Global PaedSurg Research Training Fellowship

Session 9:

Writing a manuscript for publication

Lars Hagander, Lund University, Sweden – July 26 2019

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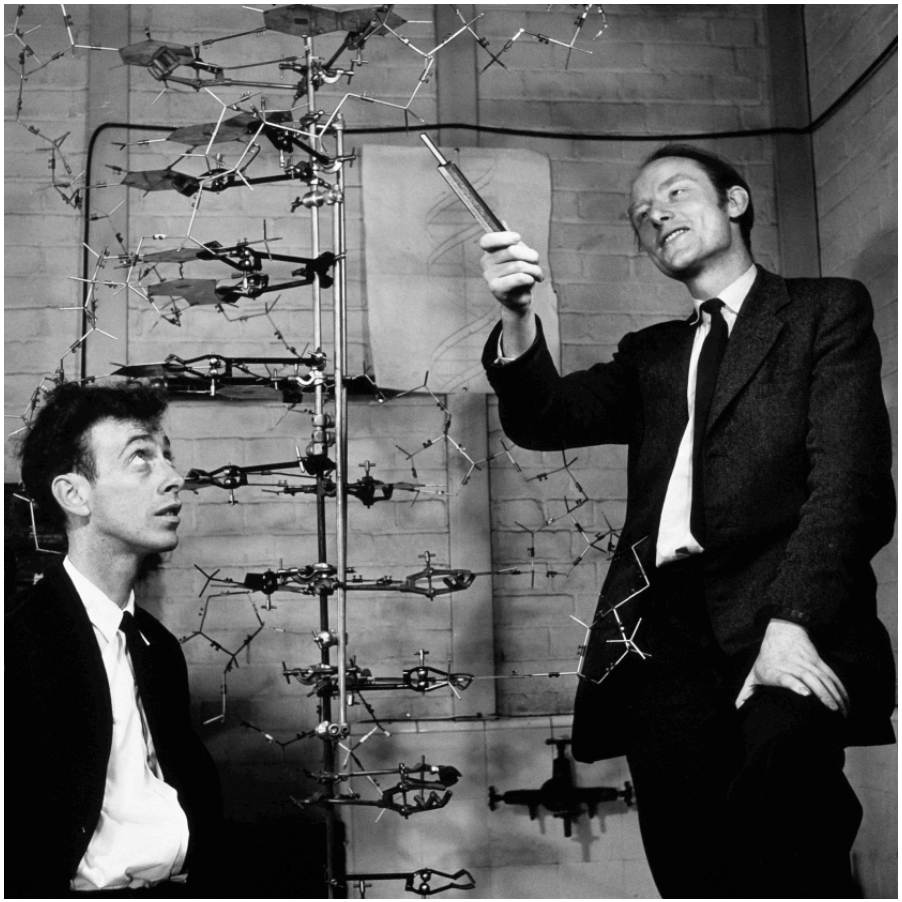

"Writing About Biology: How Rhetorical Choices Can Influence the Impact of a Scientific Paper
Randy Moore. Bioscene. Volume 26(1) February 2000

Learning Objectives

How to prepare a scientific manuscript:

1. Structure of a scientific manuscript
2. Order of preparation
3. Stakeholders
4. Writing style

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English Communication for Scientists

TABLE OF CONTENTS

PROGRESS

Unit 2: Writing Scientific Papers

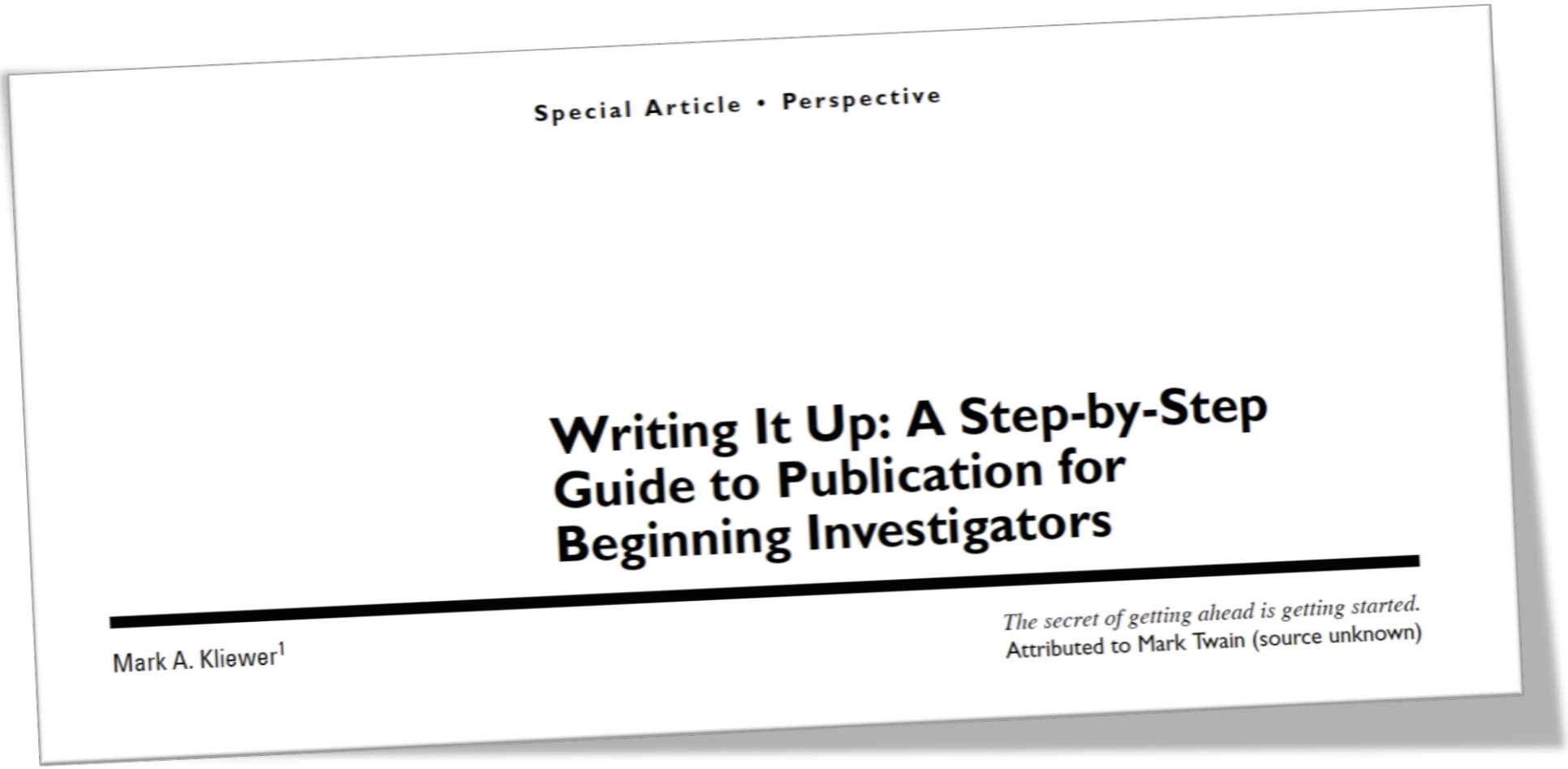
PREV PAGE | NEXT PAGE

As a scientist, you are expected to share your research work with others in various forms. Probably the most demanding of these forms is the paper published in a scientific journal. Such papers have high standards of quality, and they are formally disseminated and archived. Therefore, they constitute valuable, lasting references for other scientists — and for you, too. In fact, the number of papers you publish and their importance (as suggested by their impact factor) are often viewed as a reflection of your scientific achievements. Writing high-quality scientific papers takes time, but it is time well invested.

IN THIS UNIT

- Structuring Your Scientific Paper
- Drafting Your Scientific Paper
- Revising Your Scientific Paper
- Advice for Specific Language Groups
- Summary
- Test Your Knowledge
- Learning Activities

https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/writing-scientific-papers-14239285



Special Article • Perspective

Writing It Up: A Step-by-Step Guide to Publication for Beginning Investigators

Mark A. Kliewer[1]

The secret of getting ahead is getting started.
Attributed to Mark Twain (source unknown)

Kliewer MA. AJR 2005; 185:591.–596 2006

Outline

- Title
- (Title page: Keywords)
- Abstract
- I-M-R-D *[imrad]*
- Conclusion
- (Acknowledgement)
- (References)
- Tables and Figures
- Supplementary material

How readers read …

First

- Title
- Abstract: first & last sentence
- The rest of the abstract
- Tables and figures
- If you have referenced them?!

Second

- Any methodological issues?

Then

- Introduction – Results – Discussion …

… and how writers write

First

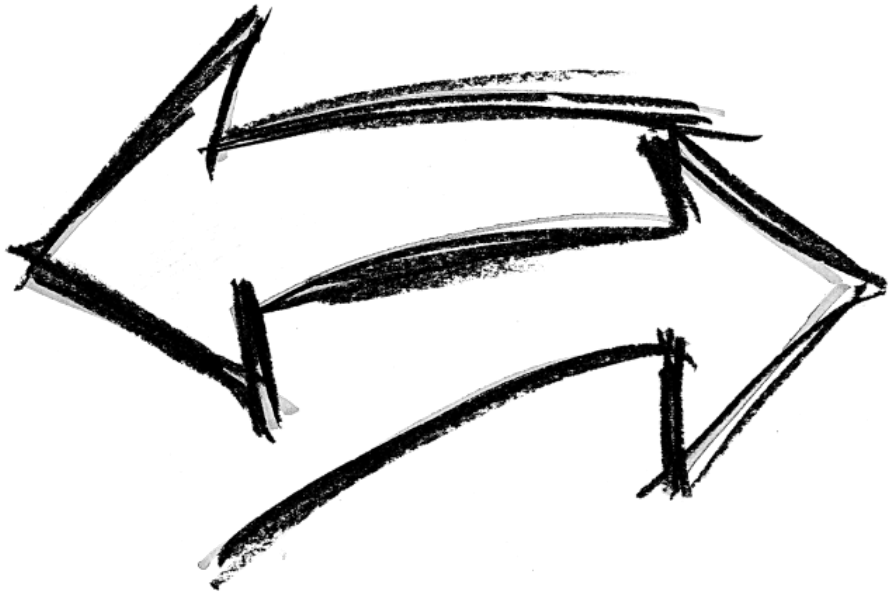
- Methods
- Tables & figures

Second

- Introduction
- Results

Third

- Discussion
- Abstract
- Title
- Conclusion



Title

- Attracts attention
- Meaningful at a PubMed screen
- Specific
- Reflect the content of the manuscript
- Sell or tell?
- Summarize the findings?
- Study design as a subtitle? [Title: Subtitle]

Abstract

1. Lure the reader to read on
2. Prepare the reader for what is to come

- Wider audience than the rest of the manuscript
- Quite variable journal preferences

- Introduction: State the context, need, task, objective
- Methods: Study design, outcome and exposure.
- Results: The *what* (Numbers, numbers, numbers)
- Conclusion: The *so what*. Reflect the objective. Perspectives?

- Introduction and conclusion – most important

Introduction

1. A rationale, the motivation
2. Prepare readers for the structure of the paper

- A funnel
- 3 paragraphs long

Introduction

1st paragraph

- Big picture. Issue. Context.
- Orient. Establish importance
- Provide a compelling motivation
- Words from title in first sentence?
- Anchor in time, space or field?

Introduction

2nd paragraph

- Narrow down from what is known —- to what is needed
- A gap-statement in the last sentence: *“However,…” or “Unfortunately,…”*
- Rhetoric research question?
- Less is more. Only what will help readers understand the need, and its importance

Introduction

3rd paragraph

- The task. What you have done.
- Start with *"To address this.., we developed…". To establish the.., we investigated…"*
- The hypothesis
- The purpose and object
- *"This paper describes…"*

Methods

1. Prepares the reader mentally for the results section
2. (Constructive alignment for investigators)
3. Conveys a sense of quality
4. Sufficient detail for others to reproduce

Advise

- Start sentences with the key word
- Be 100% consistent with nomenclature and order
- Repeat the structure of sentences. Very dry!
- If a paragraph is like a bullet point list in words – let the first sentence introduce and summarize
- Use subheadings with methodological key-words

Methods –subheading examples

The study design and setting

Inclusion and exclusion criteria

- Perhaps also control group and censoring. Flow chart is very useful.

Primary outcome

- *"Primary outcome was x… X was defined as…"*

Primary exposure

- *"Primary exposure was y". Y was defined as…"*

Independent variables and confounders

- *"Independent variables were [z and k]. Z was defined as… K was categorized…"*

Data collection and validation
Statistical analysis
Ethical considerations

Results

Style

- One paragraph per table/figure (in order of appearance)
- State the message of each paragraph in the first sentence
- Summarize each table/figure, but do not repeat all numbers
- No methods, no discussion, no references
- Focus on what was found, not that you found it
- Double-check alignment with methods

- Effect estimates with uncertainty
  - Mean with [95% CI] - normal data
  - Median with [a range] - non-normal data

Tables and Figures

1. Illustrate major findings
2. Answer research questions and address study aim
3. Economy and advertisement

"The Table 1"

- Columns by exposure
- Are the groups comparable?
- Value of p-value?

The other tables and figures

- Max 4. The rest will be supplementary material
- Figures > Tables
- One per research question or outcome
- Display outcome. Tables have columns by outcome

Tables and Figures

Captions

- *Above* tables. *Below* Figures
- Key words first
- Try to align/answer research questions or study aim
- Comprehensive enough to speak for itself in a ppt

Style

- Be creative, be clear
- Double-check consistency of terms and order
- Copy journal style
- Figures without 3D-effects and color. No pie-charts
- Tables without grid and without units in cell

Discussion

Style

- Relative freedom (but adhere to journal style)
- I aim for six paragraphs, including conclusion
- Don’t loose your reader. Write clearly
- Do not introduce new results
- Use subheadings (and then remove them)

Discussion – subheading examples

1st paragraph

- "To get everyone on the same page"
- Mention the study design
- Claim that you have achieved the purpose
- State the principle findings in one, max two sentences

Discussion – subheading examples

2nd paragraph

- Advance from findings to interpretations
- Don’t understate the importance of your findings
- Don’t extrapolate beyond the evidence
- Stay on topic

Discussion – subheading examples

3rd paragraph

- How your findings are congruent with current thinking and previous literature
- Yes one paragraph!! (or two if you have two main findings and don't want to write two papers…)
- You don't have to repeat everything from the 2nd paragraph of the introduction

Discussion – subheading examples

4th paragraph

- Articulate the clinical implications of your findings
- Explain how your findings illuminate larger issues
- Outline the scientific trajectory

Discussion – subheading examples

5th paragraph – Limitations

- Let the readers understand the limits of your data and interpretations
- Be honest, thoughtful and self-critical without undermining the validity of your study
- Try to mention strengths en passant as you present your weaknesses

Conclusion

6th paragraph

- (In many journals this is a separate heading)
- The shorter the more impressive. Just a few sentences
- Do not restate what you have done or what the paper does
- Focus on what you have found and, especially, on what your findings mean
- Explain what is new without exaggerating
- Align with gap statement, research question, and study aim

Author instructions

Consensus formats

- The EQUATOR network – http://www.equator-network.org/

Reporting guidelines for main study types

Randomised trials	CONSORT	Extensions
Observational studies	STROBE	Extensions
Systematic reviews	PRISMA	Extensions
Study protocols	SPIRIT	PRISMA-P
Diagnostic/prognostic studies	STARD	TRIPOD
Case reports	CARE	Extensions
Clinical practice guidelines	AGREE	RIGHT
Qualitative research	SRQR	COREQ
Animal pre-clinical studies	ARRIVE	
Quality improvement studies	SQUIRE	
Economic evaluations	CHEERS	

See all 413 reporting guidelines

Author instructions

Journals

- JPS – https://www.elsevier.com/journals/journal-of-pediatric-surgery/0022-3468/guide-for-authors
- EJPS – https://www.thieme.com/media/ita/pubid1467873712.pdf
- Pediatrics – https://www.aappublications.org/content/pediatrics-author-guidelines
- JAMA pediatrics – https://jamanetwork.com/journals/jamapediatrics/pages/instructions-for-authors

Consider your audience

Your readers
- Value and usefulness
- Citations
- Reputation

Your editors
- Citation potential, to increase impact factor
- Space and time – can be limiting factors

Your reviewers
- They read while multi-tasking
- Give them what they want, when they want it
- You want them to love you (not to hate you)

General advise on style

- Don’t end long sentences with important verbs
- Care about the bridge between sentences
- Start paragraphs with the message – then present the evidence to support the statement
- Start sentences with the name of the variable
- Readers don’t want to remember long pieces of text before knowing what to do with them
- 100% consistency of terminology and order
- Always past tense? Active or passive?
- Not comma as decimal separator
- Not unlimited space – economy. Be concise

General advise

- Check out:
  https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/126083980#bookContentViewAreaDivID

- Accept to review papers

Specific language advise

German and Dutch:

https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/126084360#headerAndCitation

French, Italian and spanish:

https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/126084360#headerAndCitation

Chinese and Japanese:

https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/126084360#headerAndCitation

Recap… Learning Objectives

How to prepare a scientific manuscript:

1. Structure of a scientific manuscript
2. Order of preparation
3. Consider your audience
4. Writing style

Thank you for listening, any questions?

globalpaedsurg4@gmail.com

@PaedsSurgeon @GlobalPaedSurg #GlobalPaedSurg

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