Writing for Publication in Biomedical Informatics

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Wednesday, 21 August, 2013
MEDINFO2013, Copenhagen
"Dear contributor,"

"Thank you for submitting your story to our magazine."

"To save time, we are enclosing two rejection slips..."

"...one for this story and one for the next story you send us!"
“DEAR CONTRIBUTOR...”

“THANK YOU FOR SUBMITTING YOUR STORY”

“WE REGRET THAT IT DOES NOT SUIT OUR PRESENT NEEDS”

“If it ever does, we’re in trouble.”

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Dear Contributor,

We are returning your manuscript. It does not suit our present needs.

P.S. We note that you sent your story by first class mail.

Junk mail may be sent third class.
Learning Objectives

After the workshop, participants will be able to:

• Understand the types and structure of publications (journals, conferences)
• Plan and get started on a scientific manuscript
• Understand how to prepare manuscripts for publication, including tables, graphs, references, etc.
• Realize ethical aspects, such as authorship, duplicate submission, electronic publication
• Understand the submission, review, and editorial decision process
• Know information technology tools that can support the manuscript preparation: mindmapping, bibliographic references, etc.
Outline

I  Preparing a manuscript: from idea to submission

II  Submitting a manuscript: from submission to final decision

III  Receiving a manuscript: The Editor’s perspective

IV  Ethical aspects

V  Helpful hints & errors to avoid

VI  Questions & Discussion
Thoughts

• Why do we publish (or need to publish)?
I - Preparing a Manuscript: From Idea to Submission
One size fits all?
Targeting Your Audience

• Choose an audience, create a list of journals, target a journal
“Journal Map”: Navigating the Biomedical Informatics landscape

- Medical & biological engineering & computing.
- Medical decision making: an international journal of the Society for Medical Decision Making.
- Medical informatics and the Internet in medicine.
- Journal of evaluation in clinical practice.
- Journal of medical Internet research [electronic resource].
- Journal of cancer education: the official journal of the American Association for Cancer Education.
- Computers and biomedical research, an international journal.
- Artificial intelligence in medicine.
- International journal of biomedical computing.
- Computers, informatics, nursing: CIN.
- Journal of telemedicine and telecare.
- Journal of biomedical informatics.
- Methods of information in medicine.
Getting Your Thoughts Together: A First Draft

- Initial outline
- Mind mapping
- Write, write, write
Shared Workspace

- Collaborative writing efforts
  - Shared environments
    - Wiki
    - Dropbox
    - Google Drive
  - Concurrent work
  - Commenting and highlighting
  - Versioning
Types of Papers

- **General**: original research, reviews, short communication, case reports, editorials, letters to the editor, ...

- **Special**: technical briefs, methodological papers, application of information technology, research letters, ...
• Introduction
  – Why this study? What is the research question?
• Methods
  – When, where, and how?
• Results
  – What did the study find? Hypothesis true?
• Discussion
  – Why does it matter? Limitations? How does it fit with previous findings? What should be researched next?
Manuscript Outline / Template

• Title
• Author information
• Acknowledgments
• Word count (observe limits)
• Keywords
• Address of corresponding author
• Abstract
• Text (IMRAD): double-spaced
• References
• Legends
• Tables
• Figures

• Author contributions
• Conflict of interest (sponsors, agency information)
• Trials registration, statements such as the CONSORT

1-2 pages

1-2 pages

1-3 pages
Research Paper

“Sandwich technology”

**Introduction:**
- High level problem statement
- Mid-level problem statement
- “Research gap”
- Goal of this study

**Methods:**
- Setting, population, procedures/statistical analyses, etc.
- Reproducible

**Results:**
- Data (without interpretation)

**Discussion:**
- Interpretation of data
- Put in context with existing research
- Limitations
Revising Your Manuscript

- Revise your manuscript
- Special attention: title, abstract
- Technical writing $\Leftrightarrow$ creative writing
- Spelling
- Punctuation
  
  Let’s eat Grandma! $\Leftrightarrow$ Let’s eat, Grandma!

- Considerations for authors whose primary language may not be English (translation services)
Some Thoughts

• ...the scientific and medical literature is still abundant with lengthy, unclear prose that is likely to confuse readers...

• ...a reader who cannot extract the significance of a paper from its title is unlikely to read further

• ...there is nothing more disconcerting than trying to assemble a story from a jigsaw puzzle of results

• If the discussion must perform intellectual or literary acrobatics to interpret and convince, the results are obviously not sufficiently convincing on their own

Cited from: Bredan AS, van Roy F. Writing readable prose: When planning a scientific manuscript, following a few simple rules has a large impact. EMBO reports 7, 9, 846–849 (2006)
Tables & Figures

• **Integral** part of a paper
• Tables and figures summarize **key messages**
• Need to be able to **stand alone**
• **Avoid redundancy** of information: text $\Leftrightarrow$ tables / figures
• Keep information **simple**
• Keep structure as simple as possible
### Table 1: Drug Effectiveness across Groups

<table>
<thead>
<tr>
<th>Drug</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
<th>Group E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>3.8</td>
<td>3.8</td>
<td>5.5</td>
<td>3.8</td>
</tr>
<tr>
<td>B</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>6.3</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>4.5</td>
<td>7.5</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>D</td>
<td>4.8</td>
<td>6.8</td>
<td>5.2</td>
<td>2.8</td>
<td>4.2</td>
</tr>
<tr>
<td>E</td>
<td>2.5</td>
<td>9.3</td>
<td>3.8</td>
<td>7.1</td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Table 2: Group Effectiveness across Drugs

<table>
<thead>
<tr>
<th>Drug</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>3.8</td>
<td>3.8</td>
<td>5.5</td>
<td>3.8</td>
</tr>
<tr>
<td>B</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>6.3</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>4.5</td>
<td>7.5</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>D</td>
<td>4.8</td>
<td>6.8</td>
<td>5.2</td>
<td>2.8</td>
<td>4.2</td>
</tr>
<tr>
<td>E</td>
<td>2.5</td>
<td>9.3</td>
<td>3.8</td>
<td>7.1</td>
<td>3.5</td>
</tr>
</tbody>
</table>
Potti et al. Genomic signatures to guide the use of chemotherapeutics
# Tables & Figures

<table>
<thead>
<tr>
<th></th>
<th>US cohort</th>
<th>International Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>2,069</td>
<td>1,048</td>
</tr>
<tr>
<td>Mean age</td>
<td>57</td>
<td>64.1</td>
</tr>
<tr>
<td>Female</td>
<td>52</td>
<td>51.5</td>
</tr>
<tr>
<td>Admission rate</td>
<td>58%</td>
<td>100%</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>6.5 %</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>(CI = 3.3-5.1)</td>
<td>(CI = **)</td>
</tr>
</tbody>
</table>

Table 2. Patient demographics.
### Table 2. Pneumonia Patients: Demographic information

<table>
<thead>
<tr>
<th></th>
<th>US cohort (n = 2,069)</th>
<th>International cohort (n = 1,048)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean, years (stddev)</td>
<td>57.0 (23.8)</td>
<td>64.1 (22.4)</td>
</tr>
<tr>
<td>Female, %</td>
<td>52.0</td>
<td>51.5</td>
</tr>
<tr>
<td>Hospital Admission rate, %</td>
<td>58%</td>
<td>100%</td>
</tr>
<tr>
<td>30-day mortality (95% CI)</td>
<td>6.5 % (5.3-7.1%)</td>
<td>9.0% (8.1-10.1%)</td>
</tr>
</tbody>
</table>
Small Stuff

- data is data are
- different than different from
- et al. et al
- between among (*between* when you are talking about distinct, individual items even if there are more than two of them)
- which that (that before restrictive clause – Gems that sparkle)
- it’s its

Avoid “very” and certainly “very unique”
- Do not split infinitives:: *to boldly go where no man has gone before*
  
  … one suspects that they wanted to slightly conceal the fact …
  
  … one suspects that they wanted to conceal the fact slightly…

- He, she or s/he?
- Verb “use”
- Modifiers: adjective / adverbs
- Avoid parentheses
- Avoid using: “in order to:
  
  In order to improve your writing \(\rightarrow\) to improve your writing

  \(\rightarrow\) Tell a story with actions as verbs and characters as subjects \(\rightarrow\) active voice
Abbreviations:
introduction of abbreviations text, abstract, frequency, common/uncommon (CPR), in tables & figures, trademarks ™, registered ©

Numbers:
write out if smaller than 10; >40,000 or 41,395; avoid starting a sentence with a number: “40 out of 230 cases” but “Forty out of 230 cases…”

Artificial precision:
79 of 98 (80.6122%) patients → artificial precision
~, about, approximately, millions of millions; “significant”

Redundant modifiers:
- During that period of time, the membrane area became pink in color and shiny in appearance. → During that period, the membrane became pink and shiny.
- Serious crisis; large in size

Simplification of phrases:
The educational process and public recreational activities are the responsibility of the county government. → The county is responsible for education and public recreation.
Elements of a standard reference:
- authors
- title
- journal
- year
- volume
- page number

What to reference; how many; self-citation; in-press/in-print/forthcoming; abstracts; theses; personal communications, URLs

Use a reference management system, e.g., EndNote®, ReferenceManager®

URL references:
http://www.nlm.nih.gov/bsd/uniform_requirements.html
Accuracy of References

Five biomedical informatics journals were compared with MEDLINE® for journal, authors, title, year, volume, and page number accuracy.

Among 656 eligible references 34.3% included at least one error.

One or more errors were found in the bibliography of 84% of the articles:
- author (39.0%)
- journal (31.2%)
- title (17.7%)
- page (7.4%)
- year (3.5%)
- volume (1.3%)

Authors are responsible for the accuracy of references.
• Getting started is the worst part of a writer’s work

• A job worth doing isn’t necessarily a job worth doing well

• Journals & editors & readers want to read your contribution

• Involve your peers for initial feedback

• 20% is writing and 80% is re-writing; it is an evolutionary process
II - Submitting a Manuscript: From Submission to Final Decision
Submitting Your Paper

- Instructions for authors
  - Formatting
  - Readability
- Cover letter
  - Content and declaration
- Optional suggested reviewers
  - How to suggest reviewers
Manuscript Management System

• Some journals use manuscript management system (MMS) to track the whole process of:
  – Submission
  – Revision
  – Decision

• Information available includes number of manuscripts, manuscript status, review and decision status, etc.

• MMS serves as communication center with the Editorial Office
Communicating with Editorial Office

• Whom to address
• Types of correspondences
  – Enquiries
  – Withdrawals
  – Corrections
  – Appeals
Revising Your Manuscript

• If major or minor revisions are indicated, manuscript should be revised according to the reviewers’ comments and suggestions.

• All revisions should be completed within a reasonable time-frame, some journals would specify such a time-frame.
Replying to Reviewers’ Comments

• Prepare a comprehensive letter to submit together with revised manuscript

• All major comments/suggestions should be addressed for each reviewer

• Highlight amendments and additions
  – Provide two versions of manuscript with and without track changes (but remove format changes)

• It’s OK to discuss disagreements and justifications
Example:
Reviewer #3
Comment #1: ...

.....

Comment #5: “The discussion section mentions .... Can you clarify what you mean by ‘xxxxx’?”

Reply: We provided additional details about “xxx” that explain and characterize better how ..... 

Previous: “Similar flags exist for various conditions such as patients who represent a ..... ”

Revised (page 13, 1st paragraph): “Similar flags ..... ”
Final Decision to Publication

• Once a final decision is made, authors will be asked to prepare **final draft**, usually with separate files for diagrams and figures

• **Copy editing** services are sometimes provided

• Authors need to go through **galley proofs**

• Article may first be **available electronically**, with a digital object identifier (DOI) that can be used to locate the paper, before putting in print.
Why manuscripts are rejected

- Poor experimental design and/or inadequate investigation
- Failure to conform to the targeted journal
- Poor English grammar, style and syntax
- Insufficient problem statement
- Methods not described in detail
- Overinterpretation of results
- Inappropriate/incomplete statistics
- Unsatisfactory/confusing presentation of data
- Conclusions not supported by data
- Incomplete/inaccurate/outdated review of literature
- Comments of reviewers insufficiently addressed

III - Receiving a Manuscript: The Editor’s Perspective
The Editor’s Perspective

- Handling submitted manuscripts
  - First decision: in/out of scope
  - Does it meet the journal’s requirements

- Peer review
  - Most journals have external review: a pool of potential reviewers that may be asked to review your manuscript
  - Some systems allow for a classification of your manuscript that can be mapped against the classifications of the reviewers
    - Be specific, use more than one classification term (Clinical information system as sole classification is not very helpful)
The Editor’s Perspective

• Peer review process
  – Service to the community (reviewers do not get paid)
  – In principle constructive as to increase the quality of research and of the publications of that research

• Editorial decisions
  – Based on the reviewers recommendations
    • Conflicting recommendations
  – Editorial review

• Communicating with authors
IV - Ethical Aspects
Authorship

- Substantive intellectual contributions
  - conception and design, or
  - acquisition of data, or
  - analysis and interpretation of data
- Drafting or revising critically the manuscript
- Final approval of the published manuscript

► All three conditions must be met!

- www.icmje.org
Authorship

• Acquisition of funding, collection of data, general supervision of a research group **alone** does not qualify for authorship

• All listed authors should qualify for authorship, all that qualify for authorship should be listed
Authorship

• Some journals require a description of the contributions of each author to the manuscript.

• Some journals require that one or more authors act as “guarantors”; they take responsibility for the integrity of the study as a whole.
Acknowledgement

• All contributors, not qualifying as authors should be acknowledged.
  – Technical help, general support, writing assistance.
• Also financial support should be mentioned in the acknowledgment – also for writing assistance
• Ask for written permission to have someone acknowledged.
Conflicts of Interest

• This is about potential conflict of interest.
• About potential biases
  – Financial and personal relationships of authors
  – (Conditions of) financial support
    • Agreements on use of data, on analysis of data, on writing of the manuscript
• The non existence of conflicts of interest should be reported as well.
Copyright

• Relevant when making several publications based on the same material.

• Authors often have to transfer the copyright to a publisher.

• Be sure not to copy material of others (and yourself) without proper attribution and without receiving permission
  – Figures in publications, but also usage of a publication in a thesis
Plagiarism

• Publishing work of others under your own name is not allowed. This holds for full texts, but also when it is an idea that has been taken from someone else.

• Remember that this also holds for web-pages.

• The guidelines of the Committee on Publication Ethics suggest to consider informing the superior of the author or the person responsible for research governance.
Duplicate Publication

• To get the scientific record straight duplicate publication should be avoided.

• For additional information on how unethical publication behavior is dealt with see the website of the Committee on Publication Ethics

– www.publicationethics.org.uk
Some Miscellaneous Issues

- Duplicate submission
- **Serial unaltered submissions** (journal hopping)
- Serial **minimally altered publications** (first proceedings then in peer reviewed journal)
- **Self-plagiarism**
  - See for details: On Exemplary Scientific Conduct Regarding Submission of Manuscripts to Biomedical Informatics Journals
    - Methods Inf Med 2006; 45: 1–3
V – Reference material
References: Books

• King, Lester S. Why not say it clearly: a guide to scientific writing.
References: Manuscript preparation


Bredan AS, van Roy F. Writing readable prose: when planning a scientific manuscript, following a few simple rules has a large impact. EMBO Rep. 2006 Sep;7(9):846-9


Welch SJ. Preparing manuscripts for online submission: basic information and avoidance of common pitfalls. Chest. 2006 Mar;129(3):822-5.

References: Manuscript preparation

Welch SJ. Preparing manuscripts for online submission: basic information and avoidance of common pitfalls. Chest. 2006 Mar;129(3):822-5.


International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals: writing and editing for biomedical publication.


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http://www.cs.iastate.edu/~honavar/grad-advice.html
http://www.cs.auc.dk/~luca/PDK/pdk.html
http://www.cs.columbia.edu/~hgs/etc/writing-style.html
References: Tables & Figures

References: Narrative

**Results reporting:**

**Discussion section**


**Ethical considerations:**


References: Peer Review

Peer review / Writing


