

## Getting Your Name in Print

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### Introduction

The conduct of research and the dissemination of resulting relevant findings create a profession's body of knowledge. For dental hygiene to advance, a cadre of adept researchers must be developed. These researchers must have the skill sets that enable publication of their work. The main goals of this workshop were to successfully instill the self-confidence and impart the knowledge necessary for iterant scientific writers to publish in a peer-reviewed journal. Designed to be interactive, participants applied basic principles of scientific writing and the writing process through self-assessment exercises and individual or group opportunities that allowed attendees to critique and create workable documents. The dual emphases of helping writers write well and write well scientifically were intertwined in group activities.

Scientific writing is a unique approach to sharing information. Several characteristics differentiate it from other styles. Scientific writing must be systematic as it reflects information that was obtained through a systematic process. While providing the readership with new findings and ideas, scientific writing is expected to reflect an economy of words, a neutral tone, lucidity and precise wording. The need to link thoughts to each other, present a logical progression of ideas, and methods for emphasizing organization of content and logical flow were highlighted. For example, a literature review must precede from the general to the specific to arrive at a focused research question or hypothesis. This same flow of ideas, i.e., from a broad introduction to specificity, should be apparent in each paragraph of a paper. Participants assessed sample papers that required changes in organizational flow. Determining the relevance of inclusions also was examined. Attendees critiqued writing samples and were asked to identify superfluous information. Participants' self-assessed and modified their own writings to reinforce organization and economy of words.

Scientific writers must address the required components of a research paper and adhere

to the guidelines of their publication of choice. Specific elements of research papers most often include the following: title, abstract, introduction/literature review, methodology, discussion, findings, references and appendices, figures and tables. A scientific, cogent yet attention-grabbing title that reflects the content of the manuscript must be developed. Tips for title creation were delineated, and examples of titles were critiqued and modified. Participants reviewed abstracts and identified whether required parts were included or omitted. How to organize and write the body of the paper, congruent with the paper's abstract, was addressed. Identifying the elements of the methodology section and providing examples of how to group and present results were addressed through group activities. The challenges associated with the discussion section and relationships to the results were discussed. Writers sometimes have a tendency to restate results in discussions and offer discussion points in the results section. Paring down discussions can be challenging in scientific writing. Not all results merit discussion. Similar findings may be summarized and described in a single paragraph. Researchers often tend to overstate their findings. Limitations associated with sample sizes, research design and control of extraneous variance must be addressed when findings are discussed.

The formal stages of the writing process were presented. Specific phases include invention (pre-writing), development of a thesis statement, outlining, writing the first draft, revising and polishing. Since writers process and utilize information differently, their approaches to putting pen to paper differ. Less formalized approaches but useful steps in the writing process include examining the purpose of the paper, how it will be achieved and brainstorming. Pre-writing may include a random collection of thoughts and ideas that adhere to no particular order. Jotting down or typing random ideas when they enter the writer's mind is a commonly used and helpful way to stimulate thinking.

The benefits of outlining were emphasized. Outlining promotes a hierarchical and systematic approach to writing. To promote order and organization, participants were advised to begin each paragraph with a topic sentence and ensure that paragraph content supported and elucidated introductory sentences. Participants created thesis statements to begin paragraphs and then outlined the subsequent related content. Attendees shared their pre-inventive stages and writing approaches. They discussed ways to improve their processes of writing, and the facilitators and other attendees offered suggestions. Other thoughts related to the writing process were shared. Participants were advised that writing takes time and editing and re-editing are continual processes; and, that many authors advise taking breaks during the actual writing of the paper to clear their minds and enable a return to work with a fresh perspective. During editing and reediting, attendees were advised to seek input from other accomplished writers, researchers and objective parties.

Major grammar and punctuation pitfalls and scientific writing taboos were discussed. Scientific as opposed to narrative writing, employs no superlatives, is preferably stated in the voice of third person, and uses active, not passive verbs. Contractions must be avoided and acronyms cannot be used until the proper name for a term has been previously spelled out in the text. Including vocabulary that is difficult to understand in an effort to sound intellectual is discouraged. Flowery prose must always be avoided. Beginning statements with terms such as "there is" or "it is important that" dilute the power of a thought. Subject and verb agreement and parallelism of subjects and possessive pronouns, common grammatical errors, were cited. Participants were advised to be mindful of creating a need to know, beginning with the manuscript title, maintaining an optimal rate to impart information, avoiding ambiguity and jumping to conclusions (particularly in the discussion and conclusions sections). During the writing process, writers were advised to utilize a thesaurus and dictionary (electronically or hard copy) and to take advantage of spell and grammar checks.

Overreliance on spell check was discouraged as a word may be spelled correctly but still used inaccurately in a sentence.

Knowing the prospective audience helps the writer decide what information to include in the research report. An article directed toward a narrow audience will have a different perspective than one submitted to a journal that is relevant to a broad range of disciplines. Regardless of the audience, findings and conclusions must be stated clearly with as few words as possible. Referencing content is critical in scientific writing. A fatal flaw and reason for article rejection is plagiarism. Quoted material must be acknowledged. The use of secondary sources is prohibited. Returning to the original reference is required as the author who first cites the article, i.e., the secondary source, may tweak an original statement inadvertently and that thought could be more distorted in subsequent iterations. A return to an original document ensures that both the original intent of a statement or finding and the details of the citation are accurate. Publishing is not a perfect art so errors can occur. A repetition of the same citation error could indicate the author's use of a secondary source; i.e., copying the inaccurate secondary source's reference information. Authors are required to adhere to the referencing guidelines of the publication to which they are submitting. Any questions about guidelines should be directed to the journal of interest.

Attendees received a list of resources to utilize as they develop their writing skills. A key tool for perfecting one's writing skills is reading and studying published work. Published reports particularly in peer-reviewed journals have undergone rigorous reviews so using them as a guide can be advantageous. Publications also can serve as springboards for developing research ideas. Practicing writing is another way to develop skills and build self-confidence. To quote Dr. Seuss, "So the writer who breeds more words than he needs is making a chore for the reader who reads." In conclusion, rewriting remains the best form of writing.

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