

# Teaching Medical Writing

## Universities should offer medical writing courses at the undergraduate level



Only one university in the USA offers an undergraduate degree programme in medical writing. Worldwide, fewer than 10 institutions offer advanced degrees (Table 1). Over the past 14 years, I have read and edited many research papers, grant applications, and other materials written by graduate students and established professionals. In many cases, there was significant room for improvement, not only in basic grammar and mechanics, but also in clarity and appropriate diction for the intended audience.

### Scientists and health care professionals lack adequate writing skills

Part of the problem stems from lack of exposure to life science-specific writing scenarios at an early stage. Smith et al. point out that “when faced with a particularly challenging and unfamiliar rhetorical task, writers who seem in other contexts to have mastered writing and critical thinking skills as commonly defined will often exhibit basic errors in them”.<sup>1</sup> Moss echoes this concern: “Very few health care professionals are taught how to write”.<sup>2</sup>

It is in students’ best interests to begin learning about, and practising, medical writing at the undergraduate level. This need is not unique to the USA; in their book, *Healthcare Writing*, Canadian university professors Arntfield and Johnson write:

*The university and college curricula required to prepare one for a career in medicine at any level – physician, nurse, technician, or other type of clinical practitioner – seldom make space for advanced course work in commu-*

*nications. Seldom have they sought, historically, to assist students in developing nuances of written communication for professional audiences before they make their forays into the care-delivery environment where the stakes are elevated.*<sup>3</sup>

Tseng and Guo write of the situation in Taiwan:

*... many medical professionals whose first language is not English need to learn academic writing in English because it is the dominant language in academic communications. At most universities in Taiwan, however, academic writing is not included in the undergraduate curriculum, and therefore most of the medical professionals began to learn academic writing after starting their careers.*<sup>4</sup>

### A pilot programme for undergraduate medical writing

I developed an online medical writing course at Miami University (Oxford, Ohio, USA) and offered two sections during the 2016–17 academic year. Anticipating diverse student needs and interests, I selected two textbooks:

1. *Writing in the Sciences* by Penrose and Katz, featuring content applicable to all students; and
2. *Writing in the Health Professions* by Heifferon, featuring content applicable to nursing and, to a lesser extent, pre-medical students. The book was included in the course upon advice from the Faculty of Nursing. It was published in 2005, however, and while the basic writing

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concepts are sound, the presentation is obsolete.

Online writing courses are equally, if not more, effective in terms of undergraduate student outcomes.<sup>5–7</sup> An online course designed with opportunities for interaction among students and the instructor allows students to practise articulating their thoughts through writing and exchanging ideas in a less formal setting while working on formal assignments.

The initial course, an 8-week session, began in October 2016 with 16 nursing, zoology, biology, and pre-medical students. My challenge was creating relevant content for all students, and I presented the course materials in the form of five modules:

1. Introduction: identifying unique medical writing genres with sample readings;
2. Medical records and reports: entering information into patient records and preparing documents such as clinical trial reports, morbidity and mortality reports, and medical error reports;
3. Effective design: formatting research papers for publication, developing educational content for colleagues, and designing patient education materials;
4. Scientific reports and proposals: preparing funding applications, writing progress reports, and collaborating with others to write scientific papers; and

**Table 1. Medical writing programmes at universities worldwide**

Institution	Location	Level	Credential
Kent University	Canterbury, UK	Graduate	MA in medical humanities
Manchester Metropolitan University	Manchester, UK	Graduate	MSc in science communication
Medical University of Innsbruck	Innsbruck, Austria	Graduate	MSc in medical writing
University of California	San Diego, CA, USA	Graduate	Postgraduate certificate in medical writing
University of Chicago	Chicago, IL, USA	Graduate	Postgraduate certificate in medical writing
University of the Sciences	Philadelphia, PA, USA	Graduate	Master’s in biomedical writing
University of Worcester	St. John’s, UK	Graduate	Postgraduate certificate in medical writing
Carnegie Mellon University	Pittsburgh, PA, USA	Undergraduate	BSc in professional writing

5. Employment, graduate school, and medical school applications.

I used the writing assignments such as clinical narratives and scientific report critiques to emphasise the importance of rhetorical analysis and audience awareness in life science settings. The final examination was a white paper assignment (a concise evaluation of a selected topic). It was assigned at the beginning of the term to allow students adequate time to research, prepare, write, and revise. My goal was for them to apply the writing and design principles they learned during our 8-week session. Students were permitted to select their own topics, such as evaluating alternative therapies and exploring a new treatment for opioid addiction.

Students in online courses are accustomed to participating in social media, so they were comfortable with the prospect of using the course discussion board. This was especially effective for exercises such as charting; those who had never seen a medical chart learned a great deal from the experienced students about what should be entered, by whom, and why. Students also engaged in lively discussions regarding ethical situations, health care advertising, badly written prose (their science textbooks were often excellent source material), specific aims for grant applications, and other topics.

The second course lasted an entire semester (January to May 2017), enabling 20 students to engage in additional discussions and develop written assignments. The nursing and pre-medical students found the extra time to learn about charting and medical documentation especially helpful.

## Results and evaluation

The student population ranged from “traditional” full-time students to full-time health care professionals, some with over 20 years of experience. Students had the option to complete course evaluations; while the typical response rate varies from 8% to 35%, 53% of the first-course students and 72% of the second-course students completed evaluations.

All respondents in the first course, and all but one in the second course, agreed or strongly agreed with the following statements:

- Course assignments and activities advanced my analytical and/or creative abilities.
- The course was intellectually challenging.
- I strengthened my reading and/or writing ability over the course of this class.

- My appreciation for this topic has increased as a result of this course.

One nursing student in the second course expressed frustration with being asked to write clinical narratives. She had been advised by her faculty to take the course in her second year, before she had gained any clinical experience. I will re-evaluate the assignment.

The students agreed that the textbooks were not especially helpful because they were outdated. Of the individual written assignments, they most enjoyed designing and writing patient education brochures. This required awareness of both text and visuals when communicating with diverse readers, and they appreciated the challenge of developing effective materials for a lay audience while being mindful of international and multicultural sensitivity.

## Future direction

The most important change I will implement is requiring two different, updated textbooks:

1. *Healthcare Writing: A Practical Guide to Professional Success* by Arntfield and Johnston. This reasonably priced and very readable book provides practical advice for a variety of writing situations, including research reports. It is applicable to both clinicians and scientists.
2. *Medical Communication: Defining the Discipline* by Polack and Avtgis. Written by a physician and a communication scientist, this book is oriented toward clinicians and those involved in clinical trials. It will serve as a valuable reference throughout their careers.

The students suggested a peer review session for their final papers. This is an important part of the publication process and would be a good extension of the scientific report critique, providing additional practice in reading and thinking critically. Furthermore, I plan to implement “career track oriented” assignments; for nursing students, for example, this could entail additional practice with medical documentation such as charting. Aspiring scientists, clinician-scientists, and medical writers would likely benefit from practice writing research-oriented documents.

As with other writing classes, “one size fits all” is an unattainable goal, but it is important for students to have adequate instruction and resources to learn what they need to know. At the same time, it is important for students to realise their careers will involve more writing than they may have initially believed.

## Conclusion

To obtain research funding, publish manuscripts, and ultimately play a role in advancing medical science, scientists and clinicians must be able to communicate their findings. Furthermore, they must be able to convince people from their own and other disciplines of the importance of their research discoveries. The ability to write well is essential to this process, and the sooner students learn to do so, the greater the benefit. Therefore, any undergraduate institution offering medical, life science, and/or nursing programmes should develop and offer courses in medical writing.

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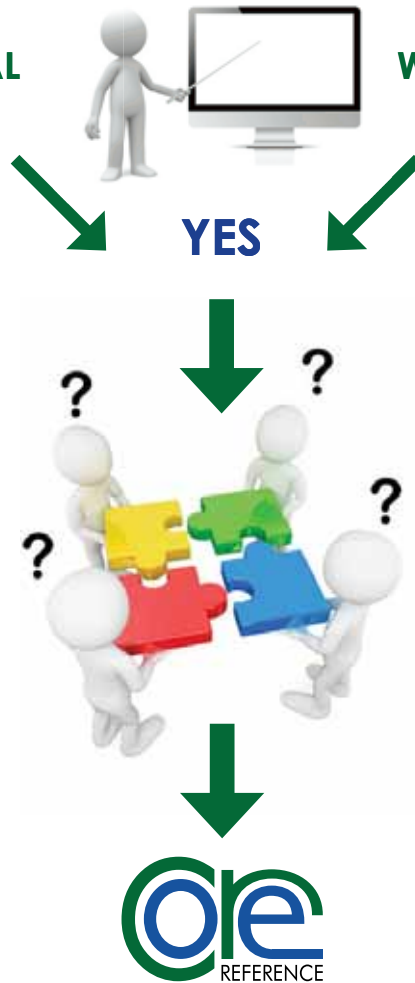
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