

Writing Scientific Papers for Peer-reviewed Journals

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Overview

- Picking a Journal
- Structure of the Paper
- Scientific Writing
- "Instructions for Authors"



Peer-reviewed journals

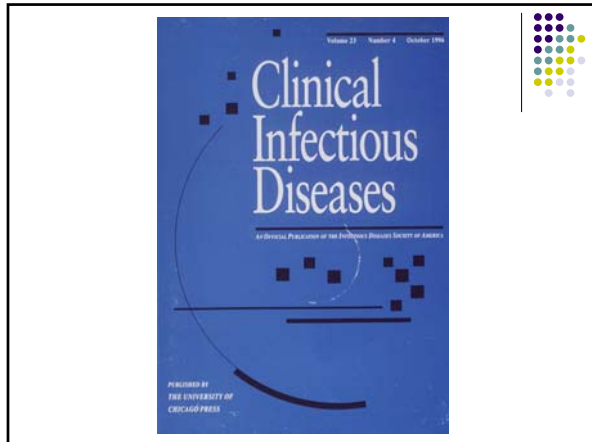
- What is a peer?
 - "a person who has equal standing with another as in rank, class or age"
 - Published in peer reviewed journals
- Peer review process
- New data



Picking a Journal

- Who do you want to read your paper?
 - Researchers
 - Basic scientists vs. clinical scientists
 - Clinicians
 - What kind?
- How wide an audience does your topic command?
- When in doubt e-mail or call the editor





Journal Impact Factor

Journal	2004 Impact factor	2002 and 2003 articles	Citations in 2004 to 2002 and 2003 articles
JAMA	24.8	751	18,648
Annals of Internal Medicine	13.1	396	5193

Garfield, JAMA, 2006

- ### Journal Citation Reports
- Specific journal
 - JAMA, AIM, CID
 - Group of journals in a topic area
 - Infectious Diseases
 - Internal Medicine
- <http://www.hshsl.umaryland.edu/resources/databases>

- ### Structure of the Paper
- Title
 - Most read part of your paper
 - Abstract
 - Second most read part of your paper
 - Introduction
 - Methods
 - Results
 - Discussion

- ### Title I
- “Fewest possible words that describe the content of the paper”
 - Delete waste words
 - A, An, The,
 - Studies on ..., Investigations on...
 - Use specific terms
 - Action of Antibiotics on Bacteria
 - What action?
 - What antibiotic?
 - What bacteria?
 - Bacteriocidal Effect of Vancomycin on S. aureus

- ### Title II
- Title is a label not a sentence.
 - Fewest possible words
 - Dogmatic
 - Be careful of syntax
 - Faulty word order
 - “Multiple Infections of Newborns Resulting from Implantation with S. aureus 502A”
 - Do not use abbreviations

Abstract

- Always be “Structured”
 - Background
 - Methods
 - Population
 - Major variables
 - Results
 - Conclusion

Example – Structured Abstract I

Impact of Age on Perioperative Complications and Length of Stay in Patients Undergoing Noncardiac Surgery. Polanczyk CA, Marcantonio E, Goldman L, Rohde LE, Orav J, Mangione CM, Lee TH.

BACKGROUND: Major surgical procedures are performed with increasing frequency in elderly persons, but the impact of age on resource use and outcomes is uncertain.

OBJECTIVE: To evaluate the influence of age on perioperative cardiac and noncardiac complications and length of stay in patients undergoing noncardiac surgery.

DESIGN: Prospective cohort study.

SETTING: Urban academic medical center.

Example – Structured Abstract II

Impact of Age on Perioperative Complications and Length of Stay in Patients Undergoing Noncardiac Surgery. Polanczyk CA, Marcantonio E, Goldman L, Rohde LE, Orav J, Mangione CM, Lee TH.

PATIENTS: Consecutive sample of 4315 patients 50 years of age or older who underwent nonemergent major noncardiac procedures.

MEASUREMENTS: Major perioperative complications (cardiac and noncardiac), in-hospital mortality, and length of stay.

RESULTS: Major perioperative complications occurred ... 80 years of age or older stayed an average of 1 day more in the hospital, after adjustment for other clinical data ($P = 0.001$).

CONCLUSIONS: Elderly patients had a higher rate of ..., mortality was low.

Introduction

- Brief summary of relevant background information
 - the reason why the study was needed
 - anything that could go in the discussion instead of the introduction should be put in the discussion
- Brief statement of the study's objectives or hypotheses
- More concise than a Background section for a proposal
 - 3-5 paragraphs vs. 3 pages

Methods

- Study Design
- How population was chosen
- How variables were defined
- Statistical analysis methods used
 - your definition of “statistically significant” (?-give p values or CIs)
 - statistical software?
- Don't put Results in the Methods

Results

- No interpretation. No comments.
 - Don't put Discussion in the Results
- Make the results clear to your readers
 - Well-labeled tables, figures, graphs
 - Use text to point out major results
 - Minimize repetition of the results from the tables in the text

The Structured Discussion

- Statement of principal findings
- Strengths and Weaknesses
 - of your study
 - in relation to other studies
- Meaning of the study
 - Possible mechanisms
 - Implication for clinicians and policy makers
- Unanswered questions and future work

BMJ 1999; 318: 1224-1225

Discussion

- Don't put new results in the discussion
- Each point you discuss should have some basis in your results with a logical progression
- Use psychology to put your findings in a favorable light.
 - Sandwich the negatives between the positives

Discussion - Typical order

- Positive: State your major finding. Present arguments for your interpretation of your results.
- Neutral: Put your study in context of other studies; show how yours adds
- Negative: State the limitations of your study, and why you still believe in your results.
- Positive: State your study's strengths; Conclude with implications and suggestions for further work.

Scientific English

- Keep it simple
 - Aim for simple declarative sentences
- Watch your syntax
 - The way in which words are put together to form phrases, clauses and sentences
 - "Lying on top of the intestine, you will perhaps make out a small transparent thread."
- Avoid self canceling or redundant words
 - "Well seasoned novice"
 - "7 am in the morning"

<http://www.umaryland.edu/student/writing/>

Omit needless words

- It is needless if its omission does not change the meaning of the sentence.
 - It has been reported that each neuron in the brain is an individual cell (Cajal, 1895).
 - Each neuron in the brain is an individual cell (Cajal, 1895).

Brad Algier from <http://www.umaryland.edu/student/writing/>

Examples of needless words

- | | |
|--------------------------------------|---|
| • it has been reported that | • in order to show (to show) |
| • are thought to (omit) | • we come to the conclusion (we conclude) |
| • in terms of (omit) | • (had no) measurable effect (no effect) |
| that point in time (then, when) | • acts to (do something) does |
| • it changed over time (it changed) | • give me a call back (call me) |
| • because of the fact that (because) | |

Brad Algier from <http://www.umaryland.edu/student/writing/>

Tense- Four Rules

- Established knowledge (past work)
 - present tense
- Description of methods and current results
 - past tense
- Presentation (e.g. Table 1 shows that ...)
 - present tense
- Attribution (e.g. Jones reported that ...)
 - past tense

Discussion - Typical order

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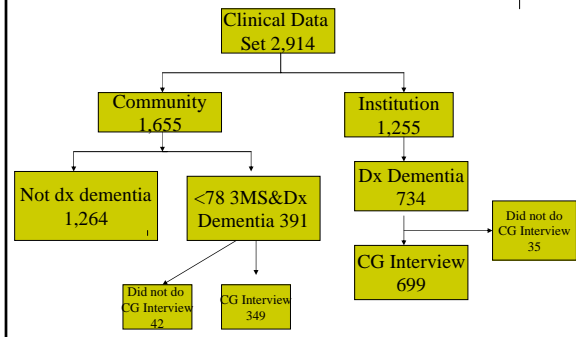
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Getting started

- Make your Figures and Tables
 - study design
 - results
 - present conceptual models in discussion
- Outline your paper using subheadings
 - general to specific
 - serve as a guide to you and the reviewer

Canadian Study of Health and Aging



Examples – Subheadings

(can remove before submission or after review)

- Introduction
 - Significance
 - Objectives
- Methods
 - Design
 - Population
 - Variable definitions
 - Statistics
- Results
 - Uni-variable
 - Bi-variable
 - Multi-variable
- Discussion
 - Major finding
 - Consistency-other studies
 - Weaknesses
 - Strengths
 - importance

“Instructions for Authors”

- Correspondence and Mailing Information
- Manuscripts
- Copyright
- Typescript
- Format and Style
- Code of Ethics
- Reprints

Types of Manuscripts

- Original Contributions
- Brief Original Contributions
- Reviews and Commentary
 - Often invited submission
- Letters to the Editor
 - Usually (but not always) refer to a recent paper
 - Cited in Medline

Format and Style

- Cover page
- Grants and Acknowledgements
- Abstract
- Keywords
 - MeSH headings
- Headings
- Allowed Acronyms
- Trade Names
- Use “percent” in text
- Avoid Footnotes, except in tables. Use parentheses.
- Numbers & rounding
- Decimal fractions
- Tables and Figures
- References

Code of Ethics

- Results have not been previously published.
 - acknowledge meeting abstracts
- Approval by Institutional Review Board

Authorship criteria



1. Conception or design of work, data collection, and/or analysis and interpretation
2. Drafting the manuscript or reviewing and revising critical sections
3. Assuming responsibility for the final version of the manuscript

Determination of primary author



- Actual contribution to the conception, planning and execution of study
 - If two or more have contributed equally
 - The one who writes the papers and coordinate the process is primary
 - Some journals will allow shared primary authorship
- Credit lines other than authorship
 - Acknowledgement

Responding to Reviewer Comments



- The Decision Letter (e-mail)
 - Accept as is
 - Accept with minor modifications
 - Re-review with major modification
 - Reject
- Respond to each comment clearly and positively

Summary



- Picking a Journal
 - Who needs to know
- Scientific Writing / Structure of the Paper
 - Be concise
 - Create an outline before you write
- "Instructions for Authors"
 - "the devil is in the details"

References



- Publishing and Presenting Clinical Research. 2nd Edition. Warren S. Browner. \$64
- How To Write & Publish a Scientific Paper: 5th Edition Robert A. Day. \$28
- Scientific English : A Guide for Scientists and Other Professionals 2nd Edition Robert A. Day. \$28