Different Medical Writing Styles & the Ongoing Problem of Effective Communication with Various Audiences in the Field of Medicine

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UWP1

Abstract

When one considers the types of writing that are necessary to be successful in the medical field, the primary type of writing that immediately comes to mind is research writing. Although research writing has been the predominant type in past decades, writing in the medical field has evolved in the 21st century to include a vast array of types, methods and regulations. The many types of writing and regulations now seen in modern medicine are not only utilized by biomedical and health services researchers, but also practicing clinicians. To consolidate information on this broad topic, I collected secondary source information from research articles in professional peer-reviewed journals located through both the UC Davis Library journal database and Google Scholar. In addition, I collected primary source information by conducting an interview with a Gerontologist conducting applied clinical intervention research (e.g., randomized controlled trials) for the Vanderbilt University Medical Center. The many methods, tools, and regulations I have found to be used in respected sources of medical information have been developed as a result of the need to more effectively communicate medical research and ideas to an expanding and more diverse audience than in the past. My research paper not only explores the different types of writing in the field of modern medicine, but also the different methods or tools used by both researchers and doctors in the modern medical field that allow them to communicate effectively to multiple audiences including research investigators, funding agencies, policy-makers, practicing clinicians, and the direct recipients of care, the patients themselves. This paper also explores how writing in the modern medical field might continue to evolve in the future in light of new medical technologies and other advances in research.

Introduction

Throughout the past century, writing in medicine has evolved to include many new methods, types, and regulations in order to effectively communicate medical treatments (i.e., potential risks and benefits to patients) and report medical research findings to multiple, diverse audiences. For my UWP1 research article, I decided to not only explore the different types of writing evident in the field of medicine and medicinal chemistry, but also explore the tools, methods, and regulations that are utilized to produce effective writing in the medical field. Although I originally expected to find mostly focused pieces of one type of research writing, I was surprised to find many different types of writing in the field of medicine. Additionally, I discovered many complex regulations within the pharmaceutical industry regarding writing.

Rather than just having to focus their writing for one audience, both clinicians and researchers in the medical field have to write and communicate effectively to multiple audiences by utilizing various methods and types of writing. Some examples of these audiences include: research investigators, clinicians in various health settings, policy makers, funding agencies, private for-profit companies (e.g., pharmaceutical companies), and the general lay public, including patients themselves. For example, the writing that doctors and medical researchers in the field of medicinal chemistry have to do can range from formal, professional grant proposals to secure funding for their work to much more informal articles meant to describe or interpret their research findings for the lay (general public) audience. In addition, the writing that professionals in the field of medicine must do can even be as simple as treatment orders or instructions for patients, clinical summaries for other care providers, or even emails (e.g., health messaging via electronic health records) to communicate effectively with both patients and other professionals. Over time, as new methods, tools, and regulations have been developed in the field of medicine,

I hope to be able to demonstrate how these new developments have not only made medical research and knowledge much more accessible, but also the impact writing in medicine has had on distilling the complexity of medical findings into understandable terms for multiple audiences.

Methods

I utilized both secondary and primary sources to gain a thorough and well-balanced amount of information on this subject. For my secondary sources, I searched through the UC Davis library catalog and articles, Pubmed, and Google Scholar. As a result of my search, I collected information from three research articles. All of these secondary sources were professional peer-reviewed journals geared toward medical researchers. For my primary source, I interviewed an experienced health services researcher in the field of Gerontology by the name of Sandra Simmons, PhD, who conducts clinical intervention trials and various types of medical research writing for the Vanderbilt University Medical Center. The writing she does includes grant proposals for both federal agencies and private foundations, peer-reviewed publications in professional medical journals, and website and newsletter content geared toward providers, patients, and caregivers in the community (see appendix for interview questions).

Primary Research Findings and Analyses

After interviewing Dr. Sandra Simmons, I learned how complex and vast the various types of writing she both writes herself and sees in the medical field. She emphasized the fact that, even within professional peer reviewed journals where research is published, there are multiple different types of writing, such as "research articles, letters to the editor, clinical case reports, systematic reviews/meta-analyses, clinical practice guidelines, and protocol papers." In each of these different types of writing for professional peer-reviewed journals, she also speci-

fied how they are different from each other in terms of their writing style and audience. For example, she emphasized that while systematic reviews or meta-analyses are incredibly detailed comprehensive reviews of the available evidence of a specific research topic, other types of writing, such as letters to the editor, may be more general and reflect the opinion of an individual practitioner or researcher. Clinical practice guidelines reflect a synthesis of the available research evidence into specific guidance for clinicians in care practice to lower risk for poor health outcomes. Thus, in that sense, clinical practice guidelines are geared more toward practitioners, rather than researchers, but are based on research evidence. Examples include practice guidelines related to managing blood pressure or cholesterol to, in turn, lower one's risk of other health outcomes such as a heart attack or stroke.

In addition, Dr. Simmons also emphasized how her writing style must be modified further for the "lay" public audience when summarizing her research findings for the Vanderbilt website, newsletter or other media outlets. Additionally, she also mentioned how she often has to interpret her research for people in the for-profit sector, such as Nestle, who may be interested in selling their products to a targeted patient population (e.g., older adults in nursing homes or hospitals). Because most people working in these companies lack sufficient knowledge about medical research or medical terminology, Dr. Sandra Simmons has to heavily modify her writing style in order to effectively and clearly communicate her research to this somewhat "lay" audience.

The different scenarios in which Dr. Simmons has to modify her writing style were evident throughout my interview with her. In terms of situations in which she has to modify her writing style to be much more formal and scientific, Dr. Simmons said that this was particularly

the case for federal funding agencies, stating, "Federal funding agencies, such as the National Institutes of Health, require a detailed, rigorous scientific writing style." In contrast to writing for the federal funding agency audience, Dr. Simmons also emphasized how she has to modify her writing style to be much more oriented towards the "lay" audience that lacks a scientific background when she writes for private foundations who might want to support her research. This was evident when she stated:

> In contrast, many private foundations that support research require a writing style that is more accessible to non-scientific reviewers as it is often the case that the foundation board members who review those applications lack a scientific background. So, my writing style for a proposal that is being submitted to a foundation is often in much more layman terminology and focused on why my work aligns with the mission of the foundation.

When asked about the key components that go into making her writing successful in the medical field, Dr. Simmons described how a lot of the writing she does is in collaboration with both physicians and biostatisticians in the field. Although I originally thought that most of her research writing and grant proposals were almost all only written by her with the exception of the data and analysis component, I realized just how many professionals from different disciplines contribute to large-scale research proposals in the university setting. This was evident when she stated:

> I always ask the team Biostatistician, who has a PhD in Biostatistics to take responsibility for writing the data analysis section. As a non-clinician myself, I always ask a physician colleague to review the more clinical aspects of my study protocol (diagnosis codes and criteria, illness severity ratings, medication

> measures) because I know a practicing clinician is much more knowledgeable than me in this area…it is almost always a team effort.

Ultimately, I found that this aspect of my interview with Dr. Simmons demonstrated how the key components that go into synthesizing a successful and effective piece of research writing in the medical field reflect the quality of the entire investigative team and the multiple contributions that they collectively make together.

Secondary Research Findings and Analyses

After locating a few research articles from peer-reviewed medical journals on the UC Davis library database, I found a lot of ideas that overlapped with the information I gathered through my primary research with Dr. Simmons. In particular, the idea of modifying the writing style in order to effectively communicate with various audiences including the "lay" audience was a consistent theme throughout my secondary sources. In Joselita Salita's(2015) "Writing for Lay Audiences: A challenge for Scientists," the challenges of communicating with and writing for a lay audience in an effective manner are emphasized when Salita states:

> A scientist's specialised knowledge is often a hindrance to effective lay communication. Effective lay communication requires that the expert anticipates the audience's knowledge or perspective on the subject. Scientists are trained to publish scientific papers and to discuss findings with peers, which often makes them unable to understand how others think. (p. 183)

Salita emphasizes the challenge of understanding and anticipating the lay audience's knowledge and perspective on a subject as a scientific writer. In addition, Salita also emphasizes the problem of knowing or anticipating the range of vocabulary in the lay audience. This is evi-

dent when she demonstrates how patients often struggle to understand medical jargon or vocabulary, stating, “Another problem is that scientists often use specialised language or jargon because they fear being inaccurate...lay audiences find jargon difficult to understand and confusing...about a half of adult patients do not understand the verbal advice given by doctors” (p. 183). Overall, the key challenges in writing for a lay audience highlighted by Salita, other than the two challenges above, include expressing statistics and uncertainty (e.g., health risk level, probability of an outcome), generalizing information (e.g., not all patients with a specific diagnosis respond to the same treatment in the same way), and writing for a more diverse audience. Salita also proposes possible solutions to these challenges that could help improve the effectiveness of one’s writing and communication styles. Overall, the most common tips Salita proposes are to, “avoid jargon, exclude details that may not be interesting for the readers, use plain language, use the active voice, and use visual aids.”(JT. Joselita, pg. 185) These tips help a writer in the medical field to effectively communicate with a more diverse lay audience.

Roger Collier’s(2017) “A Call for Clarity and Quality in Medical Writing” echoes many of the same aspects and problems related to writing in the medical field that Salita discusses, except Collier also emphasizes the lack of instruction by academic institutions training future clinicians and researchers. This emphasis on the lack of instruction by academic institutions is evident when Collier states, “Academic institutions generally reward researchers for publishing often, not for writing well. In some cases, there may be a disincentive to writing clearly. Convoluted language disguises trivial science and pedestrian ideas” (p. E1407). Rather than incentivizing writing in the medical field to be clear and effective, Collier demonstrates how academic institutions may value quantity over quality. Collier also proposes possible solutions to this problem. The main solution proposed by Collier is to make medical schools and graduate schools

place more emphasis on effective and clear writing with courses that teach students to explain complex scientific topics in more plain language. This solution is evident when Collier states:

> Medical schools and graduate programs in science could offer courses on how to explain complex topics in plain language. Physicians are trained to communicate verbally with patients, but rarely receive instruction on how to communicate better in writing. Academic institutions that employ medical researchers could also provide education and resources on effective communication, and find ways to reward scholars who make an effort to bring their work to a wider audience (p. 1407).

In the end, making these improvements to the curriculum of medical schools and graduate schools could significantly improve the overall effectiveness and quality of all writing within the medical field.

In addition to the many challenges to composing effective writing in the medical field summarized above, there are also many new regulations for medical writing, in particular writing in medicinal chemistry and the pharmaceutical industry, that make writing effectively even more complex. In "Legislation and the Lay Audience: Challenges of Communicating Benefit and Risk in the Light of New Regulations," Lisa Chamberlain (2015) emphasizes the new regulations surrounding the Risk Management Plan (RMP) and Clinical Trial Regulation (CTR) and the new challenges that they pose for writers in the field of medicine and the pharmaceutical industry. In terms of the RMP, the primary new regulation surrounding this plan is an adjustment in relation to the target audience. Before the new regulations surrounding the plan were introduced, the target audience was just the "primary audience," defined by Chamberlain as, "stakeholders with a professional interest in medicines" (p. 196) After the new regulations were implemented in 2015,

the new target audience is both the primary audience and the "secondary audience," defined by Chamberlain as, "members of the public who are looking for more information on medicines but may not be familiar with medical terminology" (p. 196). The change in the RMP regulations for the target audience poses significant challenges for medical writers, as clinicians and researchers must modify their writing style to accommodate the different target audiences' "health literacy and numeracy levels, interest levels, and motivations for seeking the information" (p. 196). In terms of the new CTR EU No 536/2014 regulation active in May 2016, the primary emphasis of the regulation is increased public access to medicinal research. This is evident in the article when Chamberlain states, "One of the main characteristics of this new regulation is increased transparency in terms of clinical trial outcomes. All information in the EU database submitted in the Clinical Trials Application and during the assessment procedure will now be publicly accessible" (Chamberlain, p.196) In addition, the new regulation also makes an adjustment to provide a clear and concise summary of results for the lay audience one year after the end of the clinical trial in the EU. There are now similar requirements for clinical trial registration and reporting within the United States as well, particularly for trials funded by the National Institutes of Health. These new changes in the CTR regulations pose even further challenges for medical writers as they must alter their writing style to not only effectively communicate the results of a clinical trial in more lay terminology to the public audience, but also still effectively prevent the audience from making assumptions about the results of one clinical trial. This challenge is evident when Chamberlain states, "...the pharmaceutical industry does not assess a drug using the results of a single clinical trial, and it could be dangerous (and certainly inappropriate) for the lay audience to misinterpret the lay expression of the results and make assumptions based on this

alone” (Chamberlain, p. 196). In the end, the multiple challenges that these new regulations propose for medical writers not only make it more difficult to effectively write for multiple audiences, but also make these new regulations much more important to consider when attempting to produce successful and prestigious writing in the field of modern medicine.

Conclusion

Learning about this topic has helped me to realize how important a skill writing is as a medical researcher and/or clinician, as it is a vital tool when communicating effectively with multiple audiences. Over time, being able to effectively communicate with not only experts in the medical field, but also the “lay " public audience has become much more prevalent and significant. Due to how complex types of writing in the medical field can be, the proposed solution to teach effective medical writing in medical schools, graduate schools, and even undergraduate pre-med programs is compelling. In the end, the increasing need for writing in the medical field to be able to communicate with a more diverse variety of audiences along with the multiple new regulations surrounding medical writing makes it a problem that will become even more prevalent and significant in the following years.

Appendix: Interview Questions

1) What are the key components you make sure to include in terms of the structure of your writing?

2) In terms of the types of writing you do, do you mainly do research based/experimental writing? Or, do you also do other types of writing such as literature reviews?

3) What are they key components in terms of structure and composition that go into writing a successful and well received grant proposal?

4) Is most of the writing you do solely your writing. Or do your grant proposals and other research writing in the field of medicine usually include multiple researchers or doctors doing the writing together?

References

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