Ins and Outs of Publishing a Scientific Manuscript

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Disclosures

- EEL receives income as Editor in Chief of Journal of Perinatology, Nature Publishing Group
- JEM has nothing to disclose
- No therapeutic recommendations discussed
OBJECTIVES: Practice Change

- The participant will develop concepts of the process for preparing, writing and submitting their research results for publication
High Priority Manuscripts

- Originality – new concepts or new information that will change practice
- Preferred characteristics (J Perinatology)
  - Prospective Randomized Clinical Trials
  - Cohort articles that reveal new information
  - Unique applications of technology
- Rarity alone does not constitute importance
High Priority Manuscripts

- Deciding whether to pursue an idea
  - Existing literature
    - New, Confirmatory, Multiple similar reports
  - Flaws in the existing data – studies lack power, non-randomized, safety not proven
  - Is the information already in textbooks
What does the Editor Want?

- Articles relevant to readership
  - Instructions to Authors
  - Editor’s objective is to have a lively and informative journal – mix of article types
  - **Chronic Shortage**: Critical, well written Review Articles on “Hot Topics” by scholars in the field
- Journal respected by scholar audience
  - Scientists – citations - Impact Factor
Before Writing a Manuscript

- Read published papers
- Pay attention to style and format
- Identify effective writing styles
- Note use of figures and tables to convey results
- Present critical reviews at journal club
Effective Style

- Concise, succinct and focused
- Clarity of meaning
  - Literal interpretation of sentences
- Wordiness not only denotes sloppy writing but denotes sloppy thinking.
Writing Style

Writing is more formal than talking (especially compared to our verbal shorthand)

Examples:
- “…the urine tox screen was …”
- “The patient required dopamine…”
- “The serum potassium ranged between …”
Style - Examples

- "A prospective cross-sectional quantitative survey consisting of 9 multiple choice questions was designed using an online survey tool as shown in table 1. Respondents were allowed to pick one answer."
Style - Examples

- Significant degree of anemia (as defined earlier in methods) was found only in infants whose mother had diagnosis of severe placental abruption.

- Anemia occurred only in infants whose mothers had severe placental abruption.
Abbreviations

- Use abbreviations only for terms that are used repeatedly
- Once an abbreviation is presented, use it consistently throughout
Common Errors: Abbreviations

- Incorrect capitalization: pH, paO₂
- Use of abbreviations that could have more than one meaning.
  “Transitory unexplained respiratory distress (TURD) ...”
Preparing a Manuscript

Before you start writing:
- Update the literature base
- Analyze the data
- Identify important conclusions
  - Significant ≠ Important
  - Non-significant “trend” is never important
- Prepare an outline of the paper
- Select a journal and read the Instructions for Authors
Journal Selection

Considerations:

- Content of articles
  - Clinical research vs basic science
  - Case report, original article, review
  - Animal physiology, molecular biology, genetics, etc
- Time from submission (or acceptance) to publication
- Electronic vs Paper publication
- Journal impact factor
- Copyright
Journal Selection

- Page charges
  - Charge to publish the article
  - Charge for color figures
- Open Access
Manuscript Sections

- Cover letter
- Title page
- Abstract
- Introduction
- Materials/Methods
- Results
- Discussion
- Acknowledgements
- References
- Figure Legends
- Figures
- Tables
- Supplementary Material
Manuscript Sections

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Authors: Exercise

Scenario

- ME is the chief of the functional unit.
- ME was present at group meetings where the project was discussed, but was otherwise uninvolved.
- ME is requested by the junior (first) author to be the senior author.
- Should she accept?
Authorship: Integrity

- Key – public responsibility for content
  - Participate in design / performance
  - Drafting and revision of manuscript
  - Approve final version before publication
- Otherwise – Acknowledgement listing
- “Contributorship” model

ICMJE - 2006
Introduction

- “Triangular” design—from broad discussion to focus of your study
- Include key papers in the field
- No need to include every reference reviewed
- Last paragraph must state hypothesis
Materials and Methods

- Study Design
- Sample: species, eligibility/exclusion criteria
  - Institutional IRB/animal approvals
  - Informed consent
  - Registered Clinical Trial
- Study protocol: epochs, measurements
- Methods of data analysis
  - Prospective power analysis – target numbers
Writing Example

- Bedside nurses administered 0.2 mL of their mother’s colostrum via sterile syringe into the baby’s oral cavity (0.1 mL into each buccal pouch) every 2 hours for 48 hours regardless of whether infant was receiving trophic feeds.
- Whose colostrum?
Results

- **Organization:**
  - Set stage with data demonstrating that study groups met required criteria, etc.
  - Describe results of each test or group of tests performed, emphasize pertinent positives
  - Order of presentation parallels order established in Methods section
Results

- Reporting of systematic reviews and meta-analyses.
  - http://prisma-statement.org/
- Reporting of clinical trials
  - http://www.consort-statement.org/
- Reporting of Quality Improvement Projects
  - http://squire-statement.org/
Statistics

- Google “Statistics BMJ ”
- Variables
  - nominal or continuous
  - normal or non-normal distribution
- Statistical tests are parametric or non-parametric
  - Continuous and normal v frequency
Is a Difference a Difference?

“A small but not significant decline in the prevalence of IDU .... For the first year...IDU was reported in 13% of women, compared to only 12% ...for the second year.”

IDU = intrapartum drug use

JPER 02-128
Tables

- Limit data included—less is more
- Be aware of significant digits
- Make sure group labels are consistent with body of manuscript
- Use standard symbols to indicate significance
Figures: Technical aspects

- Graphics programs
  - Demonstration of variance (SD v SEM)
  - Regression, confidence intervals etc
  - Just say NO to Microsoft graphs (Excel, Word, PowerPoint)
  - Line widths and letter size
- Colors, 3-D and other effects
- Titles, labels, background
- Legends
- Differences – posters, slides, journal
Figures
Discussion

- **Purpose:**
  - To discuss the significance of the results

- **Organization:**
  - Conclusions based on the data
  - Discussion of results in the context of previous studies
  - Limitations of methods/experimental design
  - Overall significance/implications
Sections: Discussion

Pitfalls:

- Inconsistency with Introduction
- Repeating results
- Presenting new results
- Conclusions not based on the data in the paper
  - Conclusions that are too broad
- Including unfulfilled promises or spineless conclusions, e.g. “more studies are needed”
Revisions: The next draft(s)

- Purpose: To exponentially improve the quality of the paper – clarity, concise
- Proof reading
  - Put it down for a week, then reread.
  - Delete passive tense (“There is…”, “It has been reported that…”)
- Spell/grammar programs
- Enlist experienced writer
Manuscript Review

**Purpose:**
- To determine if the paper is suitable for publication in the selected journal

**Organization:**
- Editor selects reviewers (suggested by author or from editor’s list)
- Reviewers comment and recommend
- Editors read comments and the paper, then decide
Responding to Reviews

- Read the reviews carefully
- Determine reason for comments
  - Revisions: lack of clarity, incomplete methods, over interpretation, etc.
  - Rejection: low priority vs substantive issues
- Actions
  - Revise as requested and expeditiously resubmit
  - Rejection
    - Appeal to editor (include response to reviewers)
    - Revise and submit to another journal
    - Move on to the next project
Plagiarism

- Intentional or unintentional copying of other’s words without attribution (or even your work)
- Considered a sign of intellectual dishonesty - interpreted as scientific dishonesty
- Computer programs assess writing similarities
- Avoid copying (or paraphrasing) the words of others, even in early drafts
Conclusion: Top ten problems

10. English issues - idiom, misspelling
9. Incorrect scientific notation – paO2
8. Excessive or duplicated data in tables
7. Results repeated in Discussion
6. Figure formatting
Conclusion: Top ten problems

5. Reference format – too few authors before et al., “Official journal of ....”
4. Supplying sections not requested: “What this study adds”
3. Failure to use electronic supplements
2. Reporting average APGAR score
1. “Data is ....”