Writing an Abstract for a Scientific Meeting

Rachel R Kelz MD, MSCE, FACS

I would like to acknowledge
Samir Shah, MD MSCE who began this session

Objectives

- Understand key steps in writing a good abstract
- Identify specific strengths & common problems in abstract preparation for presentation at scientific meetings

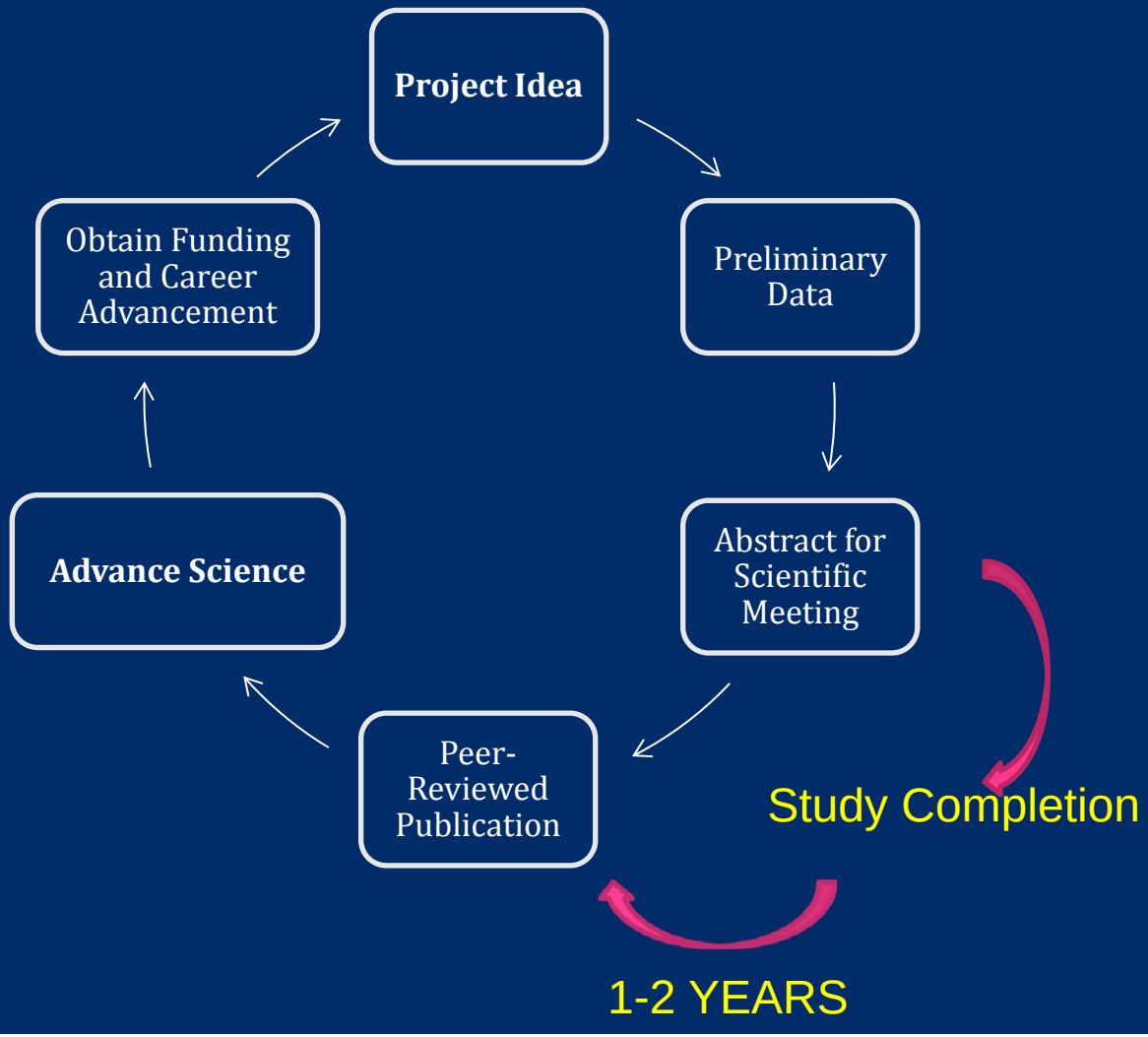
Proposed Agenda

- Why write a great abstract?
- Review the anatomy of an abstract
- Review common errors in abstract writing
- Review sample abstracts

Why Write "Abstracts for Scientific Meetings"

- To impose discipline and direction on/to the chaotic process of scientific investigation
- "First Step" in reporting scientific observations
- To convince the reviewers that your work is relevant and important

The Project Life Cycle



Purpose of an Abstract for a Scientific Meeting

- Sets goals for project completion
- Allows audience to consider the findings at an earlier stage than would be permitted if results were not available until the manuscript was produced

Anatomy of the Abstract

Scientific Abstract

- Introduction
- (Hypothesis)
- Methods
- Results
- Conclusions

Structured Abstract

- Objective(s)
- Design
- Setting
- Subjects
- Interventions
- Main outcome measures
- Measurements and main results
- Conclusions

Title

- Concise
- Direct
- No abbreviations

Introduction

- Why this study?
- Concisely state the goals and rationale (i.e., describe why the work was done in 1 or 2 sentences)
- 10% to 15% of total length

Methods

- What was done?
  - Describe the population studied, techniques used, and how the data were analyzed
  - Definitions
  - Do not use proprietary or trade names in the title or abstract
- 30% to 35% of total length

Results

- What was found?
  - Summarize **only** the important findings
- Tables & graphs can be used in abstracts written for meetings as a means to emphasize the results - A picture is worth a thousand words
  - A table or graph is not a substitute for results but rather a means by which to efficiently display the results (do not be redundant)
- 35% to 40% of total length

Conclusion

- The Answer!!
  - Most important things learned
  - OK to state implications of findings but don't extrapolate too much
  - Keep conclusions within scope of data investigated
  - Avoid ending with "…further research is indicated". Instead, state what your study shows and what the next unanswered question is.
- 10% to 20% of total length

The Writing Process: Drafts

- Create an outline or free-writing under headings

- A first draft will likely be disappointing
  - You can't revise until you've written

The Writing Process: Drafts

- Obtain feedback from peers
  - Encourage them to provide an honest and constructive critique
  - "I want this to be a good abstract so please don't worry about me being offended"
- More is better
  - Solicit feedback from multiple people from diverse disciplines
  - Different reviewers focus on different areas & content (e.g., research design, statistical analysis, or writing style)

The Writing Process: Drafts

- Provide feedback to peers when asked
- Participate in group feedback sessions- you get to hear a variety of viewpoints
- The more abstracts you review, the easier it is to write your own

Writing Styles & Hints

- No jargon
- Only use standard, well-accepted abbreviations and symbols
- Shorter is better, always
  - *I have made this letter longer than usual because I lack the time to make it shorter* (Blaise Pascal, Provincial Letters, XVI. 1657)

Common Problems

- Lack of sentence clarity (i.e., the message is not clear)
  - Question omitted
  - Question vaguely stated
  - Answer is not stated (only implications stated)

Common Problems

- Poor organization
  - No clear ordering of sections
  - Mixing content (e.g., **giving results in the methods section**)

Common Problems

- Lack of coherence
  - Too many abbreviations
  - Use of “respectively”
    - Cure was achieved in patients with aa, bb, cc, dd, and ee in 0.5%, 0.5%, 0.6%, 0.7%, and 0.8%, respectively
    - Better to use a table

Common Problems

- Excessive detail
  - Reporting data for minor results
  - Providing details for well-known techniques
  - Providing exact data rather than odds ratio or percent change
  - Duplicating data
  - Including references

Common Problems

- Failure to consider non-specialist readers
  - Underdeveloped rationale
  - Overly technical language

Common Problems

- Make sure the entire abstract develops and concludes the main point YOU want to express
  - Abstracts evolve as you write them
    - Critically review the introduction statements after finishing conclusions

It Takes Time, Be persistent

TABLE 2. Months to Publication and Impact Factor of Journal in Which Publication Appeared by Format of Presentation

Type	*N* Published	Mean Months to Publication (SD)	*P* Value	Mean Impact Factor (SD)	*P* Value
Published only	35	23.1 (12.1)	—	3.1 (5.1)	—
Poster	64	26.5 (12.3)	0.22	2.5 (1.5)	0.57
Poster symposium	60	20.3 (11.9)	0.27	3.6 (4.2)	0.62
Platform presentation	84	21.4 (11.8)	0.47	3.3 (3.2)	0.80

SD indicates standard deviation.
* Means and SDs are presented. Comparisons with the "published only" category were carried out by linear regression, and *P* values are presented.

Carroll AE, et al. Pediatrics 2003;112:1238-1241

Discussion

AB OBJECTIVE: To measure the effect of the peer review and editorial processes on the readability of original articles. DESIGN: Comparison of manuscripts before and after the peer review and editorial processes. SETTING: Annals of Internal Medicine between March 1 and November 30, 1992. MANUSCRIPTS: One hundred one consecutive manuscripts reporting original research. MEASUREMENTS: Assessment of readability by means of two previously validated indexes: the Gunning fog index (units of readability in the fog index roughly correlate to years of education) and the Flesch reading ease score. Each manuscript was analyzed for readability and length on receipt and after it had passed through the peer review and editorial processes. Text and abstracts were analyzed similarly but separately. Mean readability scores were compared by two-tailed t tests for paired observations. RESULTS: Mean (+/- SD) initial readability scores of manuscripts and abstracts by the Gunning fog index were 17.16 +/- 1.55 and 16.65 +/- 2.80, respectively. At publication, scores were 16.85 +/- 1.42 and 15.64 +/- 2.42 ($P = .0005$ and $P < .0001$ for before-after differences, respectively). By comparison, studies of other print media showed scores of about 11 for the New York Times editorial page and about 18 for a typical legal contract. Similar changes were found for the Flesch scores. The median length of the manuscripts increased by 2.6% and that of the abstracts by 4.2% during the processes. CONCLUSIONS: The peer review and editorial processes slightly improved the readability of original articles and their abstracts, but both remained difficult to read at publication. Better readability scores may improve readership.

Publication Rate

TABLE 1. Publication Rates for Each Type of Presentation*

Type	*N*	% Published	OR	95% CI
Published only	158	22.2	1.0	—
Poster	160	40.0	2.3	1.4–3.8
Poster symposium	136	44.1	2.8	1.7–4.6
Platform presentation	160	53.8	4.1	2.5–6.7

OR indicates odds ratio; CI, confidence interval.
* ORs and 95% CI are presented for each type in relation to the "published only" category and were calculated by logistic regression.

Carroll AE, et al. Pediatrics 2003;112:1238-1241