

# Introduction to *Scientific Writing* in Medical Sciences

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# Why “Scientific Writing”?

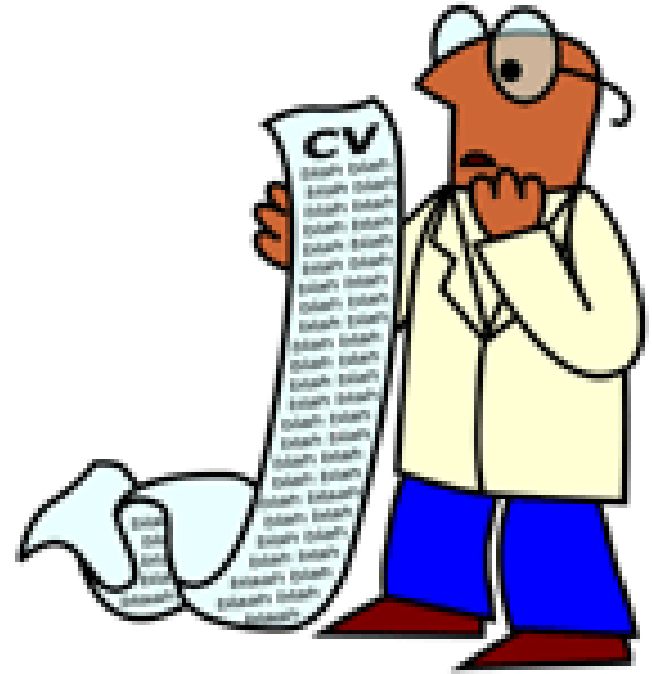
- ◆ The purpose of **scientific writing** is to convey ideas and facts about scientific work.
- ◆ Scientists understand and criticize each other's work through their articles.
- ◆ Thus, **scientific writing** should be intelligible to readers at the first reading.

# Why Publish?

- ◆ Knowledge contributions
- ◆ Ensures scientific rigor
- ◆ Allows feedback (improves work)
- ◆ Promotes career
  - Document productivity
  - Document impact on field/reputation
  - Advertises your lab for future trainees
- ◆ Improves chances of funding
- ◆ Fulfills an obligation (public monies)

# Evaluating an Academic Person through his/her CV Papers

- ◆ Number of papers
- ◆ Rate of publication
- ◆ Quality of journals
- ◆ Length of papers
- ◆ Position in list of authors
- ◆ Focus



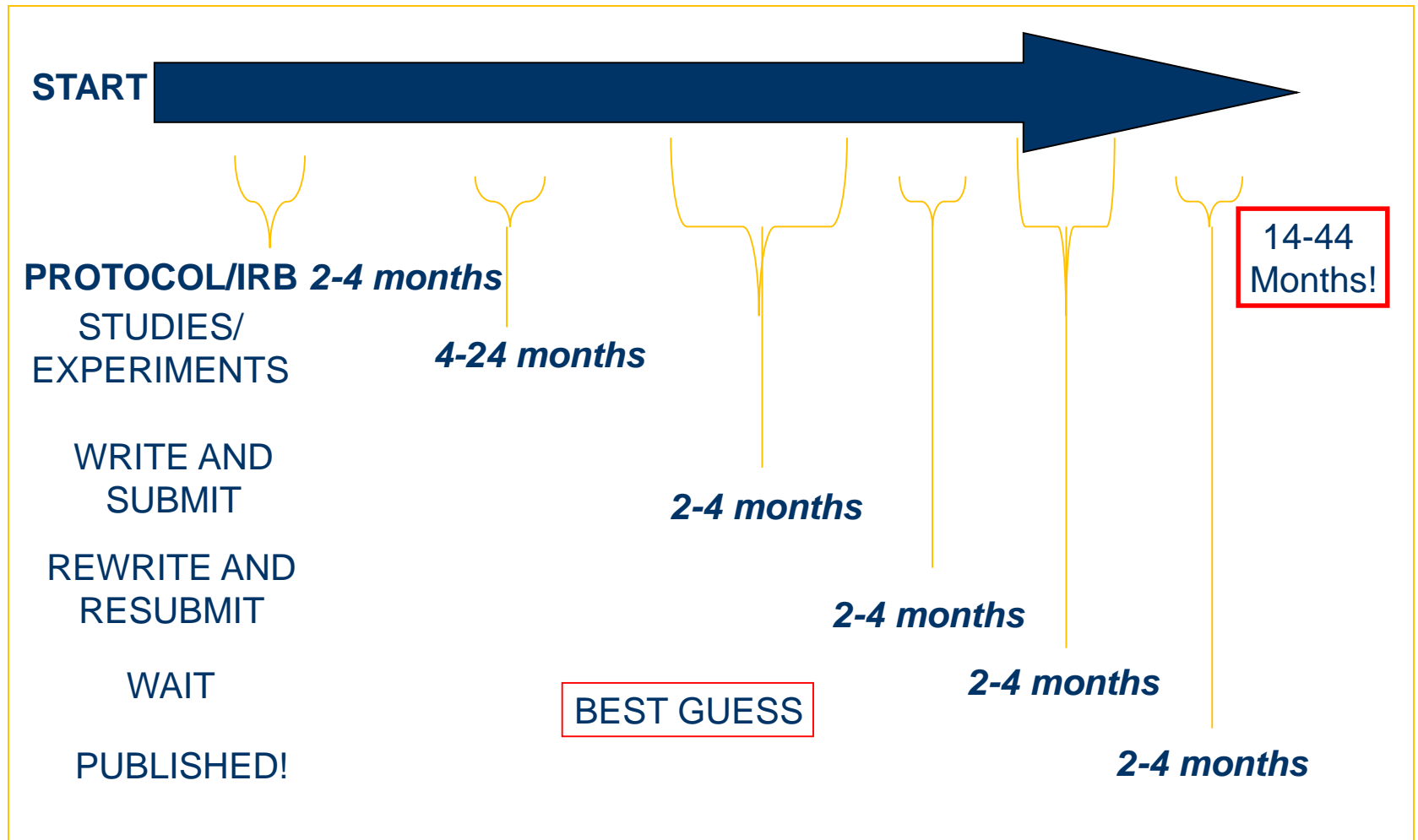


# ◆ Publish or Perish!

# Steps in Scientific Writing

- ◆ Design well
- ◆ Decide politics
- ◆ Choose journal
- ◆ Read instructions to authors/papers
- ◆ Set framework
- ◆ Prepare drafts
- ◆ Distribute
- ◆ Polish
- ◆ Submit

# What is the gestational period for a clinical science publication?



## Article

هر مقاله‌ای از جمله مقالات چاپ شده در مجلات غیر علمی.

## Paper

یک مقاله علمی پذیرفته شده در ژورنال‌های علمی.

## Manuscript

متن مقاله پیش از پذیرفته شدن. در واقع manuscript پیش نویسی نهایی یک paper می‌باشد.

## Proceeding

مقالات پذیرفته / ارائه شده در یک کنفرانس در مجموعه مقالات کنفرانس.



برخی از کلمات تخصصی مرتبط با مقاله نویسی



# Types of Medical articles

- ◆ Original Article
- ◆ Review Article
- ◆ Short Communication (Brief Article)
- ◆ Study Protocol
- ◆ Case Reports
- ◆ Letter to Editor
- ◆ Editorial
- ◆ Commentary
- ◆ Debate



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# Primary studies

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- ◆ Experiments
- ◆ Clinical trials
- ◆ Surveys

# Secondary studies

- Overviews:
  - Reviews (Non-systematic)
  - Systematic reviews, Meta-analyses
- Guidelines
- Decision analyses
- Economic analyses

# Original article

- This is the most important type of paper.
- It provides new information based on original research.
- This category of paper is usually supported by in-depth statistical analysis.
- The conclusions should be supported by the data provided in the results.

# Original article

- ◆ An original article is a written and published report describing original research results.
- ◆ It must be the first publication of original research results,
- ◆ Peers of the author can repeat the experiments and test the conclusions, and
- ◆ In a journal or other source document readily available within the scientific community

# Letter

- ◆ Stick to the point
- ◆ State the problem, issue or hypothesis
- ◆ Give the context
- ◆ Outline your comment, solution, viewpoint
- ◆ Give a strong conclusion
- ◆ Note limitations

# Editorial

- ◆ Write for your readership (broad?)
- ◆ Be controversial and thought provoking
- ◆ Being subtle is often more powerful

# Short communication

- ◆ Increasingly common
- ◆ Concise introduction
- ◆ Present data and discuss it shortly
- ◆ Only a few tables or figures
- ◆ Number of words limitations



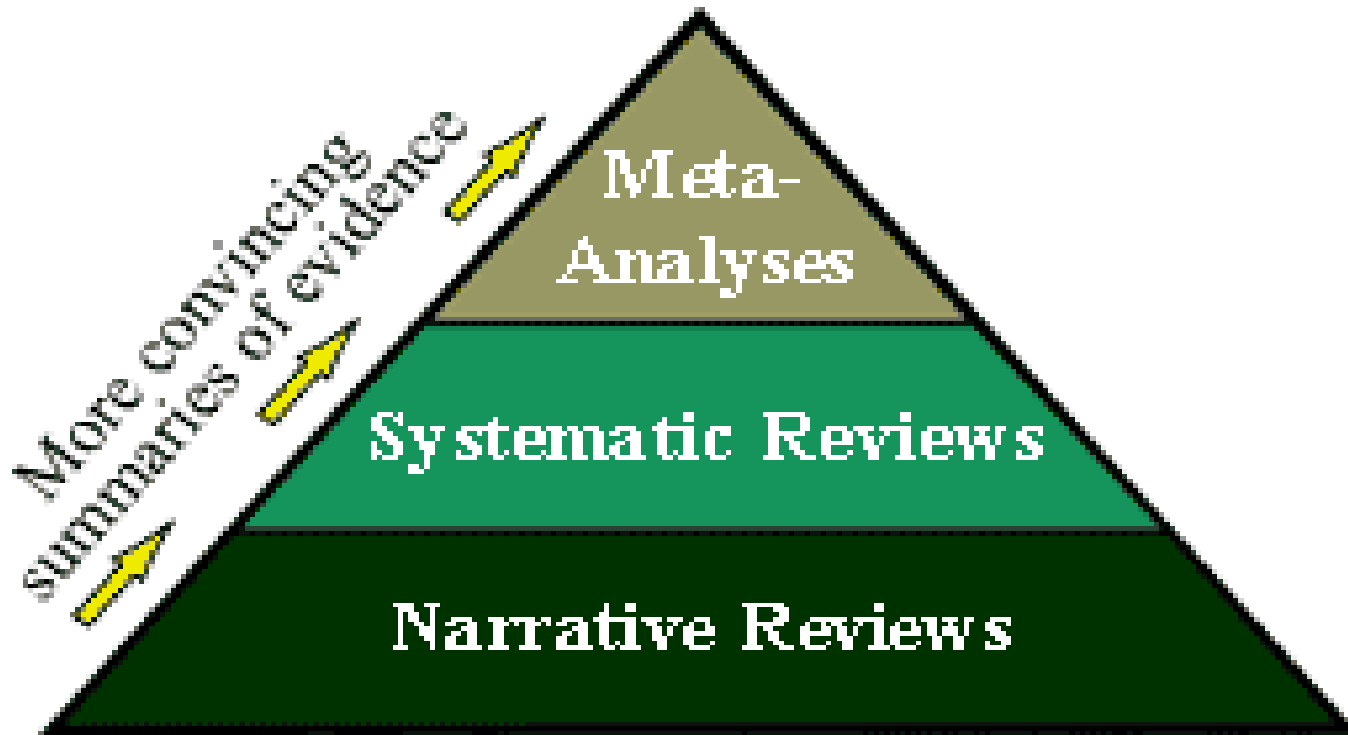
# Is your paper a paper, a brief or a research letter?

- ◆ Easier to get letters & briefs accepted .
- ◆ They make you indexed easier !
- ◆ Decide whether you should submit it as a brief or letter firstly.

# Case Reports

- ◆ Medical history of a single patient in a story form.
- ◆ Lots of information given which may not be seen in a trial or a survey.
- ◆ Often written and published fast compared to studies
- ◆ e.g. Thalidomide

# Review Articles & Secondary Studies



# Review articles

*Review articles are an attempt by one or more authors to sum up the current state of the research on a particular topic:*

- ◆ the main researchers working in a field
- ◆ recent major advances and discoveries
- ◆ significant gaps in the research
- ◆ current debates
- ◆ future directions

Only review articles from experts in the field will be considered for publication.

# Review articles

- ◆ This is a detailed analysis of recent developments on a specific topic. It serves to highlight important points that have been previously reported in the literature. This type of paper does not introduce new information and does not include the author's opinion or personal experience. A large number of relevant references are expected.

# The Hierarchy of Evidence

1. Systematic reviews & meta-analyses
2. Randomised controlled trials
3. Cohort studies
4. Case-control studies
5. Cross sectional surveys
6. Case reports
7. Expert opinion
8. Anecdotal



# Hierarchy of studies



# The traditional IMRaD

- **I**ntroduction
- **M**ethods
- **R**esults
- **D**iscussion



# The Basic Structure of an Article

## TITLE

- (S)Summary (Structured Abstract)
- (I) Introduction (What Question was asked?)
- (M)Methods (How was it Studied?)
- (R)Results (What was Found?)
- (A)Analysis (How data was analysed?)
- (D)Discussion (What Do the Findings Mean?)

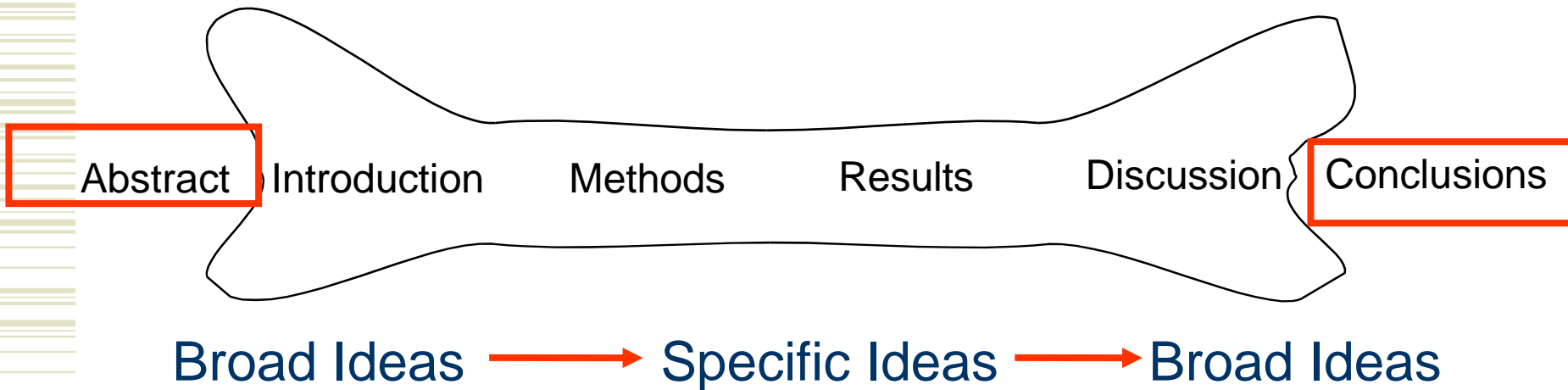
Acknowledgements

References

# Main Components of an Article

- ◆ Introduction: Why did you start?
- ◆ Methods: What did you do?
- ◆ Results: What did you find?
- ◆ Discussion: What does it all mean?

# “Bowtie” Model For a Scientific Paper



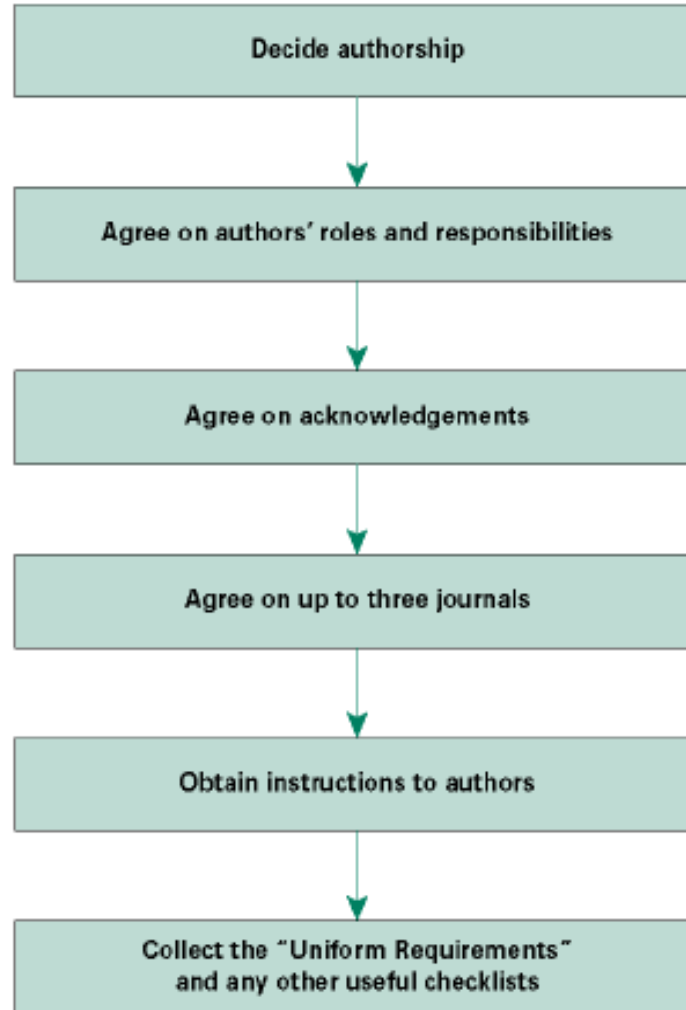
# A full paper may contain:

- ◆ Title
- ◆ Authors and Affiliation
- ◆ Abstract
- ◆ Introduction
- ◆ Methods
- ◆ Results
- ◆ Discussion
- ◆ Acknowledgments (optional)
- ◆ References

# Initial steps

- 1-Understand the type of manuscript you are writing.
- 2-Re-evaluate your project.
- 3-Plan the sections and subsections you need.
- 4-Match your content to your readers' knowledge.
- 5-Keep information specific rather than general.
- 6-Write in plain language. Keep your sentences short.
- 7-Use tables, diagrams, flowcharts and graphs.

# Politics first!



# Order of writing?

1. Results
2. Methods
3. Introduction
4. Discussion & Conclusion
5. Abstract
6. References

# Order of writing?

1. Methods
2. Results
3. Introduction
4. Discussion & Conclusion
5. Abstract
6. References



# More reading

- ◆ Hall GM, ed. **How to write a paper.** London: BMJ Publishing Group.
- ◆ Peat J. **Scientific Writing Easy when you know how.** BMJ Publishing Group. 2002.
- ◆ The Vancouver Group. **Uniform requirements for manuscripts submitted to biomedical journals.**

**[www.icmje.org](http://www.icmje.org)**

# Further Readings

## **Scientific Writing**

Jennifer Peat

BMJ

## **Advanced Writing**

Floresita V. Bustamante

SAMT

## **Essentials of Writing Biomedical Research Papers**

Zeiger

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