



Preparing a Scientific Manuscript

Patricia A. D'Amore, PhD, MBA

Charles L. Schepens Professor of Ophthalmology
Professor of Pathology
Massachusetts Eye & Ear



MASSACHUSETTS
EYE AND EAR

SCHEPENS EYE
RESEARCH INSTITUTE



HARVARD
MEDICAL SCHOOL

DEPARTMENT OF
Ophthalmology

But even before the writing begins...

- Meet with the key authors to make sure you are on the same page regarding the fact that the data are ready to go
- Review all the data and decide on format for presentation
- Discuss the interpretation
- This meeting is a good time to *finalize* authorship and order. If you think it will be necessary, have the HMS guidelines for authorship to help distinguish between authors and acknowledgments

<https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf>

- Decide who will be responsible for writing different parts
- Agree on where paper will be submitted
- Submit a pre-submission inquiry if the journal permits

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper



Collect the references that you will use

- Download the references as pdfs
- Create a reference library (e.g. EndNote)
- Possibly annotate, e.g. summarize key points at the top



Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
2. Write the Methods
3. Write up the Results
4. Write the Discussion/Conclusion
5. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Prepare publication-quality figures and tables

- Before you start, gather *all the data* that you will need for the figures and tables
- A “picture is worth 1000 words”
- Decide on platform (Photoshop, Prism, etc)
- Make certain that you have read Instructions to Authors regarding journal-specific details

figures and tables (con't)

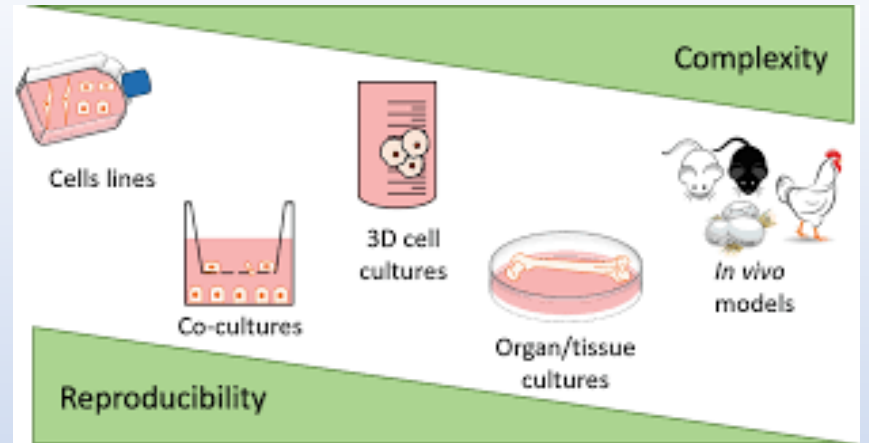
- Tables for actual results; figures for comparisons
- Label axes appropriately; use fonts that are big enough
- No more than 3-4 data sets per figure
- For images, include scale bar
- Use color only when necessary



Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Methods



- If method is new, include sufficient detail so it can be reproduced
- Use references and supporting materials for previously published methods but provide details for variables e.g., description, source and concentration of antisera
- Identify the proper controls
- Describe statistics
- Avoid including comments, results or discussion

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Write up the Results

- Include only representative results from the study that will be essential for conclusions
- Use supplemental materials for data of “secondary importance”
- Divide by sub-headings
- Generally track with the order in which methods were provided
- Include no references in this section
- Apply appropriate statistics

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Write the Discussion

- Should relate to the Results but *not* restate them
- Compares your results with published findings - how to they fit in, including if they contradict
- Do not over-interpret
- Quantitative descriptions are better than unspecific terms such as significant
- Acknowledge other possible interpretations of your data
- Speculate only as it is grounded in your findings
- Do not overstate and do not use the phrase “first to demonstrate”

Write the Conclusion

- Point to how the results advance the field
- Ok to suggest future experiments
- DO NOT
 - Repeat the abstract
 - Reiterate the results

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Prepare the Abstract

- Indicate what has been done in the field
- Emphasize what is important about your findings
- Avoid jargon, abbreviations and references
- Minimize experimental details
- Include a last sentence that is the conclusion



Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Craft a descriptive title

- Be specific
- Reflect contents of the manuscript
- Avoid jargons and abbreviations



Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper

Select keywords

- Less important because whole text can be searched
- Avoid -
 - words in the title
 - very broad terms
 - abbreviations

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
3. Write the Methods
4. Write up the Results
5. Write the Discussion/Conclusion
6. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
9. Select Keywords
10. Add the Acknowledgments
11. Finalize the References
12. Share with co-authors and incorporate the changes that improve the paper



Add the acknowledgments

- Thank technical help
- Acknowledge assistance with writing and proofreading
- List funding agencies, including Core grants and philanthropy

Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
2. Write the Methods
3. Write up the Results
4. Write the Discussion/Conclusion
5. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
8. Select Keywords
9. Add the Acknowledgments.
10. Finalize the References
11. Share with co-authors and incorporate the changes that improve the paper

Finalize the references

- Cite publications on which work is based
- Avoid excessive self-citation
- Do not cite excessively from the same group

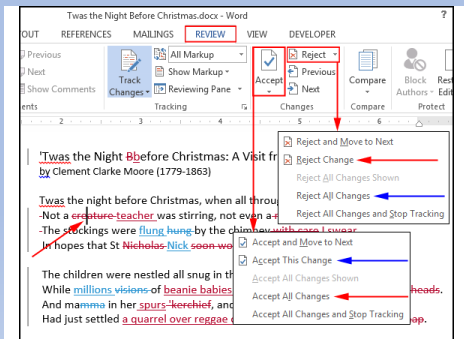


Recommended steps

1. Collect the references that you will use for the Introduction/Discussion
2. Gather all data and prepare publication-quality figures and tables
2. Write the Methods
3. Write up the Results
4. Write the Discussion/Conclusion
5. Write the Introduction
7. Prepare the Abstract
8. Craft a descriptive Title
8. Select Keywords
9. Add the Acknowledgments.
10. Finalize the References
11. Share with co-authors and incorporate the changes that improve the paper

Share with co-authors and incorporate the changes that improve the paper

- Send to primary authors first and have them use Tracker to edit/comment
- Carefully review edits and accept only those that improve the paper
- Send to secondary authors for comment



Other considerations

- Selecting the journal
- Pre-submission inquiries
- Suggesting reviewers/excluding reviewers
- Responding to reviews
- When and how to rebut a decision

patricia_damore@meei.harvard.edu