Guidelines for the Preparation of Abstracts

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Research Workshop III: Objectives

To understand the purpose and process of writing an abstract that will:

a. Grab the attention of the reader
b. Conform to standard abstract writing principles
c. Be succinct and logical in organization
What is an Abstract?

• A very brief written summary of your research or findings

• An independent statement that briefly conveys the most salient and essential information of a manuscript, text, poster or presentation
Purpose of an Abstract

• Enables your work to be evaluated for presentation at scholarly meetings

• Helps readers decide if they should read an entire article, listen to a particular presentation or view a particular poster

• Helps readers remember key findings on a topic

• Helps readers better understand a manuscript, text, presentation or poster
Basic Content of an Abstract

- Introduction  Why?
- Materials and Methods  How?
- Results  What?
- Discussion  So What?
Abstract Styles

• Research

• Clinical Vignette (Case Report)

• Patient Safety/Continuous Quality Improvement (CQI)

Challenge: Condensing months/years of work or a lengthy clinical case into 250 to 300 words
Abstract Styles

- Regardless of abstract type it should be concise, clear and direct.

- Readers do not expect the abstract to have the same sentence structure flow of a complete manuscript.

- ACP website-link to writing a research or clinical vignette abstracts:
  
  https://www.acponline.org/membership/residents/competitionsawards/abstracts/preparing/writing

  https://www.acponline.org/membership/residents/competitionsawards/abstracts/preparing/vignette
Research and CQI Abstract Organization

1. Title
2. Authors, Institution
3. Introduction
4. Methods
5. Results
6. Summary / Conclusions
7. References, Acknowledgements (Optional)
Clinical Vignette Abstract Organization

1. Title
2. Authors, Institution
3. Introduction
4. Case Description
5. Discussion
6. Summary / Conclusions
7. References, Acknowledgements (Optional)
Clinical Vignette: A Case Worth Reporting

1. Classic example of an unusual/rare disease

2. Unusual presentation of a common condition

3. New diagnostic strategy

4. New cost effective approach

5. Unusual pathobiology underlying a common or rare clinical finding
The Body of the Abstract

Title

A. Capitalized, bold face font
B. Indicate your findings in a clear concise way
C. Avoid use of abbreviations, acronyms or medical jargon
D. Grab the attention of the reader without being too cute or gimmicky
<table>
<thead>
<tr>
<th>Title</th>
<th>Characteristics</th>
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<tbody>
<tr>
<td></td>
<td>1. Clear</td>
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<tr>
<td></td>
<td>2. Indicates your findings</td>
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<tr>
<td></td>
<td>3. Written in active voice</td>
</tr>
<tr>
<td></td>
<td>4. Includes direction of changes</td>
</tr>
<tr>
<td></td>
<td>5. Grabs the reader</td>
</tr>
</tbody>
</table>
Examples of Clear Titles

- **Primary Aldosteronism Incidence in Diabetics**

- **BNP and NT-proBNP correlate with myocardial dysfunction in critically ill patients**
Active Verbs in Titles

- Fireworks **Stress** Pregnant Mares

- **Building** Bridges: **Connecting** at Risk Women to Mammography via Emergency Department Visits
Boring:
• A Case of Addison’s Disease

Better:
Cardiac tamponade preceding adrenal insufficiency — an unusual presentation of Addison’s Disease
Titles That Ask Questions Grab the Reader

• Does Giving Premature Infants Vitamin D Drops Shorten Their NICU Time?

• Elevated Troponin-I — “Nonspecific” Marker of Myocardial Damage?
Introduction/Objectives/Background

A. Describes what the study sought to determine or the purpose of the study

B. States the research question or hypothesis

C. Provides relevant background information (your previous work or other’s work)

D. Indicates the importance, relevance or necessity of the work

E. Use present or past tense, 1-2 sentences
Study Design/Methods

A. Briefly describes the general design of the experiment or study

B. Describes the methodologies in chronological order of appearance

C. Includes the use of controls, inclusion/exclusion criteria, patient populations, numbers per group, type of model or cell line(s) used, how data was analyzed

D. Italicize organism names and Latin terminology such as E. coli, in vivo, in utero, etc.
E. Avoid cluttering the design section with too much minutiae

F. The methods section should be a narrative not a numbered list of procedures

G. Indicate any trademarked devices, drugs or reagents used and use generic names for drugs. If you must use a proprietary name, identify the company

H. Convince reader that they can trust your results because the study design was appropriate and that you knew what you were doing
Results

A. May be either in narrative, graphical or tabular form

B. Be sure to adequately label the axes of all tables and graphs

C. Tables and Graphs should be interpretable exclusive of the other sections
D. Results should appear in a manner that is chronologically consistent with the study design and methods section.

E. Include statistical support for any data that is stated as being either significant or non-significant (P values).

F. Include appropriate units for any numerical data.
Building Bridges: Connecting at Risk Women to Mammography via Emergency Department Visits

**INTRODUCTION:** Women presenting to the ED, who had not had a recent screening mammogram, were given educational materials and referred to free mammography. We then measured their rate of scheduling a mammogram within 1 month.

**HYPOTHESIS:** Providing at risk women with educational materials and referral for free mammography will not improve their rate of obtaining a mammogram within 1 month of discharge.

**METHODS:** In this prospective, controlled study, a survey regarding mammogram use, and breast cancer awareness was verbally given to women over 40 in the ED, and 1 month later by phone. The intervention group (n=200) received pamphlets about breast cancer prevention plus phone numbers for a free mammogram at community health departments; awareness posters were also placed in the ED waiting room. A similar group (n=200, controls) also responded to the survey in the ED and 1 month later by phone, but without any intervention.

**RESULTS:** Of the 131 women needing mammograms enrolled in the educational intervention, 97 (74.0%) were reached by phone, and 21.6% had obtained or scheduled a mammogram in the month after discharge. Of the 111 women needing mammograms enrolled in the control group, 88 (79.3%) were reached by phone, only 3.4% had obtained a mammogram in the month after discharge (Fisher’s Exact Test, p < .0005).

**CONCLUSIONS:** At risk women less likely to have access to reliable health care responded to an educational intervention and awareness of free/reduced cost resources by complying with ACS breast cancer screening guidelines. The ED provides a unique setting in which to promote such preventative measures to women most in need.
Conclusions/Summary

A. Address each study objective described in the Objectives Section

B. Provide a sentence that synthesizes all the data presented and relates it to your hypothesis

C. Provide a summary sentence that relates this work to the “big picture” (optional)

D. Address any limitations or shortcomings of the experimental design or treatment of data

E. Indicate whether or not further work is needed
Indicate referenced statements with a number in parenthesis or superscript that correlates with the full reference at the end of the text.

Examples of how to cite literature

Article
Book/Edited Book

Chapter in book
• Recognize a company for providing study drugs, reagents or devices
• Recognize a sponsor for funding or grant support
• Recognize individuals or who have served as a consultant or otherwise assisted in the work (e.g. Colleague, Pathologist, Research Associate, Statistician, etc.)
Abstracts intended for inclusion in manuscripts, medical conferences or scientific meetings will have specific restrictions on the number of authors, on font size, abstract size or word count, etc.

**STRICTLY** adhere to these guidelines or risk having the abstract returned or rejected outright.

The technical specifications for the abstract are defined in the “call for abstracts” section in most Professional Society meeting application booklets or in the “Instructions to Authors” section for a given journal.
How Do We Shorten Abstracts?

1. *Use active voice*
   
   Patients were saved by the treatment

   Treatment saved patients

   Enzyme levels were lowered...

   Enzyme levels dropped
Ways to Shorten Abstracts

2. Don’t use “empty” constructions
   In order to determine...
   To determine...

There were 87 patients enrolled in...
87 patients enrolled in...

Adapted from AMWA listserv postings by:
  tomlangcom@aol.com
  Joanmnewyork@aol.com
Find Plain Language Guidelines at: http://plainlanguage.gov/howto/
3. Choose *stronger, shorter* words
   
   In addition  Also
   Not later than  By

4. Remove *phrases with prepositions*
   
   In the month of May  In May
   With the exception of  Except for
5. Compare groups *in parallel*

Patients who received therapy had a median life expectancy of 7.0 years, compared to 2.3 years for those who did not receive therapy.  

Median life expectancy was 7.0 years for treated patients and 2.3 years for untreated patients.
6. Start with “Of” or “Among” when reporting proportions

84 subjects were enrolled in the study and 58 completed it. (11 words)

Among 84 subjects enrolled, 58 completed it. (7 words)
Tips on Writing Good Abstracts

• Use bold face fonts to highlight headings

• Ensure sufficient time to compose the abstract—at least 5 or 6 hours (it takes longer than you think!)

• Strictly adhere to abstract guidelines, format requirements and deadlines

• Use 12pt font or greater to facilitate reading and photocopying (check meeting/journal guidelines)
Tips on Writing Good Abstracts cont.

- Avoid large blocks of uninterrupted text (use paragraphs, indentions, spaces, bold font headings)
- Be clear, concise and brief
- If abbreviations are necessary, define them when they first appear within the text, (e.g. Lippopolysaccharide (LPS))
• The use of “I” and “we” are not preferable to the third person and the passive voice (“the Authors, it has been shown, etc.”)

• Describe the methods and results in the past tense

• Discuss the conclusions in the present tense

• Have several people independently evaluate the abstract for content, completeness, grammar, punctuation and spelling
Qualities of a Good Abstract

• Uses one or more well developed paragraphs: these are unified, coherent, concise and able to function independently

• Avoids using unnecessary adverbs, adjectives

• Provides logical connections or transitions between the information included

• Follows the chronology of the work
Qualities of a Good Abstract

• Is complete and fully understandable when read separately from the corresponding manuscript, text, poster or presentation

• Is understandable to a wide audience from different disciplines—avoid specialty-specific acronyms, abbreviations or jargon

• Adds no additional information beyond that which is contained within the report
Leading Reasons why Abstracts are Rejected

a. Abstract was incomplete or did not conform to guidelines (word count, font size, organization)
b. Significant flaws in study design
c. Poorly powered study (e.g. not enough subjects)
d. Statistical analysis not appropriate
e. Abstract was not internally consistent
f. Study was incomplete (e.g. no data)
g. Abstract was poorly written in general
h. Study was not appropriate for intended audience
i. Abstract submitted past the submission deadline
Authors and Ethics

• The primary author is the individual who has contributed the greatest amount of work and intellectual effort to the project.

• The primary author should be listed first and the name should appear in bold face font/underlined (in keeping with the indicated abstract format).

• Keep the number of authors to a minimum. The maximum number may be defined by the journal or society.

• All authors appearing on the abstract are responsible for the content of the abstract and the veracity of the work it describes.
Authors and Ethics cont.

• Only individuals who have made a substantive contribution to the work should appear as an author-ghost authorships are not appropriate.

• Decide in advance who will appear on the abstract and the order of their appearance.

• Generally, only original abstracts not previously presented at other meetings or published will be accepted-check with the individual medical society for exceptions to this.

• Beware of “cut and paste” plagiarism.
Scientific Abstract Checklist

1. Due date for abstract is __________
2. Number of copies needed __________
3. Presenting author is listed as first author
4. Presenting author meets eligibility requirements for the meeting
5. Author affiliations are listed
6. Abstract clearly organized into Introduction, Methods, Results, and Conclusion
7. The conclusions are supported by data presented in the abstract
8. Completed abstract meets word limit requirements or fits into formatting box
9. Abstract printed with correct font size and style (if stipulated)
10. Abstract has been reviewed by others for content, style, grammar, and spelling

Reference: Shamelessly lifted from the ACP website
Which Would You Read First?

A

Comparison of Allogenic Bone Screws with Biodegradable and Stainless Steel Screws

Abstract Off.

Newly developed allogeneic bone screws have yet to be compared to stainless steel and biodegradable screws for their resistance to breaking and bending, important factors in stabilizing fractures and fractures. We hypothesized that allogeneic bone screws exhibit greater stiffness and torque than stainless steel and biodegradable screws. Using an in vivo model, six screws in each group were bent and tested in bending and breaking. All allogeneic bone screws failed at a higher load than stainless steel screws. Stainless steel screws were more rigid than allogeneic bone screws within the same length. Differences in stiffness (r = 0.96) and strain (r = 0.99) were observed between the screws for the osteotomy or fracture being repaired.

B

Transforming Growth Factor Beta (TGF-β) and Insulin-Like Growth Factor 1 (IGF-1): Stimulate Collagen Synthesis in Rat Intestinal Smooth Muscle

TGF-β, a growth factor with immunomodulatory and fibrogenic effects in many tissues including rat intestine, also has marked fibrosis in the ductal dose and collagen. The fibrogenic peptide TGF-β is highly expressed in this model, but TGF-β has not been studied. We ran a series of in vitro experiments to study the expression of TGF-β and IGF-1 in rat intestine and cultured cells. Cells were washed to remove serum proteins and then exposed to three different concentrations of TGF-β (1-250 μM). TGF-β (1-250 μM) or both peptides together, Peptide TGF-β and IGF-1 was determined by northern analysis of total cellular RNA and type I collagen protein was evaluated by Western immunoblot.

Results: A dose response increase of 2.4 ± 0.6 fold (n=5; p<0.01) in TGF-β mRNA was observed in PG-10 treated intestinal cells compared with control tissue at 24 h, with an increase detected at 72% and maximal effect observed at 180%h. At 12 h, 250 μM TGF-β stimulated a 2.1 ± 0.6 fold increase in TGF-β mRNA (n=8; p<0.05) and a 2.4 ± 0.6 fold increase in type I collagen protein. In parallel experiments, at 12 h, 250 μM IGF-1 stimulated a 3.3 ± 0.6 fold increase in IGF-1 mRNA. A similar increase in type I collagen protein occurred after 12 hours. There was no detectable synergy between the peptides.

Conclusions: TGF-β and IGF-1 stimulate collagen synthesis to a similar extent, but IGF-1 is more potent than TGF-β on a molar basis. This may be due to changes in the extracellular matrix as no changes were detected. Those data suggest that both TGF-β and IGF-1 contribute to collagen synthesis during the response to PG-10 in rat intestinal smooth muscle cells.

C

Penicillin Allergy. What Do We Know?

While 2-5% of the United States population report penicillin allergy, 80-100% of these individuals are not truly allergic when assessed by skin testing. False positive penicillin allergy has far-reaching consequences including epidemiological consequences, unnecessary use of alternative antibiotics, and rising health care costs. There are significant deficiencies in knowledge of penicillin allergy among community and academic physicians practicing internal medicine and pediatrics. Improved physician knowledge is one way to combat falsely reported penicillin allergy, but education on this topic is not currently a part of residency curricula.

The objective of this study was to assess resident physicians’ knowledge on penicillin allergy and to determine whether a simple educational tool would improve this knowledge. Participants were St. John Hospital & Medical Center resident physicians in the departments of Family Practice, Internal Medicine, Pediatric, Obstetrics and Gynecology, Transitional residents, Emergency Department residents, and medical students who were rotating in these departments were also included. A 12-question survey was scheduled during which the pre-test questionnaire was administered at the beginning (pre-test) and end (post-test) of the session. After the post-test, participants were given a thirty-minute PowerPoint presentation on clinically relevant aspects of penicillin allergy.

The effect of the educational intervention was measured using a paired t-test to compare the pre- and post-test scores, and the proportions of correct answers to each question. Scores were compared by pre-graduate year (PGY) level and by department of origin.

Of 57 total participants, 54 completed both pre- and post-tests. 14 Family Practice, 21 Internal Medicine, 2 Medicine-Pediatrics, 9 Pediatrics, 3 Transitional or ER residents, and 8 medical students comprised the test population. Scores improved significantly after the educational intervention (pre-test 54.8 ± 5.3% vs post-test 67 ± 5.5%); p = .007). This benefit was seen among all PGY levels and departments, except for medical students and Medicine-Pediatrics residents (among the smallest in sample size). We conclude that a simple educational presentation can improve resident’s knowledge of penicillin allergy for the short-term, and post-graduation as specific intervals after the intervention.

D

Evidence-based Therapy Post-Coronary Artery Bypass Graft Surgery (CABG) and Potential Impact on Readmission

While clinical trials have validated the use of aspirin (ASA), statins and smoking cessation for secondary prevention after CABG, current adherence with these therapies has not been studied. Furthermore, the cardioprotective value of beta-blockers (BB) and ACE-1 in its using CABG after AMI or left ventricular dysfunction (LVD), respectively, is uncertain. The purpose of this study was to determine the utilization of these therapies in pts undergoing CABG and the impact of readmission. Medical records of 113 consecutive CABG pts during Oct. 1999 were reviewed for demographics, risk factors, medical history and comorbidities. Therapies prescribed at discharge based on eligibility.

E

Cryogenic Denervation for the Treatment of Lower Extremity Neuromas

Foot pain from neuromas can be debilitating, limiting patients’ activities. When conservative treatment fails, the neuroma is excised. However, the failure rate of surgical procedures exceeds 20%. To examine whether cryogenic denervation may provide a new therapy to other clinical centers. 30 surgical candidates consented to experimental treatment by cryoprobe denervation.

Thirty-one neuromas were denervated using a Westco cryomodule inserted percutaneously. The activated cryoprobe damages endoneural capillaries initiating demyelination and axonal degeneration. Neuromas were subjected to two 3-minute freeze-thaw cycles at -70°C with a 30 second thaw in between. Post-operatively, all patients resumed normal activity immediately. However, 2 weeks after intervention, patients fell into 3 groups: pain free (n=11); partial pain (15%) and full pain (5%). Pain ratings for those groups differed (p=0.002; pain free vs. partial and full pain, p=0.04). Thus cryoprobe treatment was completely effective for 35.5% of these patients while it failed totally for 16.1%.

F

While direct comparison to surgery will require a randomized clinical trial, these results suggest that cryosurgery has a failure rate similar to surgery but provides at least temporary respite from neuropathic pain and can be totally effective for some patients.

G

Pharmacodynamic and Pharmacokinetic Study of a Novel High-Loading Insulin Analog: Aspart as Compared to Regular Human Insulin

H

Evidence-based Therapy Post-Coronary Artery Bypass Graft Surgery (CABG) and Potential Impact on Readmission

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Thank You For Your Attention!

Any Questions?