

Writing manuscripts

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OCNS student lunch

With help from:

Neill, “How to write a scientific masterpiece” *Journal of Clinical Investigation*, 2007:117;3599-3602

Singer & Hollander, “How to write a manuscript” *Journal of Emergency Medicine* 2009: 36; 89-93

Why do we need to write manuscripts ?

- Publish or perish – personal gain
 - Measure of one's productivity
 - You get to graduate
 - Promotion/tenure
 - Enhance your profile
 - Gain national and international reputation
 - You get funded
- Advance knowledge
- Disseminate vital information

What does my manuscript need to include

- A well written manuscript will include
 - Why did you do the work
 - What did you do
 - How did you do the work
 - What did you find
 - What does it mean

[taken from Singer & Hollander, “How to write a manuscript” the *Journal of Emergency Medicine*, 2009:36:89-93]

Get organized

- Let's begin by assuming you have
 - Data
 - New data that has not been published before
 - Data that would advance your field
 - Data that others would want to read
- Create a realistic writing schedule
- Set aside protected time during each day to work on your manuscript uninterrupted
 - You may want to start with short 30 minute session
 - Set goals for each of these 30 minute sessions, set a timer, reward yourself with a short break for 5-10 minutes, return to your desk work for another 30 minutes, plan on achieving your next set of goals
- Give yourself an internal deadline for a submission date to the Journal

Getting organized

- Where should I publish
 - Will your data appeal to a wide readership or a focused group
 - Which journals did you generally read for information on your study
 - Check your literature search, are there any Journals that predominate
 - Top tier in your field
 - Tier 1, tier 2, tier 3
 - Check the impact factor
 - 2009 impact factors just out... and quite a few surprises
 - Discuss with your mentor
 - Discuss with the other authors

Once you've narrowed down the Journal

- Check the Journal scope
- Carefully go through the guidelines
- Start to format your manuscript based on the Journal you have selected the guidelines and instructions to authors are very detailed

Procedure in my lab

- The first author collects all the data and prepares the figures
 - If the data was performed by others in the lab the first author communicates with them at all levels
 - Checks their data independently, does not take anything for granted
 - All raw data for each figure is photocopied from the notebook and placed in a single binder that all authors can access to check authenticity
 - The figures are drawn and raw data checked by at least one other “author” or person in the lab for accuracy
 - When the figures are prepared, they are discussed in minute detail at lab meeting with all lab members asking questions whether or not they were involved in the study
 - Determine how many times experiment was performed, by whom, statistical analysis, ways on improving the presentation, any thing that looks “strange” or doesn’t fit, does it need to be repeated
 - All figures are prepared in Illustrator and are made publication ready

Where do I start

- Title page
 - Get something down on that white sheet
- How do I come up with a title
 - Key words, string them in different arrangements, don't overstate your work, must be an accurate representation
 - Generally arrived at by consensus of the authors
- You want the title to catch the attention of as many readers as possible
- Do not use jargon/abbreviations
- Don't use colons or commas other punctuation

Where do I go next?

- Results
- Gather your data
- Sketch a brief template of how you will arrange your figures and in what order
- Maybe 5-7 figures is a good number
- Do not overload your figures
- Describe your data clearly and be succinct
 - Do not interpret your data or discuss your data, leave that for the discussion
- Get a statistician if you need help

Figures

- Your figures and legends should stand alone
 - One shouldn't have to read the results
- Figures and lettering should be legible
 - Large symbols
 - Provide a key to the symbols
- Title your legend
- List n values/statistics
- Try to quantify blots etc
- Stick to solid, open, gray/shaded bars, stay away from color particularly red/green)
- Use color only if you have to
 - Color figures cost \$\$\$\$

Title page and results are done.... what next

- OK so that's a major achievement you have data and it all makes sense
- So now on to the discussion while the results are still fresh in your mind
- How should I structure this section
 - Always start with a summary of the data presented
 - Do not overstate or over-interpret your findings
 - Broader implications
 - Add supporting data from your work and others
 - Make sure your data supports your conclusion statement
 - Why is your study advancing the field
 - Connect the hypothesis with the data and the conclusion
 - Why is it novel
 - What remains to be done
 - Make certain that important literature is cited and cited accurately
 - Always go to the primary findings rather than a review article

Methods and materials

- Now that you have the results you can include the pertinent methods and materials
- Be complete
- Someone should be able to repeat your data based on the information you provide
- IRB
- IACUC
- Data analysis/statistics

Introduction and Abstract

- Introduction
 - Provide a brief literature background
 - Link it to your hypothesis
 - State the gap in knowledge
 - How does your study fill this gap
 - What is the objective/hypothesis of your study
- Abstract
 - Write it last
 - Extremely important section
 - Introduce the disease and the system you are studying (1-2 sentences)
 - What is not known
 - State your major findings
 - Implications/significance/impact (1-2 sentences)

Final checks

- Send manuscript to all authors, give them time to review and return
- Update and check your references
 - Do not leave out relevant literature
- Final read through
 - Do not depend on spell check
- Make sure you have adhered to the instructions to the authors
- Enclose a cover letter

Other important points to consider

- Ethics and integrity in science
- Sloppy science and data keeping can be damaging to your career – scientific misconduct
- Fraud
- Fabrication
- Plagiarism
- Redundant publication
- Authorship
 - Authors should only be included if they have contributed to the manuscript
- Do not submit unless all authors have approved the final draft