

Pearls for developing structured abstracts

How to get your abstracts accepted and published

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The speaker has no conflicts of interest to disclose.

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WHY ARE WE HERE?



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Acceptance rates & errors

- ASHP Midyear Clinical Meeting
 - 16% rejected in 2015
- 33% of abstracts in major pharmacy journals contained inaccuracies or omissions
- Major international meetings
 - <30% chance of acceptance

Alexandrov AV et al. Cerebrovasc Dis. 2007;23:256-259
Blair DA et al. J Med Lib Assoc. 2014;102(2):110-114.

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How does this happen?

- Writing a good abstract takes TIME, attention to detail, big-picture understanding, and multiple edits

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Objectives

- Describe the process of developing abstracts for professional meetings and manuscript submissions.
- List the components of a structured abstract.
- Provide a list of Do's and Don'ts when writing abstracts.
- Compose feedback for a submitted abstract.

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TERMINOLOGY

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What is an abstract?

- Summarizes the main points of an article
- Condensed version of a full scientific paper
- Directs readers to articles that will be of clinical or research interest
- Intermediate reporting of unfinished project or manuscript

AMA Manual of Style: A Guide for Authors and Editors. 10th ed
Pierson DJ. *Respir Care*. 2004;49(10):1206-1212.

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Purpose of an abstract

- Address, in an abbreviated format:
 - What was done and why
 - What was found
 - What the implications are

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What is a *structured* abstract?

- An abstract that uses predefined headings
- Many journals have 250 to 300 word limit

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Example – structured abstract

Treatment of acute myocardial infarction at United States academic hospitals. Bradley G. Phillips, Pharm.D., Josephine M. Yin, Pharm.D., Edward J. Brown, Jr., M.D., Neville Bittar, M.D., Timothy J. Hoon, Pharm.D., Catherine Celestin, Pharm.D., Peter H. Vlases, Pharm.D., FCCP, Jerry L. Bauman, Pharm.D., FCCP; University of Illinois at Chicago; University Hospital Consortium, Oak Brook, IL; Bronx-Lebanon Medical Center, Bronx, NY; University of Wisconsin; Bristol-Myers Squibb Company, Princeton, NJ.

Purpose: This study documented drug therapy received by patients surviving acute myocardial infarction (AMI) at U.S. academic hospitals in order to 1) compare prescribed drug therapy to established guidelines defined in the medical literature, and 2) evaluate evolving prescribing trends in pharmacologic management.

Methods: Medical records of 500 survivors of AMI admitted between April 1 and October 31, 1993 to 12 academic centers in the United States were reviewed. Patients' medical history, in-hospital course, and specific drug management prior to admission, during the first 72 hours post AMI, and at hospital discharge, were documented.

Results: Thrombolytic therapy was prescribed in 29% of 500 patients studied and included: intravenous streptokinase (49%), tissue-type plasminogen activator (43%), acylated plasminogen-streptokinase activator complex (5%), and intracoronary urokinase (3%). A greater proportion of eligible patients received β -blocker therapy than calcium channel antagonist therapy within the initial 72 hours (61% vs 40%, $p < 0.005$) and at discharge (51% vs 35%, $p < 0.005$). Women were less likely to receive thrombolytic therapy (OR=0.61; CI 0.54, 0.69) or β -blocker therapy within the first 72 hours (OR=0.61; CI 0.55, 0.67) and at hospital discharge (OR=0.53; CI 0.48, 0.58).

Conclusions: Streptokinase was the predominant thrombolytic agent used at academic hospitals studied during the period of data collection. Use of acute and chronic β -blocker therapy has now surpassed that of calcium channel antagonist therapy in this setting. These changes may be due to the impact of large clinical trials. With few exceptions, the majority of surviving patients received appropriate pharmacologic therapies during the initial 72 hours and at hospital discharge.

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Meeting vs Manuscript

- Format may differ
- Meeting abstracts:
 - are NOT peer-reviewed at same caliber as scientific paper
 - are NOT publications
 - usually have more liberal requirements

Pierson DJ. *Respir Care*. 2004;49(10):1206-1212.

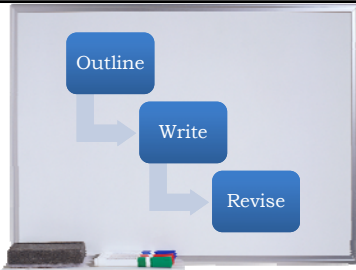
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Advantages of writing a meeting abstract

- For the author or investigator, it can help clarify the project
- Subjects the work to peer review
- Speeds up the spread of knowledge and practice

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Objective 1

DESCRIBE THE PROCESS OF DEVELOPING ABSTRACTS FOR PROFESSIONAL MEETINGS AND MANUSCRIPT SUBMISSIONS.

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Step 1. Outline the project

- Why did you decide to do this project? What prompted this question?
- What did you do?
- What did you find/hope to find?
- What do you think about that/what does it mean?

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Step 2. Pick a venue

- What society would be most interested in what I did and why?
- Does not have to be a pharmacy organization
 - Medical
 - Nursing
 - Dentistry
 - Informatics

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Step 3. Read the requirements

- Automatic elimination from consideration if you do not follow the requirements!
- Must choose the correct category



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Examples

- <https://accp.confex.com/accp/2015a/m/cfp.cgi>
- <http://www.accp.com/meetings/abstractguide.aspx>
- <https://us.sagepub.com/en-us/nam/annals-of-pharmacotherapy/journal202238#submission-guidelines>

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Step 4. Read examples from that journal/society

- Further confirm that your project would fit in with this society's mission
- Look for trends to help you write your own abstract
- CAUTION: Do not plagiarize!

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Step 5. Write the draft

- Use your outline!
- Follow a structured abstract format

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Objective 2

LIST THE COMPONENTS OF A STRUCTURED ABSTRACT.

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Don't underestimate the TITLE

- Convey as much as possible about the study
 - Scope
 - Design
 - Goal
- No jargon or acronyms
- 10 to 12 words
- No results, biased language

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Set the stage with the INTRODUCTION/BACKGROUND

- 1 or 2 sentences
 - What is known
 - What is unknown
 - Why did you do this study?
- End with the hypothesis or objective
 - Helps to focus you and your audience as to what the essence of the abstract is

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Introduction/Background

- Common mistakes
 - Absence of a question to be answered
 - Multiple questions to be answered
 - Pseudo-questions
 - “We evaluated the effect of IV acetaminophen in orthopedic surgery.”
 - Effect on post-operative opioid use?
 - Effect on patient satisfaction?
 - Effect on ability to rehabilitate?

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Tell the METHODS to your mother

- Answer this: “What did you do?”
 - Who, What, When, Where, How?
- Most common reason for rejection of submitted manuscripts
- Must be concise

Byrne DW. Publishing your medical research paper. What they don't teach in medical school. Baltimore: Lippincott Williams & Wilkins; 1998.

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Make your RESULTS pop

- Results start with the baseline characteristics
- Data only; no commentary or discussion
- Avoid trying to make a nonsignificant difference that is “approaching significance” more important than it really is

Pierson DJ. Respir Care. 2004;49(10):1206-1212.
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Wrap it up with a thoughtful CONCLUSION

- State why the results are important
- Give your interpretation of the results
- Address applicability to other settings
- Do not overstate the conclusion

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Taboulet P. Eur J Emerg Med. 2000;7(1):67-72.

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Step 1. Outline the project

- Why did you decide to do this project? What prompted this question?
- What did you do?
- What did you find/hope to find?
- What do you think about that/what does it mean?

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Step 6. Revise the draft

- After a short break from looking at or thinking about the project, start the first revisions

Rereading reveals
rubbish and redundancy.
~ Duane Alan Hahn

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Step 6. Revise the draft

Copy-editing

- Focus on grammar, spelling, punctuation
- Line-by-line

Substantive editing

- Focus on content and organization
- Overall concept and intended use

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Step 7. Ask a colleague to look

- Outside perspective can help catch inconsistencies, questionable methodology, additional questions to consider
- Someone familiar with subject matter
- Keep it professional

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Step 8. Revise and edit

The time to begin an article is when you have finished it to your satisfaction. By that time you begin to clearly and logically perceive what it is you really want to say.

~ Mark Twain

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Step 9. Read the requirements

REMINDER:

Automatic elimination from consideration if you do not follow the requirements!



Make sure your abstract follows the requirements; make changes if needed

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Step 10. Revise and edit

“So the writer who breeds **more words than he needs**, is making a **chore** for the reader who reads.”

— Dr. Seuss



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Step 10. Revise and edit

Copy-editing

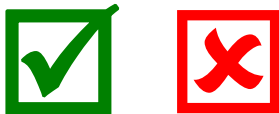
- Focus on grammar, spelling, punctuation
- Line-by-line

Substantive editing

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- Overall concept and intended use

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Objective 3

PROVIDE A LIST OF DO'S AND DON'TS WHEN WRITING ABSTRACTS.

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Yes, do that!

- Seek a mentor if you have limited or no experience writing abstracts
- Edit and revise frequently
- Use simple language and concise sentence structure
- Give yourself ample time to complete several rounds of revisions
- Look at examples from the specific society or journal you are submitting to
- Ask someone to proofread (copy-edit)
- Respect the formatting requirements

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No, don't do that!

- Try to answer multiple research questions
- Use biased language
- Use brand names, manufacturer names, healthcare system names, etc
- State that a result “approached significance”
- Make conclusions with results that were not presented
- Use too much passive voice
- Plagiarize

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Objective 4

COMPOSE FEEDBACK FOR A SUBMITTED ABSTRACT.

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Docendo discimus

The best way to learn is to teach

The best way to learn how to write/edit an abstract is to review one!

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ASHP Midyear Clinical Meeting 2015

POSTER REVIEWER COMMENTS

<http://www.ashp.org/menu/events/getinvolved>

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Title

- “Title leads one to think that the abstract will show improved patient encounters and data to support the model, but only data presented shows that pharmacists don't have prior empathy training.”

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Introduction

- “Not enough information was provided concerning the project. How is this project important? Why do other hospital administrators need to know this information?”

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Methods

- “Methods did not mention that root cause analysis would be conducted. The statement “Root causes analysis identified causative factors which include the ward surface area, an increase in drug storage locations, patient turnover and amendments to outpatient clinic locations” is a result, not a conclusion. Also, the apparent design and analysis did not address a clear, discernible research question. Many details of the number of observations and statistical approach were absent.”
- “Other interesting things to possibly include: Was the dose of either class related to fall risk? Were the disease states being managed related to the fall risk?”

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Results

- “To strengthen the results section, consider using number and percent for all of the results.”
- “The results do not reflect all of the ‘tasks’ to be implemented outlined in the methods section”
- “Results were presented in the conclusion section”

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Conclusion

- “The conclusion does not reflect or support the information provided in this description report. Rather, it is citing other research and studies.”
- “I don't think existing literature should be summarized in the conclusion or that this describes an innovative role or service in pharmacy practice.”

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Overall

- “This topic is relevant and timely; however, there isn't enough info in the abstract to evaluate. Has the study been completed? There is no data.”
- The results and conclusions were not specific. The primary objective was to show an increase in patient safety and decrease in 30-day readmissions but the results of this were not discussed. No values were given for pre and post clinic set-up. The conclusion stated that the addition of the clinic has decreased readmissions and has promoted patient outcomes, but I don't know how this is concluded when no data was provided.
- Abstract was very confusing to me. Unsure of what patients they were looking at (specific disease state/age/number of meds). Didn't have a clear number of patients and how many patients benefited.
- Misleading title. Poorly defined objective and results.”

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Grammar

- “The abstract was extremely difficult to understand due to numerous grammar and syntax issues as well as unfamiliar terminology.”
- “The abstract is free of spelling or grammar errors and flowed nicely.”
- “Due to several spelling and grammar mistakes, I would suggest additional editing and review before re-submission.”
- “Lastly, there are minor spelling and grammar errors that should be edited in review.”

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Don't be a meanie.

- “This is old data from 2013 on an old tired subject that has been around for many many years”
- “The beginning of this sentence (“Data are limited...”) is a contradiction to the sentence below “...weight heparin have been studied...”. Which is it? Has it been studied or not?”
- “Abstract was poorly written with significant content missing. There are some rules that the writer needs to follow when writing abstracts for ASHP. Capital letters need to be removed from the title. Abbreviations need to be spelled out then used (C.difficile & FDA).”

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Don't be a meanie.

- “Although mildly interesting, this article does not seem to be referring to anything about pharmacotherapy.”
- “The discussion of the Friedman et al. article as presented in this manuscript is disingenuous. This trial had two arms, but the trial design did not intend for the arms to be compared to each other. The authors need to re-write this paragraph to present this information accurately to the audience”
- “Go back and look at your sentences. Many of them are too long. Break them down.”

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Maintain a professional tone

- Avoid condescending or passive aggressive statements
- Resist the urge to let the author know how you feel about their project
- Resist the urge to make the author feel bad for mistakes or omissions
- Use appropriate grammar
- Remember that everyone is trying, and investigators have voluntarily subjected their work to scrutiny

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Be the reviewer!

- Provide comments for the following abstract
 - ASHP Summer Meeting
 - Informatics/Automation category
 - 500 word count maximum

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Resources

- Alexandrov AV, Hennerici MG. Writing good abstracts. *Cerebrovasc Dis.* 2007;23:256-259
- AMA Manual of Style: A Guide for Authors and Editors. 10th ed.
- Blair DA, Hughes PJ, Woolley TW. Pharmacy journal abstracts published in PubMed that abide by the CONSolidated Standards Of Reporting Trials (CONSORT) guidelines. *J Med Lib Assoc.* 2014;102(2):110-114.
- Guide to writing an abstract. American College of Clinical Pharmacy website. <http://www.accp.com/meetings/abstractguide.aspx>.
- Pierson DJ. How to write an abstract that will be accepted for presentation at a national meeting. *Respir Care.* 2004;49(10):1206-1212.
- Taboulet P. Advice on writing an abstract for a scientific meeting and on the evaluation of abstracts by selection committees. *Eur J Emerg Med.* 2000;7(1):67-72.

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Title: Design and implementation of an algorithm that improves detection of LA/SA medication errors: a pilot study

Purpose: Look-alike/sound-alike (LA/SA) medications are associated with many medication errors and ADRs. The safe use of LA/SA medications is a standard required by the Joint Commission for accreditation. Despite the knowledge that LA/SA medications are problematic, interventions to eradicate these errors have not been identified. The design and implementation of an algorithm to identify likely LA/SA errors in a database of medication orders and billing claims at an academic medical center was conducted as a proof of concept pilot study.

Methods: A database of inpatient and ambulatory medication orders and clinician billing claims at UIHHSS over 1 year (1/1/2011 to 12/31/2011) was produced. This dataset was interrogated for likely LA/SA errors using an algorithm based on drug name similarity, the sequence of ordering and cancellation of medications, patient identifiers, and diagnostic info from clinician billing claims. The results of detection algorithm yielded a set of patient charts in which a LA/SA error was thought to be likely. A convenience sample of charts was reviewed by experienced clinicians (PharmD or attending physician) to determine if the drug identified from the detection algorithm was a true error.

Results: Of the 84 charts reviewed, 5 were true errors, 4 were questionable errors and 75 were not errors. This yielded a Positive Predictive Value (PPV) of 7%. The drug pairs (ordered drug/intended drug) associated with the 5 definite errors were aminophylline/amitriptyline, caffeine/codeine, levocarnitine/levothyroxine, penicillamine/penicillin, and pyridostigmine/pyridoxine. First-year medical residents were the most likely to be involved in the true and questionable errors identified in this study.

Conclusion: This pilot study showed that an algorithm based on drug name similarity, diagnosis, and drug order sequence was able to find LA/SA medication errors. The PPV was low in this initial analysis, but continued work should be able to raise the PPV. Because the purpose of the algorithm is to find errors, the PPV does not need to be very high to still have utility for patient safety. The long-term goal in this work is to develop a learning algorithm which could be used both in real-time with computerized order entry (CPOE) and retrospectively to identify and/or prevent LA/SA medication errors.

(Word count: 366)

Pearls for Developing Structured Abstracts
Michelle Bryson, PharmD

1. What section of an abstract, when written poorly, is the most common reason for rejection?
 - a. Background
 - b. Methods
 - c. Results
 - d. Conclusion

2. What section of an abstract should contain the following sentence?
Over the 20-month study period, 66 patients on extracorporeal membrane oxygenation were initiated on the pharmacy-managed heparin protocol for anticoagulation.
 - a. Background
 - b. Methods
 - c. Results
 - d. Conclusion

3. Which of the following phrases should be avoided in an abstract?
 - a. The difference between intraocular pressure approached significance, with a decrease of 4 in group A vs 2 in group B.
 - b. Palatability of fexofenadine as measured by a visual analog scale was significantly improved with ice cream compared to fexofenadine alone (1.8 vs 2.5; $p < 0.001$)
 - c. Title: Presence of a clinical pharmacist in the rehabilitation unit improves documented clinical activities
 - d. Title: Comparison of length of stay after total knee replacement surgery in patients who received liposomal bupivacaine vs bupivacaine hydrochloride: a retrospective chart review

4. Select the MOST appropriate comment to provide to the author of a submitted abstract.
 - a. This has already been done tens of times and I don't see why you are submitting it for this meeting.
 - b. Is it not true that people who have had recurrent C. difficile often end up needing pulsed vancomycin? Or did I miss something?
 - c. As written, it was unclear how many patients were evaluated for the main endpoint. Consider re-wording the paragraph to have this number as part of the first sentence.
 - d. There were major spelling and grammar issues which definitely needs to be addressed, before this can be presented as poster

5. Which of the following is NOT an advantage of writing an abstract?
 - a. Writing an abstract helps the author or investigator to clarify their project methods
 - b. Submitting an abstract for consideration as a poster subjects the abstract to peer review
 - c. Accepted abstracts for a meeting are considered publications under the authors' names.
 - d. Abstracts can help readers identify if the article is relevant to their clinical interest or need