential limitations, particularly those that threaten the study's validity
  - ▣ Valid criticisms should simply be acknowledged and discussed
  - ▣ Expected criticisms that are not valid should be introduced and rebutted
- Lastly, the work should be put in perspective; generalizability, clinical implications etc . Speculate a little, but not too much. Finally, consider the question, “What next?”
  - ▣ THIS IS YOUR **ONLY CHANCE TO SPECTULATE** IN A SCIENTIFIC PAPER!!!

**TABLE 2****Framework for the Discussion Section**

<b>QUESTION TO ADDRESS</b>	<b>CONTENT</b>						
What's the central finding?	Restate finding.  Place in the context of other work.						
Could it be wrong?	Identify and deal with threats to validity. Consider alternative explanations for your findings given the study design: <table border="1" data-bbox="517 791 1889 1048"> <thead> <tr> <th><b>BEFORE/AFTER</b></th> <th><b>OBSERVATIONAL</b></th> <th><b>RANDOMIZED TRIAL</b></th> </tr> </thead> <tbody> <tr> <td>Temporal trend Regression to the mean Selection bias</td> <td>Loss to follow-up Low response rate Recall bias Unmeasured confounding</td> <td>Inadequate blinding Ascertainment bias Loss to follow-up</td> </tr> </tbody> </table>	<b>BEFORE/AFTER</b>	<b>OBSERVATIONAL</b>	<b>RANDOMIZED TRIAL</b>	Temporal trend Regression to the mean Selection bias	Loss to follow-up Low response rate Recall bias Unmeasured confounding	Inadequate blinding Ascertainment bias Loss to follow-up
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Temporal trend Regression to the mean Selection bias	Loss to follow-up Low response rate Recall bias Unmeasured confounding	Inadequate blinding Ascertainment bias Loss to follow-up					
What does it mean?	Put your work in perspective. Assess its generalizability, and speculate about its implications.  Specify what you think should happen next.						

# Feedback

- Elicit feedback
  - ▣ Ask before you send a paper
  - ▣ specify the purpose of asking for a review
- Receiving feedback
  - ▣ Don't be defensive
  - ▣ Focus on understanding problems

# Finish Strong

- Many many revisions
- Send a near-final version to your senior author/mentor first (unless you really think it's a disaster then maybe a friend first)
- Check for consistency
- Eliminate Clutter, “tighten” the writing
  - ▣ Go through and eliminate words (“that” etc)
  - ▣ Look for duplication
  - ▣ Don't include things that are not relevant

# Get Better: Help Others

- Review colleagues work
- Ask your mentor if you can help do peer reviews when a journal invites them
- MITE Group Manuscript Peer Review
- MITE Best Practices in Peer Review Course [Best Practices in Manuscript Peer Review - MITE MMC Institute for Teaching Excellence](#)