# How To Write a Scientific Paper? General Practical Considerations

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# General aspects: some rules

- In the scientific world: you are what you write
- Good writing cannot overcome bad science
  - But a badly written paper will not get as much attention
- Use definite, concrete, and specific language
- Think how a scientist (ie, you) would read a paper
- Write for the specific readership of the journal you are targeting (ie, general audience, specialty audience)
- Find a style that works for you and improve it by implementing comments from peers
- Work with native speakers

# General aspects: some rules, cont.

- Never cite a paper that you have not read (at least the main parts)
- Cite papers in a context that makes clear what that paper did, otherwise the reference is useless
- Cite yourself only if meaningful for the paper you are writing
- Don’t cite textbooks as these are hardly accessible for most readers
- If your paper has more than 3000 words in the main text, cut it down

# General aspects: some rules, cont.

- Use short and clear sentences
- Avoid using abbreviations as many readers will not be experts in your field
  - Exceptions maybe be commonly accepted terms: CVD, DNA, genetic terms …
- Never use contractions (haven't, didn't …)
- Data: the word data is plural
- Make a distinction between statistical and biological significance

# General aspects: tenses

- Past tense
  - Method and Result sections
- Present tense
  - For facts (Background, Discussion, Conclusions)
- Active tense is more attractive for readers
  - We used a logistic regression model to…
  - A logistic regression model was used to …

# General aspects: Title

- The title of a paper should describe in a few words the content of the paper
- Do not use the conclusion of the paper as the title
- State the main design
  - Migraine and stroke: a case-control study

# General aspects: Abstract

- The abstract of the paper is the most important part as many readers will only read this section
- Abstract should allow readers to quickly and accurately crap the main aspects of the paper
- Clear sentences, clear structure
- Provide main objectives, uses methods, results of the study and end with your overall conclusion(s)
- Make the abstract interesting enough that readers continue to read the entire paper

# General aspects: Introduction

- The introduction should make clear why you are doing the work and what your specific hypotheses are
- Describe:
  - The problem you are addressing
  - Briefly summarize the published evidence
  - State remaining uncertainties
  - Provide clear hypotheses of your work
- The introduction should not be longer than 300 words

# General aspects: Methods section

- The Method section should give all aspects of what you did and how you did it
- Use section headers: study population, headache ascertainment, statistical analysis, etc.
- Start writing the Methods section as soon as it is mature
- Do not refer to other papers; the paper must stand by itself so readers (and reviewers) do not need to get other papers to understand the methods
- If you use equations, double check, and check again
- After reading the Method section, readers should be able to do the study if they have the data

# General aspects: Results section

- Start with a brief description of your study population
  - Overview of baseline characteristics
  - Prevalence of main conditions
- Summarize your main findings
  - Report the finding of you main hypothesis first
  - Summarize main results from Tables
  - Report results of meaningful subgroup analyses
  - Avoid stating “data not shown”

# General aspects: Results section, cont.

- Numbers to show…
  - Report appropriate effect measures and their 95% confidence intervals (not just P values)
  - No study is big enough to show more than 2 decimals for effect measures (ie, OR = 3.12 not OR = 3.124)
  - Only show P values for your main hypothesis tests
  - Never show n.s. (ie, not significant)!
  - Consider showing attributable risk (caution: they assume causality)

# General aspects: Tables

- Summarize the data in a logical and intuitive way
- Show absolute numbers as well as percentages or effect estimates
- Avoid Tables that are too large
- Make sure all abbreviations are listed in the footnote
- Explain where the you got the numbers from (ie, logistic regression model controlled for x, y, z)
- A Table should stand by itself as it is often shown alone

# General aspects: Figures

- Figures can highlight specific aspects of your data
  - Can be misleading if only some aspects are shown
- Create a simple figure that works in black and white
- If you have more than 4 lines in a graph, usually readers will not be able to distinguish them in the final publication
- Show error bars, if possible
- Do not show a figure of results already presented in a table
- Make sure that the footnote includes all aspect to show the figure by itself
- Make sure the text correctly refers to the figure

# General aspects: Discussion

- Summarize your main findings
- Put your findings in the context of the published evidence
  - Report why or why not your findings agree with the work of others
- Very briefly discuss potential biological reasons for your findings
  - Only focus on direct implications from your study
  - Usually overstated
- Discuss strengths and limitations
- Discuss potential implications for the clinical setting

# General aspects: Discussion, cont.

- Point out targeted future research as next steps
  - Do not simply state “more research is needed”
- Do not overstate your findings!
  - Do not focus on findings in subgroups if the overall result in null
  - Do not preach (consequence of your work is better judged by others in editorial, reviews, and consensus papers)

# General aspects: Additional information

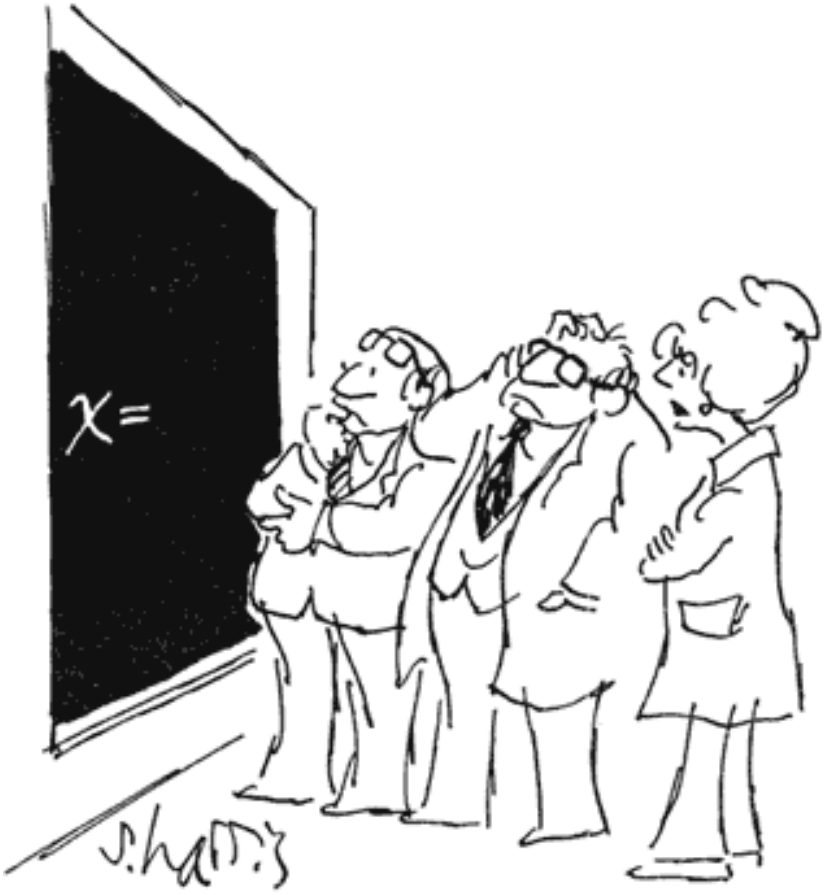
- If trial, give the registration number
- Acknowledgement, list persons that contributed to the work but did not qualify to be an author
- Clearly state all funding sources
- Ethic committee or Institutional review board approval?
- Conflict of interest:
  - List all potentially relevant conflicts
  - Consider reporting a full disclosure
- Contributions of authors
- Correspondence: provide an e-mail that works

# General aspects: lastly….

- Proofread your paper and omit any comments not intended for readers before submission to a journal
- Are names of your colleagues and affiliations correct?
- Show figures and tables to colleagues to see whether they understand them without much explanation
- Check whether the format of the paper complies with the journal and check reference style
- When you receive the proofs of your paper from a journal
  - Carefully read through the entire paper again
  - Double check all main numbers (consistent numbers in abstract and results section?)

# General aspects: after publication

- Enjoy your work
- Communicate with peers
- If you find errors, report immediately to the journal
- Write new papers…




# Thank you!

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