Medical | Writing

Writing better

In this issue...
- Writing better workbook
- 2016 EMWA member survey

EMWA EUROPEAN MEDICAL WRITERS ASSOCIATION

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Medical Writing

Writing better

Philip Leventhal, Editor-in-Chief

As medical writers, we fall within the field of professional writing. Writing well should be essential for us. Unfortunately, training on how to write well specific to our field is hard to come by. Most books focus on preparing scientific articles and not on the mechanics of writing or are not adapted to our needs. My own experience tells me that medical writers could greatly benefit from practical information on how to write better.

To help, this issue of *Medical Writing* includes what I like to call the "writing better workbook". Each chapter of the workbook includes explanations, examples, and, most importantly, exercises and an answer key. The first chapter, by **Michelle Arduengo**, is on nominalisation (verbs turned into nouns), which is one of the most common and pernicious problems for medical writers. Three following chapters, by **Christine Møller**, **Barb Every**, and **Tom Lang**, tackle wordiness, another common enemy of good medical writing. From there, **Claire Gudex and Jude Pedersen** take on sentences, **Neville Goodman** advises on eliminating troublesome words, and **Amy Whereat** and I cover how to organise good paragraphs. **Michelle Guillemard** adds strategies to improve writing for lay audiences. Finally, I have provided a practical checklist that you can use to help put all of these aspects of writing better into practice.

In addition to the writing workbook, in this issue, we present the results of the **2016 EMWA member survey**, which was conducted to help guide EMWA's on-going projects and future plans.

Medical Writing **now on citation indices**
Your journal is now listed on the following citation indices. This means that contributors can expect their articles to have an impact beyond the EMWA membership. Articles may also be cited by others in the future.

- **Google Scholar** (scholar.google.com) provides a simple way to broadly search for scholarly literature. Articles that appear in Google Scholar also appear in Google searches.
- **Scopus®**, an index managed by Elsevier, is the largest abstract and citation database of peer-reviewed literature.
- **EBSCO** is a bibliographic service for academic, medical, school, public library, law, corporate, and government fields.
- **ResearchGate** is a social networking site for scientists and researchers and includes *Medical Writing* in its list of publications. This should help people find our journal.
- **U.S. National Library of Medicine** now includes *Medical Writing* in its list of publications, although, unfortunately, we are not indexed on PubMed. Like ResearchGate, this should help people find our journal.

CONTACT

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Birmingham 2017
Save the Date
For more information, see pages 10-11

President's Message

Dear all,

Welcome to the first issue of *Medical Writing* for 2017. This issue is dedicated to "Writing Better", something we in the profession are constantly striving for and something which EMWA aims to help us achieve together. One way we achieve this is by sharing our experience and expertise via this journal. I never cease to be amazed by the breadth and quality of the articles included and would like to thank our editor, Phil Leventhal, his co-editors and all those of you who contribute to the journal for making this such and interesting and valuable resource.

Another of the organisation's aims is to raise the profile of our profession and act as the 'go-to' association for opinion, guidance, and best practice. During 2016, we worked with the American Medical Writers Association and the International Society for Medical Publication Professionals to update our position statement on the role of professional medical writers in the development of articles, abstracts, posters, and oral presentations in peer-reviewed journals or at scientific congresses. The joint document was published in January and describes the role and responsibilities of medical writers in the development of medical and scientific publications. It addresses the difficult and controversial issue of "authorship" of documents. A copy can be accessed via our website (http://www.emwa.org).

We have a number of exciting new IT initiatives taking place this year to move EMWA forward. Our website had become very slow so we have invested in a new website platform which will significantly improve response time. This has involved a significant amount of work but will allow us to develop the website and provide additional services over the coming years, including an updated directory of freelance writers. We have replaced the conference brochure, previously provided in PDF format, with a new dedicated conference "mini-site" which brings all of the conference information together in one place and provides the relevant information in a more easily accessible format. Eventually users will be able to personalise the information, both by selecting the information they want to see (e.g. advanced workshops only, or symposium information only) and by selecting their own personal programme of activities they have booked. This will be of great benefit to delegates and significantly less time consuming for those volunteers who prepare the conference documentation.

We hope you will all see these changes as a significant improvement in the services we provide to our members. The results of the survey we carried out last year suggested some areas that can be developed further, especially the webinars, member benefits, and freelance services. It also provided the Executive Committee with some ideas about how the Association itself and the services and benefits it provides to members can be developed. If you have specific ideas or suggestions or would like to help please do contact a member of the Executive Committee.

Our next conference takes place at the International Conference Centre in Birmingham, UK from Tuesday, May 2 to Saturday, May 6. The EMWA Professional Development Committee has prepared a comprehensive education programme, with workshops covering a broad range of both familiar and new topics. Our Symposium will explore recent developments in the area of data transparency and disclosure and provide the opportunity to hear speakers from regulatory bodies and the pharmaceutical industry as well as writers themselves. For experienced members, we have a series of three Expert Seminars covering some of the latest developments in medical writing. The conference will also host an internship forum and introductory talk for potential new writers as well as the well established freelance business forum. We also have a session on mindfulness and a range of exciting social events. There really is something for everyone and I hope to see many of you there.

Best wishes
Alison
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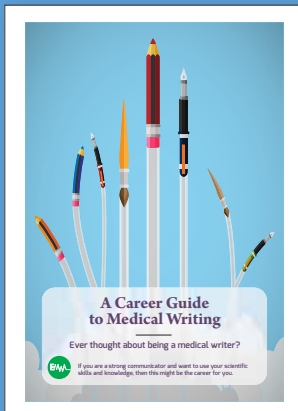
EMWA's New Medical Writing Career Guide is now available!

Included in the guide:
- What is medical writing
- The different types of medical writing
- The skills and qualifications needed to be a medical writer
- Where medical writers work and what they do
- How to get started
- How much to expect to get paid
- Career prospects for medical writers

A Career Guide to Medical Writing

Ever thought about being a medical writer?

If you are a strong communicator and want to use your scientific skills and knowledge, then this might be the career for you.

EMWA News

Editorial

Time to say goodbye.

As I will step down from my role as EMWA's Public Relations Officer in May 2017, I will no longer be on top of the EMWA news and will, therefore, step down from my role as section editor. It is with great pleasure though that I introduce my successor, Evguenia Alechine ("Jenia"), who will take over from the June issue onwards. Jenia is an instrumental part of the Twitter team and, as such, "on top" of EMWA news. Therefore, she is the ideal successor. Jenia's move also shows the opportunities you face when volunteering for EMWA. Being her first EMWA conference in May 2016, she is now becoming section editor. Certainly, the good job she did so far and her adorable personality were prerequisites for this fast move.

We continue our collaborations with other organisations to increase our visibility, which includes reciprocal advertisement arrangements. For instance, we have provided promotional material including *Medical Writing* issues at the January ISMPP conference and the eRegulatory Summit. There was also a strong EMWA presence at the MedComms Forum in Berlin.

SECTION EDITOR

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Moreover, the EMWA-AMWA-ISMPP joint position statement on the role of professional medical writers has been released at the ISMPP meeting on 17 January.

Furthermore, we are busy preparing the spring conference in Birmingham. It is to our Vice-president's credit to have connected with the Board of Editors in the Life Sciences (BELS) and organised the BELS examination to take place in Birmingham on 2 May.

EMWA website

Have you taken time lately to browse the EMWA website? If you are an infrequent visitor, it is worthwhile exploring the site in a little more detail. We are continually adding content and new sections – not to mention the Sisyphean task of keeping links and data up to date!

One new section we are pleased to present is "A Career in Medical Writing", especially for new or aspiring medical writers. You can find it using this shortcut link: http://tinyurl.com/h4besvu, or by navigating from www.emwa.org > Training > A Career in Medical Writing.

The centrepiece of this section is EMWA's Career Guide to Medical Writing (November 2016 edition), which is available at http://www.emwa.org/Documents/Training/MW Career Guide Ver Nov 2016.pdf. The authors, Sally Jackson and Raquel Billiones, cover essential questions that people interested in a career in the industry typically have. In an attractively produced online document, topics covered include:

- What is medical writing?
- What skills and qualifications do I need?
- Where do medical writers work and what do they do?
- How much can I expect to get paid?
- What are the career prospects for medical writers?
- In addition, the webpage contains a selection of useful downloads from other EMWA sources for anyone starting out in medical writing.

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BELS exam in Birmingham

For the very first time since 1996 and for the convenience of EMWA members attending the May 2017 conference in Birmingham, the Board of Editors in the Life Sciences (BELS) is planning to hold its examination in Birmingham on the day before the conference is due to start (2 May 2017 at 12:00 at the Royal Angus Hotel, about 0.9 miles from the ICC). The exam is offered worldwide and tests proficiency in all aspects of manuscript editing. Candidates who pass this certification exam are allowed to use the credentials "ELS" after their names (Editor in the Life Sciences).

Delegates wishing to register for the BELS exam should contact BELS via www.bels.org. Delegates should note that while EMWA and BELS are coordinating the timing of these events, the BELS examination is an independent event and not part of the EMWA conference. EMWA accepts no liability arising from registration for, conduct of, or potential cancellation of the BELS examination event, and is not able to provide assistance with BELS registration or authorised to answer any queries regarding the BELS examination.

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Want to leave academia and become a medical writer? Visit the career coaching at the internship forum!
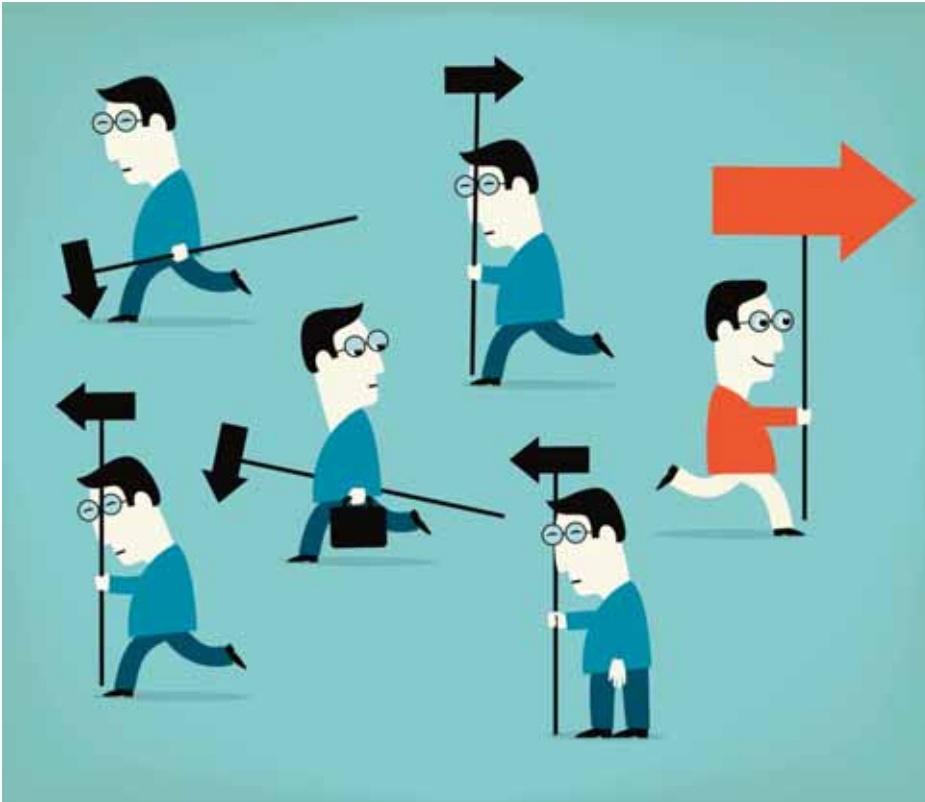
At the 2nd annual Internship Forum, in addition to meeting companies, attendees will have the opportunity to meet with specialised career consultants for a 30-minute, one-on-one session to learn how to leverage their unique skills and successfully land a job as a medical writer. This special session is targeted to master students, PhDs, and postdocs who want to transition from academia (or another profession) into medical writing. The topics covered will include:

- tailoring academic CVs into medical writing-specific resumes.
- mastering the medical writing interview process
- leveraging LinkedIn profiles to build a strong personal brand.
- using social media to network effectively.

All these topics will be discussed to provide the necessary tools for a successful transition into the medical writing field. Contact us in advance to book a time slot and send your academic CV for a one-on-one consultation during the forum. Be aware that spots are expected to fill up quickly. See you in Birmingham!

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New CORE Reference publication

EMWA members may be interested to read the latest publication related to the CORE Reference initiative: Hamilton S, Forjanic Klapproth A. A new standard for medical writing. WorldPharma Clinical Trials Insight 2016 (2):13-14

(http://viewer.zmags.com/publication/ad20d9 3c#/ad20d93c/12)

You can find more information and further publications on www.core-reference.org.

The second EMWA Live Internship Forum at the spring 2017 conference in Birmingham

Due to the success of the inaugural EMWA live Internship Forum in Munich this past May, the second live Internship Forum will be organised on 4 May 2017 at 08:00-13:00 during the spring 2017 conference in Birmingham.

The EMWA Internship Forum was established to bring together prospective medical writers seeking experience with companies willing to support their development. Internships provide prospective medical writers with practical training in an established commercial environment. Participating companies benefit from the enthusiasm and talent of interns, and internships may facilitate the recruitment process by acting as precursors to full-time positions.

Interested? For full details, visit the Internship Forum page under the Training section of the EMWA website. In brief, prospective medical writers must be EMWA members to participate and should provide a CV and application letter to participating companies. Prospective medical writers should also ensure that they are eligible to work and live in the country where the internship is based. Companies interested in participating should provide a position of at least 3 months, along with sufficient resources to train and mentor the intern. As we do not promote unpaid positions, suitable remuneration should be provided. Company participation in the Internship Forum is free. At the time of this writing, Costello Consulting, St Gilesmedical, Publicis LifeBrands International and Scinopsis have confirmed their participation.

For more information, please visit the EMWA website or contact the Internship Forum team directly (internship@emwa.org). We hope to see you at the next live Internship Forum in Birmingham!

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EMWA supporting the Pre-Christmas MedComms Forum in Berlin

A mixed group of writers and editors from the world of medical, regulatory, and device writing met at the Patisserie Sarina in central Berlin on Friday, December 16. The aim was to participate in several educational sessions, network, and, most importantly, eat delicious pastry all washed down with amazing coffee. This event was once again organised and support by St Gilesmedical as a service to the MedComms community and better patient care.

The meeting started with Abe Shevack, VP of EMWA, saying a few welcoming words and providing details of the forthcoming spring conference in Birmingham on May 2017. Afterwards, Steven Walker from St Gilesmedical, who will be leading an Expert Seminar Series

Call for advice

Are you a company with experience in hiring non-EU/non-EEA citizens? Are you a non-EU/non-EEA citizen with experience in navigating work and residency permits in Europe? We want to hear from you! Please contact us at internship@emwa.org.

(ESS) in Birmingham, presented data from a research paper which examined the relative quality of life of writers working in pharma and medical devices. Claudia Frumento, who leads the EMWA's workshop "Writing Clinical Evaluations for Medical Devices" provided an overview of the recently revised MEDDEV 2.7/1 Rev. 4 guideline on clinical evaluations. The afternoon finished with a lively debate across a range of issues including careers in MedComms.

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The ICMJE Recommendations: December 2016 update

In December 2016, the ICMJE (International Committee of Medical Journal Editors) once again updated its Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (commonly referred to as the ICMJE Recommendations).[1] The key changes are outlined below.[2]

- Authors should now bear responsibility for establishing the credentials of the journals they submit to.
- New guidance is provided on dealing with unintentional errors that affect the results and conclusions of a paper. In such cases it might be appropriate to retract and republish ("replace") the paper. The differences between the retracted and new versions should be presented as supplementary material or an appendix.
- Issues related to sex/gender:
  - The need to correctly distinguish between "sex" (a biological property) and "gender" (linked to personal identity and defined by psychosocial/cultural factors) is now emphasised.
  - The sex/gender of study participants and sex of research animals and cells should be established and reported (as applicable).
  - The influence of sex/gender (and other variables) on study findings should be discussed, along with any data limitations.
- If they are to be included in figures, "before" and "after" images should be taken under comparable conditions.

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Advancing the Medical Writing Profession:

the Joint Position Statement on the Role of Professional Medical Writers

A wintry London in January saw the release of the first joint position statement on the role of the professional medical writer (page 7). But why do we need such a statement and what does it say? The Executive Committee identified the need to update our guidelines on medical writing, and Sam Hamilton approached Art Gertel and me in May last year about the possibility of a joint position statement endorsed by both the American Medical Writers Association (AMWA) and EMWA. When the International Society for Medical Publication Professionals (ISMPP) also said that they would come on board, we knew we were onto something. Eight months later, at the 2017 European meeting of ISMPP, the AMWA–EMWA–ISMPP Joint Position Statement on the Role of Professional Medical Writers was launched.

The time was right to review our organisations' existing guidance, which dated back five years or more.[1-3] As well as taking account of updated guidelines from professional bodies around the world, we were able to cite new evidence regarding medical writers' understanding of best practice guidelines[4,5] and the value of our profession to evidence-based medicine.[6-9] Indeed, more evidence of our value is emerging all the time.[10]

More importantly, we were able to unite three leading professional organisations with a combined membership of over 6,500 to speak with one voice for medical writers and communicators around the world. The Joint Position Statement was drafted and reviewed by representatives of AMWA, EMWA, and ISMPP, located in Europe, North America, and Asia, and supersedes previous position statements and guidelines from participating organisations. Preparation of the Joint Position Statement was possible thanks to the efforts of four members of the Writing Committee (Art Gertel, AMWA; Chris Winchester, EMWA; Karen Woolley and Yvonne Yarker, ISMPP), the organisational reviewers, and all those involved in the original position statements of the three organisations.

The Joint Position Statement will be presented at the EMWA Congress in Birmingham in June, in a special lunchtime session on Wednesday 3 May, and during an Expert Seminar Series earlier that day, entitled "Improving quality and maximising value: professional medical writers and peer-reviewed publications".

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AMWA–EMWA–ISMPP Joint Position Statement on the Role of Professional Medical Writers

Released January 2017

Introduction

This joint position statement of the American Medical Writers Association (AMWA), the European Medical Writers Association (EMWA), and the International Society for Medical Publication Professionals (ISMPP) describes the appropriate role of professional medical writers in the development of medical and scientific publications, including:

- articles and supplementary content (eg, video abstracts) for publication in peer-reviewed journals
- abstracts, posters, and oral presentations for dissemination at scientific congresses.

This joint position statement is in line with up-to-date guidelines from several other international organisations.[1–13]

Responsibilities of professional medical writers

Professional medical writing support helps authors and sponsors to disclose their research in peer-reviewed journals and at scientific congresses in an ethical,[14] accurate,[15,16] and timely[17] manner, with the ultimate aim of advancing patient care. Professional medical writers have extensive knowledge of ethical publication guidelines.[18,19] When assisting authors with communication of the results of company-sponsored research, they must:

- follow Good Publication Practice (GPP3) guidelines and International Committee of Medical Journal Editors (ICMJE) recommendations [1,2]
- consult appropriate reporting guidelines (eg, CONSORT[20] and others collated by the EQUATOR network [21])
- ensure that the authors and sponsors are aware of their obligations under these guidelines[1,2,20,21]
- keep up to date with advances in medical communications ethics and best practices.

Responsibilities of authors who collaborate with professional medical writers

Authors who choose to collaborate with a professional medical writer on manuscripts or congress presentations must:

- ensure that they, as authors, have access to all relevant information (eg, protocols, statistical analysis plans, statistical analyses, and clinical study reports)
- provide intellectual input before writing commences and throughout content development
- ensure that the final text fully reflects the views of, and is approved by, all authors
- affirm the appropriateness of the final choice of journal or congress
- acknowledge the provision of medical writing support, including the nature of the support, and the names, highest relevant qualification (eg, degrees or professional credentials), and affiliation of the professional medical writer accountable for the support provided, and acknowledge the funding sources for the provision of medical writing support (see Box)
- recognise as a co-author all contributors (including a professional medical writer) who meet the ICMJE authorship criteria.[1]

Example of template disclosure statement for professional medical writing support

"The authors thank [name and qualifications] of [company, city, country] for providing medical writing support/editorial support [specify and/or expand as appropriate], which was funded by [sponsor, city, country] in accordance with Good Publication Practice (GPP3) guidelines (http://www.ismpp.org/gpp3)."

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Ethical, accurate, timely

AMERICAN MEDICAL WRITERS ASSOCIATION

Joint Position Statement

EUROPEAN MEDICAL WRITERS ASSOCIATION

EMWA

ISMPP International Society for Medical Publication Professionals

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EMWA's Special Interest Groups (SIGs)

The EMWA SIGs allow EMWA and its members to contribute to important conversations around topics that we know will impact on our industry in the coming years.

You may have colleagues interested in joining the EMWA SIGs to debate, and share best practice and resources.

Pharmacovigilance SIG

As part of the growing interest amongst medical writers in safety writing, and also based on the understanding that there are subtle differences between safety writing and medical writing, EMWA is introducing a Pharmacovigilance Special Interest Group (PV SIG).

The PV SIG aims to bring together EMWA members to discuss and share information and best practice in the area of PV and PV writing. The group will aim to increase dialogue within and between the medical writing community and the regulatory authorities (RAs), and will hold an annual PV update session during the EMWA Spring Meeting to discuss current PV-related topics from different perspectives, and to encourage dialogue with the RAs. The group will also act as a resource for medical writers interested in the area of PV by posting guidance and updates to guidance as appropriate, and will liaise with the EMWA Professional Development Committee to advise on additional training for EMWA members in the field of PV writing and PV.

Committee members
- Dr Lisa Chamberlain James (Chair)
- Dr Tiziana von Bruchhausen
- Dr Rohit Pushparajan
- Dr Alison Rapley (EC liaison)

Regulatory Public Disclosure SIG

'Public disclosure' has different meanings for different groups of medical writing professionals.
- Publication professionals understand it to mean the publication of research findings whether the outcomes are negative or positive; the disclosure of funding; disclosure of involvement of medical writers in publication development; disclosure of conflict of interest etc.
- Regulatory professionals understand it to mean the registration, status reporting, and results posting of clinical studies in purbliclly accessible Internet registries.
- Upon-request or proactive sharing of clinical regulatory documents (eg, synopses, clinical study reports, clinical overviews, clinical summaries) and/or individual patient data.
- Publishing of clinical trial results in journals. The RPD SIG objective is to provide a forum for the discussion and sharing of information, best practices, and ideas with EMWA members.

The concept of 'regulatory public disclosure' is of special interest because of:
- its impact on the content and structure of standard regulatory documents
- the expectation that the range of regulatory documents affected will burgeon in the coming years

Public disclosure will create the need for new regulatory documents, which the medical writer will support.

EUROPEAN
MEDICAL
WRITERS
ASSOCIATION

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Save the Date

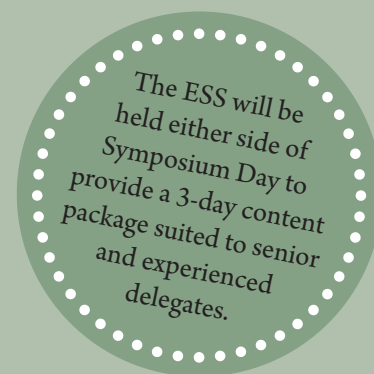### The 42nd EMWA Conference
Tuesday 2 to Saturday 6 May 2017

The International Conference Centre, Birmingham, England

Visit: www.emwa.org or Email for further information: info@emwa.org

Approximately 50 foundation- and advanced-level workshops will underpin the conference, complemented by special events including:

- Welcome Event and Networking Reception
- Conference Dinner and a range of evening social events
- Expert Seminar Series (ESS) see details below
- Symposium Day see details below
- Freelance Business Forum
- Poster session
- Internship Forum.

The ESS will be held either side of Symposium Day to provide a 3-day content package suited to senior and experienced delegates.

Birmingham 2017

3rd Expert Seminar Series
3 and 5 May 2017

The ESS is for experienced medical writers, heads of medical writing departments, and industry leaders from other disciplines interested in the latest developments affecting the medical writing industry and in shaping the world of medical writing. International experts will lead lectures with either a panel or participant discussion or demonstration:

- **Chris Winchester** Oxford PharmaGenesis Ltd: Improving quality and maximising value: professional medical writers and the publications process
- **Steven Walker** St Gilesmedical Ltd: How to deliver a successful medical conference
- **Theo Rayner** University of Leeds and Juan Garcia Burgos EMA: Pharmacovigilance documents – what do patients really want and need?
- **Jane Knight** MedDRA: Recent Developments around the Medical Dictionary for Regulatory Activities, MedDRA, and how it is used
- **Julia Forjanic Klapproth** Trilogy Writing & Consulting GmbH and Art Gertel MedSciCom, LLC: Responses to authorities and the role of the medical writer
- **Walther Seiler** Bayer Pharma AG and Yuk-ki Wong St Richard's Hospital : Templates for clinical study protocols: Current position within the industry

5th Symposium Day
4 May 2017

The fifth EMWA one-day symposium will focus on the rapidly changing field of regulatory public disclosure requirements and how these changes impact the consumers, the writers, and how information is disclosed. Through the onset of regulatory public disclosure, the importance of "smart writing" – and thus of the medical writer role – has become paramount.
Regulatory public disclosure imposes new demands on information presentation in documents, terminologies, document structure, and consistency.
There are also overlaps with disclosure aspects in pharmacovigilance.
In this symposium, speakers and panelists will present and discuss approaches, with reference to:

- Strengthening Collaboration for Operating Pharmacovigilance in Europe (SCOPE) and the WebRADR (Recognising Adverse Drug Reactions) Project – What's new
- The importance of social media in pharmacovigilance
- EMA Policy 0070 – What's new?
- Public disclosure regulations/requirements in the US and the EU – What's new?
- The German Institute for Quality and Efficiency in Healthcare (IQWIG) perspective as a "user" of publically disclosed clinical documentation/information (with emphasis on the consumer part)
- The medical writer's perspective on the public disclosure of clinical documents/information (with emphasis on the writing part)
- The company perspective on the public disclosure of clinical documents/information (with emphasis on how documentation/information is disclosed)

Finding the action in your writing:
Avoiding nominalisation

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Abstract
Dense, hard-to-follow writing obfuscates complex subject matter, but writers can improve their ability to communicate complex topics with clear writing that is easily understood on a first read. Science and medical writing often contain grammatical constructs, including nominalisations, which require the reader to perform "mental gymnastics" to discover the actors and the action of the sentence. Reading for nominalisations and rescuing the verbs that they hide reveals the action. The writing becomes more engaging, easier to understand, and more likely to capture the reader's interest. Here I discuss how to recognise and edit nominalisations, concluding the article with some short sentences for practice.

Communicating the Passion of Science

For me, communicating science is a passion. Nothing is more thrilling than listening to a scientist present her work, conveying not only the scientific principles but also her wonder and amazement of the questions explored and the new things discovered. Good science writing communicates both the subject matter and the enthusiasm and wonder of the scientist to the reader. Unfortunately, when ploughing through the scientific or medical literature for an article assignment, I often end up bogged down in dense text that often obscures the science and dampens my enthusiasm. Science and medical scholarly articles can be deadly reading; they can take an amazing and wonder-filled story and make it

dense, officious, and boring, draining all of the vitality from the science.

Complex subjects such as scientific and medical topics, however, do not require dense, hard-to-follow writing; nor do they require "dumbing-down" the text in order to be readable.[1] On the contrary, writers who genuinely care about their readers and their subject matter work hard to ensure that their writing is clear, engaging, accurate, and easy to understand. They edit their work by looking at several key features that serve as flags for poor writing.

Nominalisations can hide the action of your science story

Nominalisation is a key flag of dense writing. When we nominalise words, we take verbs and turn them into nouns. Students and academic writers tend to nominalise words when they are writing to impress, creating officious-sounding text. Nominalisations are often associated with passive voice constructs and hide the action.

Often you can recognise a nominalisation by the "–ment" or "–tion" endings on the word. Consider the sentence: "A luminometer is required for measurement and subsequent establishment of ATP levels." Both measure*ment* and establish*ment* are nominalisations (of the verbs "measure" and "establish").

The example sentence above came from a draft of directions for performing an assay to detect microbial contamination. To edit the sentence so that the person performing the assay

can understand it easily, I would do two things: first, speak directly to the person performing the action, and second, rescue the verbs "measure" and "establish" from the nominalisations. Consider my edit: "You will need a luminometer to measure luminescence and establish ATP levels."

Strunk and White address the issue of "noun used as verb" in *The Elements of Style.* They indicate that while not all nominalisations are bad, all are suspect.[2] This is an important point to acknowledge, particularly in science and medical writing where new terms are being coined continuously and editors need to consider the evolution of our language and the specialised vocabularies of our audience. For instance the phrase "gene expression" contains a nominalisation. "Expression" is a nominalised form of "express", but "gene expression" is a phrase that has a specific, well-understood meaning in scientific circles, and it should not be edited to remove the nominalisation. If you remove the nominalisation, your scientific readers will think that you are unfamiliar with the science, and you will lose your credibility as a knowledgeable source.

The Duke University Graduate School Scientific Writing Resource has a nice lesson about nominalisations.[3] The Duke guide suggests that when you review your writing, you ask yourself as you read each sentence: Is the action shown in the main verb? If the action isn't in the main verb, where is it? Is it hidden in a nominalisation?

As science and medical writers we strive to communicate complex topics as clearly and accurately as possible. One way to do this is to edit difficult constructs like nominalisations that rely on our readers to decipher the actors and actions in our sentences. Bringing the action of your sentences out into the open can make your science writing more engaging for your readers, and engaged readers are more likely to remember what they read and even return for more.

Exercises

Here are some sentences for practice. Identify the nominalised words and see if you can make the meanings more clear by editing some of the nominalisations. Remember all nominalisations are suspect, but not all should be corrected.

1. Exposure to test compounds for several days is commonly used to determine if they cause an inhibition of cell proliferation.

2. Recover time and labour savings from the elimination of sample preprocessing and the use of predispensed reagents.

3. The isolation of DNA directly from whole blood minimises the negative effects of storage.

4. This paper gives an analysis of the brca-2 gene expression in breast cancer cells treated with the newly developed biologic.

5. The physician performed an examination of the patient to make a determination of whether or not surgery would be necessary.

6. Often the challenge is selection of the appropriate treatment protocol for implementation in the patient's care plan.

7. Indeed a major impediment to the interpretability of microarray data is the current lack of comparability from laboratory to laboratory.

8. Data provided by these non-invasive diagnostic assays are found to be in agreement with the more traditional methods used by physicians.

9. This figure provides an illustration of the high-quality results we obtained using this assay method.

10. The quality inspector came to the conclusion that the food product contamination occurred during packaging.

Answer key

1. **Original:** Exposure to test compounds for several days is commonly used to determine if they cause an inhibition of cell proliferation.
    Nominalised words: Exposure, inhibition, iroliferation
    Suggested edit: Cells are often exposed to test compounds for several days to determine if the compounds inhibit cell proliferation.

2. **Original:** Recover time and labour savings from the elimination of sample preprocessing and the use of predispensed reagents.
    Nominalised words: Elimination, use
    Suggested edit: Save time and labour by eliminating sample preprocessing and using predispensed reagents.

3. **Original:** The isolation of DNA directly from whole blood minimises the negative effects of storage.
    Nominalised word: Isolation
    Suggested edit: Isolating DNA directly from whole blood minimises the negative effects of storage.

4. **Original:** This paper gives an analysis of the brca-2 gene expression in breast cancer cells treated with the newly developed biologic.
    Nominalised words: Analysis, expression
    Suggested edit: The authors of this paper analysed brca-2 gene expression in breast cancer cells treated with the newly developed biologic.

5. **Original:** The physician performed an examination of the patient to make a determination of whether or not surgery would be necessary.
    Nominalised words: Examination, determination
    Suggested edit: The physician examined the patient to determine whether surgery was necessary.

6. **Original:** Often the challenge is selection of the appropriate treatment protocol for implementation in the patient's care plan.
    Nominalised words: Selection, Implementation
    Suggested edit: Often the challenge is selecting the appropriate treatment protocol for the patient's care plan.

7. **Original:** Indeed a major impediment to the interpretability of microarray data is the current lack of comparability from laboratory to laboratory.
    Nominalised words: Interpretability, comparability
    Suggested edit: Interpreting microarray data is difficult because we cannot easily compare data among laboratories.

8. **Original:** Data provided by these non-invasive diagnostic assays are found to be in agreement with the more traditional methods used by physicians.
    Nominalised word: Agreement
    Suggested edit: The data provided by the non-invasive diagnostic assays agree with the more traditional methods used by physicians.

9. **Original:** This figure provides an illustration of the high-quality results we obtained using this assay method.
    Nominalised word: Illustration
    Suggested edit: This figure illustrates the high-quality results we obtained using this assay method.

10. **Original:** The quality inspector came to the conclusion that the food product contamination occurred during packaging.
    Nominalised words: Conclusion, contamination
    Suggested edit: The quality inspector concluded that the food products were contaminated when they were packaged.

Author information

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Removing the dead wood

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Abstract

Authors are urged to write clearly, concisely and convincingly, but this can be difficult to achieve if they are unaware that they are using longwinded phrases, convoluted language and excessive hedging, also called "dead wood". In this article, I provide some examples of how dead wood can be removed to improve readability. I also provide a sample exercise that readers can use to practice removing dead wood.

Authors are urged to write clearly, concisely and convincingly, but often they are uncertain how this best can be achieved. They may not immediately recognise longwinded phrases, convoluted language and excessive hedging.

Therefore, it is important to raise awareness. The first step is to recognise the problem. The second step is to do something about it. In our medical writing courses in Copenhagen[1] we zoom in on examples of redundancy and hesitancy in texts written by participants. We especially focus on how their writing can be improved by removing unnecessary words – the "dead wood". We train participants to catch and remove the dead wood, to write plainly and simply, and to avoid excessive hedging. To reinforce the message, we use directed writing exercises where authentic sentences are reworked to tighten up the language.

Avoid hedging, imprecision and intensifiers

Beware of using too many hedging words, such as *may*, *might*, *can*, *could* and *possibly*. Instead, decide what you want to say and say it! Also beware of using imprecise words, such as *quite*, *rather*, *fairly*, *relatively* and *somewhat*. They are usually redundant and best eliminated, as illustrated here: 'This trend is [fairly] similar to trends found in the other Nordic countries.' Finally, beware of using intensifiers, such as *very*, *highly*, and *extremely*, which paradoxically may weaken the message: *absolutely essential = essential*; *very true = true*; *highly central = central*.

Make your writing snappier by removing pretentious and wordy language

Remove pretentious and wordy language to produce snappier writing. Below are some examples. In each case, use the simpler word whenever possible. For example, prefer *use* to *utilise* if there is no special emphasis, and avoid shifting from *use* to *utilise* and back again for no good reason. In some cases, there can be a valid difference in meaning between the two words. For example, researchers *use* a test, but *utilise* its special features.

- Utilise = use
- During the course of = during/while
- In spite of the fact that = although
- Owing to the fact that = because
- With the exception of = except for
- May possibly = may
- It is my understanding that = I understand that
- End result = result
- Higher in comparison to = higher than
- The general consensus is = the consensus is

- It is interesting to note that (omit?)

You can also make text snappier by removing some or all of the articles as in the following example.

Original: *The* clinical data, including *the* survival, age and sex of *the* patients, were collected from *the* hospital records.

Improved: Clinical data, including survival, age and sex of *the* patients, were collected from *the* hospital records.

Better: Clinical data, including survival, age and sex of patients, were collected from hospital records.

Examples of unclear, longwinded sentences

There is no shortage of material to illustrate unclear, longwinded, unconvincing writing. Here are a few examples and suggestions of how the writing can be improved.

Original: <u>A rather somewhat unclear</u> status
Better: An unclear status
Reason: This is called "multiple hedging", which means using multiple terms to avoid saying anything definite. One hedge or indefinite word is enough. With "unclear", "rather" and "somewhat" become redundant.

Original: <u>The majority of</u> studies…
Better: Most studies…
Reason: More words tire the reader, so it's better to use shorter expressions when you can.

Original: It is <u>absolutely necessary</u> that the

suggested guidelines for HIV-1 should be strictly followed.

Better: The guidelines for HIV-1 should be strictly followed.

Reason: Several things can be improved to make this sentence easier for the reader. First, remove "it is" whenever you can. Second, "absolutely necessary" can be simplified to "should" or perhaps "must". Finally, guidelines are always suggestions, so "suggested" is redundant.

Original: Alcohol use is responsible for increased illness and death worldwide.

Better: Alcohol is responsible for increased illness and death worldwide.

Reason: "Use" is redundant.

Original: The landmark analysis was performed to illustrate …

Better: The landmark analysis illustrates …

Reason: The expression "performed to" is unnecessary and makes the phrase longwinded.

Original: The objective of this study was to investigate the relationship between gene copy number and clinical outcome.

Better: We investigated the relationship between gene copy number and clinical outcome.

Reason: Using the first person (we) is acceptable and makes this sentence more direct, shorter, and therefore easier to read.

Original: A substantial amount of evidence has accumulated that …

Better: Substantial evidence has accumulated that …

Reason: "Amount of" is redundant as "substantial" obviously indicates an amount.

Original: A pale cyanotic heart musculature was visually observed distal to the ligature.

Better: A pale cyanotic heart musculature was observed distal to the ligature.

Reason: "Visually" is redundant when using the word "observed".

Original: One possible explanation for the altered cytokine expression could be that the adenovirus infection could cause cell degeneration and death, and the products of this process might influence cytokine production in the remaining cells.

Better: One explanation for the altered cytokine expression could be that the adenovirus infection causes cell degeneration and death, and the products of this process influence cytokine production in the remaining cells.

Reason: This is another case of multiple hedges. A single hedge ("could be") is sufficient.

An example of how to remove dead wood and improve clarity

During our courses, sentences often undergo several rewrites. Here is a sentence we worked on in class. The author went away, reflected on our suggestions, and subsequently decided to make further changes. We corresponded back and forth until we reached as far as version 4, and version 5 is actually the final published version.

Version 1 (original): Chest drains are routinely used in the post-operative setting in thoracic surgery, although their use after wedge resection by video-assisted thoracoscopic surgery (VATS) is not evidence based.

Version 2: Chest drains are used routinely after wedge resection by video-assisted thoracoscopic surgery (VATS), although such use is not evidence based.

Reason: I removed "in the post-operative setting in thoracic surgery" because it was not necessary to make the point.

Author's comment: 'It sounds much more fluent like that. As a spinoff I am considering changing it further.'

Version 3: Chest drains are used routinely after wedge resection by video-assisted thoracoscopic surgery (VATS), although such use is based largely on tradition and not evidence.

Author's reason: 'I replaced "not evidence based" with "based largely on tradition and not evidence" to be more specific.'

Author's additional comment: 'If I prefer, can I write "their" instead of "such" or is it too Danish?'

Version 4: Chest drains are used routinely after wedge resection by video-assisted thoracoscopic surgery (VATS), although their use is based largely on tradition and not evidence.

Reason: I replaced "such" with "their" as suggested by the author.

Version 3:[2] Chest drains are used routinely after wedge resection by video-assisted thoracoscopic surgery (VATS), although this practice is based largely on tradition rather than evidence.[2]

Author's reason: I replaced "their use" with "this practice" to be more precise. I thought it sounded better, since it refers to the standard practice described in the beginning of the sentence.

Our concerted efforts culminated in a clearer, more concise, and more convincing sentence.

This is just one sentence. It is, however, the opening sentence of the abstract and therefore important. It gives the reader a good first impression. Meticulously checking the entire manuscript for dead wood and tightening up the language leaves the reader with a good overall impression.

Acknowledgements
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Members of EMWA are welcome to use these examples, which are largely taken from draft texts written by PhD students. An enlightening discussion is guaranteed.

Exercise: Remove the dead wood

As well as discussing examples of redundancy in students' texts, we include short exercises where we rework verbose sentences to make them clearer and easier to read. Often, there is no ideal solution: how much participants wish to remove or change is open to discussion – and it is the discussion that is the most valuable and enlightening part of the exercise.

In the exercise, ruthlessly remove all unnecessary words and also check that you are not inadvertently repeating yourself. For example, you do not need to say something was *red in colour, round in shape,* etc. You also do not need to say the location was *marked with a marker.* Your work will be much improved if you omit all such forms of roundabout phraseology. Write *we studied* in preference to *we carried out a study.* Longwinded introductions, such as *It is to be recognised that*, can likewise be skipped; get straight to the point. Remember: less is more!

How might you improve the following?

1. For the purpose of better understanding the disease…
2. So far there have been conducted three examinations.
3. Breast cancer is the most common cancer among adult women.
4. Prompt early treatment with appropriate antimicrobial drugs improves the patient's chance of survival considerably.
5. During the trial a monthly newsletter with trial updates was sent out and published on the trial website.
6. We found that over-expression of p53 is associated with shorter survival, after adjustment was performed for several potential confounding factors
7. It is a well-known fact that prostaglandin E2 plays a role in pain processing.
8. Editorial concerns are highlighted with turquoise colour. Changes related to concerns of Reviewer #1 are highlighted with green colour. Changes related to concerns of Reviewer #2 are highlighted with yellow colour. Deleted passages are marked with red colour.
9. It seems as though it has become evident that more emphasis needs to be placed on postgraduate training.
10. Thus, AA staining might be used as a useful immunological marker for the prediction of poor prognosis in renal call cancer.

Answer key

Below are my suggested improvements.

1. **Original**: For the purpose of better understanding the disease…
Better: To better understand the disease…
Reason: "For the purpose of better understanding" is a longwinded way of saying "To better understand".

2. **Original**: So far there have been conducted three examinations.
Improved: So far there have been three examinations.
Better: So far three examinations have been conducted.
Reason: "Conducted" is redundant when coupled with "there have been". Also, it is often preferable to eliminate there is/there are/there have been, etc. from the beginning of a sentence.

3. **Original:** Breast cancer is the most common cancer among adult women.
Better: Breast cancer is the most common cancer among women
Reason: Women are always adults, so "adult" is redundant.

4. **Original:** Prompt early treatment with appropriate antimicrobial drugs improves the patient's chances of survival considerably.
Improved: Prompt treatment with appropriate antimicrobial drugs improves the patient's chances of survival considerably.
Better: Prompt treatment with antimicrobial drugs improves survival considerably.
Reason: "Prompt" is redundant when coupled with "early". Also, "the patient's chances of survival" is a longwinded way of saying "survival".

Finally, "appropriate" is meaningless – are patients likely to be given inappropriate treatment?

5. **Original:** During the trial a monthly newsletter with trial updates was sent out and published on the trial website.
Better: During the trial a monthly newsletter with updates was sent out and published on the website.
Reason: "Trial" only needs to be said once; the second and third uses of "trial" are redundant.

6. **Original:** We found that over-expression of p53 is associated with shorter survival, after adjustment was performed for several potential confounding factors.
Better: We found that over-expression of p53 is associated with shorter survival, after adjustment for several potential confounding factors.
Reason: Empty verbs such as *performed, carried out*, etc. that have little or no meaning are best avoided.

7. **Original:** It is a well-known fact that prostaglandin E$_2$ plays a role in pain processing.
Improved: It is well known that prostaglandin E$_2$ plays a role in pain processing.
Better: Prostaglandin E$_2$ plays a role in pain processing.
Reason: "Fact" is redundant when you say "it is well known". But better, just state what is – you do not need to say that something is well known.

8. **Original:** Editorial concerns are highlighted with turquoise colour. Changes related to concerns of Reviewer #1 are highlighted with green colour. Changes related to concerns of Reviewer #2 are highlighted with yellow colour. Deleted passages are marked with red colour.
Better: Editorial concerns are highlighted in turquoise. Changes related to concerns of Reviewer #1 are highlighted in green. Changes related to concerns of Reviewer #2 are highlighted in yellow. Deleted passages are marked in red.
Reason: Turquoise, green, yellow and red *are* colours; adding "colour" is unnecessary.

9. **Original**: It seems as though it has become evident that more emphasis needs to be placed on postgraduate training.
Improved: It is evident that more emphasis needs to be placed on postgraduate training.
Better: More emphasis needs to be placed on postgraduate training.
Reason: If the author doesn't get to the point in the first five words there is a strong chance the reader will move on to something else.

10. **Original:** Thus, AA staining might be used as a useful immunological marker for the prediction of poor prognosis in renal cell cancer.
Better: Thus, AA staining might be a useful immunological marker for predicting poor prognosis in renal cell cancer.
Reason: "Used" and "useful" are redundant, and "for the prediction of" is a longwinded way of saying "for predicting"

Working through these authentic examples with the goal of removing the dead wood and tightening up the language is a proven way of achieving clearer, more concise, and more convincing writing. This is the kind of snappy writing – straightforward not longwinded; direct not convoluted – that readers appreciate.

Writing economically in medicine and science: Tips for tackling wordiness

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Abstract

Concise medical and scientific writing is clearer, more direct, and more pleasurable to read than wordy text. It is also more accessible to readers, including those outside the discipline and non-native speakers of English. An added benefit of limiting word clutter is that it helps reduce the word count to suit publication guidelines. In this article, I describe three ways for medical writers and editors to tackle wordiness: avoiding repetition, eliminating redundancy, and minimising purposeless words such as unnecessary qualifiers, weak verbs, and roundabout expressions. Using these techniques will help remove barriers to comprehension, encouraging readers to focus on important content.

Introduction

Writing economically, while helpful to writers in many domains, is especially important for medical and scientific writers. Uncluttered text relays a message that is clear, direct, and enjoyable to read. You should therefore strive to eliminate or minimise wordiness wherever it improves the text without sacrificing essential content or compromising understanding. Trimming excess words, or *deadwood*, can also solve another problem that you may often face as a medical writer or editor: how to reduce the word count to meet publication guidelines.

Achieving a good balance between clarity and conciseness requires a sense of where to look for repetitiveness, redundancy, and excessive words. It also takes practice. Consider, for example, the difference between the following – albeit exagg-erated – sentence and the suggested revision:

Original: Needless to say, it is worth pointing out that the somewhat unanimous opinion of medical writers in terms of the development of actual written materials is that medical writers should aim for the reduction of as many words as possible in an attempt to achieve economy of language and conciseness. (50 words)

Suggested revision: Medical writers should aim to be less wordy. (8 words)

Not only is the revised sentence easier to read, but it brings you closer to your word count goal. Not every instance of minimising wordiness will result in such a dramatic reduction in the number of words – some revisions save only one or two – but many small word savings add up and improve a document overall. In this article, I describe various ways to tackle wordiness, as illustrated in the revised sentence. These tips will help you retain important content, stay within word limits, and remove obstacles that could come between the reader and your message.

Repeat after me: avoid repetition

Repeated words and phrases are noticeable forms of wordiness that are typically easy to revise. You may nonetheless initially overlook them. Search for repetitions in the following places:

- A duplicated noun or phrase within a sentence. For example, consider the following sentence: 'The severity of symptoms caused by a chronic underlying disease in hospit-alised patients is evident from the high mortality rate of the underlying disease.' Sometimes nouns or noun phrases need to be repeated in complex sentences for clarity or emphasis, but in simple sentences, they can be replaced with a pronoun. Here, the phrase *the high mortality rate of the underlying disease* can be replaced with *its high mortality rate*.

- Back-to-back sentences in which the second sentence starts with or includes *it, this, these,* or other pronouns and can easily be combined with the first.[1] For example, consider the following sentences: 'The new system features three innovative tools. Of these tools, one is for patients, one is for clinicians, and one is for researchers.' They can be reduced to one sentence: 'The new system features three innovative tools: one for patients, one for clinicians, and one for researchers.' Notice the omission of the serial use of *is*. Again, be careful not to use this strategy if it combines two complex sentences that are better left separate for clarity.

- Parallel constructions. If a word is repeated in a series of items in a sentence or a list, it can often be omitted. For example, the article *a* can be omitted before *list* in the preceding sentence, and the word *improved* can be omitted after the first instance in the sentence: 'Two patients improved by 3%, three patients improved by 4%, and one patient improved by 2%.' Be careful, however, not to omit a non-equivalent word. For example, do not omit the word *an* in the following sentence: 'The team consisted of a nurse educator and an on-call nurse.' In addition, check all lists carefully: you may be able to restructure them to omit the first word or two in each item.

- The words immediately following an abbreviation. I sometimes find an abbreviation followed by a noun that is part of the expanded term. You can locate these instances by globally searching for the abbreviation to see if a repetitive word is used nearby. For example, if the author introduces *DMEM* as the abbreviation for *Dulbecco's modified Eagle's medium*, it should not later be described as *DMEM medium*; similarly, if the author introduces *SAD* in place of *seasonal affective disorder*, it should not subsequently be referred to as *SAD disorder*.

Eliminate redundancy

Redundancy more broadly means the excessive use of unnecessary words, but it can also be considered in a narrower sense as the repetition of the same idea in different words, or tautology.[2] For instance, medical professionals often speak of a patient's *past history*. But since history can only occur in the past, the word *past* is redundant and should be omitted in written materials.

Although redundancy may be obvious, we are often so used to hearing or seeing an instance of

it that, like the crooked picture in the hallway, we no longer notice. Because it may convey the impression that the writer is unknowledgeable, identification of redundancy is worth the effort. There is no easy way, however, to avoid these sources of wordiness: you will need to focus carefully on the meaning of terms or phrases, checking the dictionary if necessary, to recognise and eliminate them.

Examples are given in Table 1, but many writing and style manuals contain long lists of these expressions. You may find it helpful to review these lists from time to time and to note your own examples as you discover them.

Another common form of redundancy occurs when a writer piles up two or even three synonyms in a series even though the first word is clear.[2] Readers may as a result infer that the writer is indecisive. The following examples can be shortened to one word:

- *accurate, exact,* and *precise*
- *each* and *every*
- *ways* and *methods*

Minimise purposeless words

Searching for purposeless words and expressions can be one of the most challenging, yet rewarding, aspects of improving clarity and readability. Be ruthless: cut or revise all unnecessary language – whether illogical, weak, or bloated – that detracts from your message.

Unnecessary (and illogical) qualifiers

In medical writing, qualifiers such as *very, quite, rather, actually, basically, extremely, generally, largely, mostly, slightly, somewhat,* and others should be used with care. In my experience, the first three in particular are overused, as I routinely find numerous instances of them as I edit.

Writers use qualifiers to either strengthen or limit the meaning of a word, but pitfalls abound:

qualifiers are imprecise and ambiguous in scientific writing, add little meaning, and, if used too frequently, lose their effectiveness. Therefore, use them sparingly, if at all, or replace them with a stronger adjective (e.g. *very hard* with *difficult, very important* with *crucial*).

A special feature of qualifiers is that they cannot be used with incomparable words (words that represent an extreme state), such as *absolute, final, infinite, scant, total,* and *unique*. Incomparable words cannot be quantified (e.g. *very unique, somewhat final*) or compared (e.g. *more absolute, less scant, most total, least infinite*) because the resulting term is illogical.[3] Eliminating these uses not only decreases wordiness, but strengthens sentences without loss of meaning.

Weak and lacklustre verbs

The strongest sentence and most direct construction in English assigns the action to a vigorous verb. Deviations from this pattern are associated with wordiness. Look for cues to wordiness in three sentence constructions that move the action elsewhere, creating weak verbs: passive voice, expletives, and nominalisations.

Authors can write in one of two voices, active or passive. The active voice emphasises the subject, who performs the action (e.g. 'Smith collected the data'). The passive voice reverses this pattern by emphasising the receiver and including a form of *to be*, a past participle, and possibly a *by* phrase to name the performer (e.g. 'The data were collected by Smith'). When passive-voice sentences include the performer, they are wordier than the comparable active-voice sentences, especially as sentences become more complex and demand more extensive revisions (e.g. 'The data that were collected by Smith were shown to suggest' versus 'Smith's data suggested'). Because the active voice is clearer and usually more concise, choose it unless you

have a good reason to prefer the passive voice.

An expletive – in the grammatical sense (not the profanity!) – consists of the word *There* or *It,* followed by a form of *to be* and then the subject. Because expletives are weak sentence openers that contribute to wordy text, they should be used judiciously. The most common type is followed by a noun and a clause that begins with *that, who,* or *which.*[1] For example, the sentence 'There are five conditions that must be met' can be reduced to 'Five conditions must be met' and the sentence 'It is only the participants who sign the consent forms' to 'Only the participants sign the consent forms.' Occasionally, however, anything other than an expletive would create awkward prose. Consider, for instance, the lack of alternative to the following sentence: 'There can be benefits to patients delaying further treatment until the sensitivity subsides.' Unless you wish to deliberately use an expletive to shift the subject of a sentence[2] or you have no alternative in an unmanageable sentence such as this, revise unnecessary expletives whenever possible.

Nominalisations transfer the action of a sentence from verbs or adjectives to nouns. When writers disguise verbs as nouns in a sentence, they must add weak (forms of *to be*) or vague verbs (e.g. *conducted, done, indicated, involved, made, obtained, occurred, performed, produced*).[4] Although these verbs have their place in scientific writing, their overuse weakens language. To identify nominalisations, look for cues in noun endings such as *-ion, -ment, -ence,* and *-al.*[5] For example, consider the following sentences:

Original: 'A reformulation of the programme requirements was done for the establishment of a new set of criteria.'
Suggested revision: 'The programme requirements were reformulated to establish a new set of criteria.' Notice that the revision eliminates the nouns ending in *-ion* and *-ment* and the weaker verb *was done* when the verbs *reformulated* and *establish* are unmasked.
Original: 'Inhibition of HIV replication is induced by antiretroviral therapy.'
Suggested revision: *(ignoring passive voice):* 'HIV replication is inhibited by antiretroviral therapy.'
Or revision with passive to active voice: 'Antiretroviral therapy inhibits HIV replication.'

Other words such as *increase* and *decrease,* when used as nouns, create weaker sentences.[5]

Table 1. Redundant expressions: omit the italicised words

Adjectives	Adverbs	Prepositional phrases
advance planning	*already* reported	2 a.m. *in the morning*
both alike	*completely* surround	at this point *in time*
close proximity	*definitely* proved	estimated *at about*
end result	*equally* as well as	extreme *in degree*
final outcome	join *together*	few *in number*
general rule	lifted *up*	large *in size*
past history	may *possibly*	light *in weight*
personal opinion	refer *back*	oval *in shape*
single unit	repeat *again*	qualitative *in nature*
time period	summarise *briefly*	short *in duration*

For example, choosing the verb form of *increase* in the sentence 'An increase in patients' scores was observed' results in livelier prose: 'The patients' scores increased.'

To save the reader from wading through noun clutter, identify and transform the verbs masquerading as wordy nouns.

Clichés, empty fillers, and roundabout expressions

Circumlocution – unnecessarily lengthy and roundabout language – is language that avoids getting directly to the point. This device has its uses in some forms of writing, but it obscures meaning in medical writing. Clichés, empty fillers, and roundabout expressions are related forms of circumlocution.

Clichés are overused, sometimes redundant, expressions that convey a lack of originality. They include well-worn phrases such as *at first glance, avoid like the plague, in this day and age,* and *to all intents and purposes.* Such phrases may also be confusing to readers for whom English is a second language. Clichés are best avoided in medical and scientific communications.

Empty fillers are a type of cliché common to all types of writing. When used in speech, they are equivalent to throat clearing, although the purpose there can be to slow the speaker's pace and give the audience time to understand the material.[4] In writing, this device is unnecessary, as readers can double back if necessary, and adding excess material simply builds a barrier between the reader and your message. Elimin-ating empty fillers, such as the following, will help declutter your text:

- *as a matter of fact*
- *as already stated*
- *as such*
- *in other words*
- *it is important to note, it is interesting to note*
- *it is known that*
- *it has been reported that*
- *it goes without saying, needless to say*
- *obviously* (this may also annoy a reader who does not consider it obvious)

Roundabout expressions are another way to use as many words as possible when one or two, or none, will do. Table 2 represents a small sample of wordy expressions listed in writing and style manuals.

Prepositional phrases (beginning with *to, in, of, with,* etc.) and *that, which,* or *who* clauses[1] are two other sources of excessive and roundabout word use. Revise as shown in the following example.

Original: 'The study, which was recently published, high-lighted several challenges of importance.'

Suggested revision: 'The recently published study high-lighted several important chall-enges.' Revising both the prepositional phrase (*of importance*) and the *which* clause (*which was recently published*) creates a more concise sentence.

Summary

Striving for conciseness in medical writing is good practice, and being required to reduce the word count has a way of focusing the mind on economy of expression. But writers and editors need to consider the effects of each revision: if minimising wordiness worsens readability or alters essential content, you may need to re-consider. If, however, it improves clarity, pre-cision, and enjoyment of reading, then cut away! You may be surprised by just how much dead-wood you can discard.

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Table 2. Replacements for roundabout expressions

Wordy	Concise
a majority of	most
a number of	many, several, numerous
a small number of	a few
are known to be	are
as a consequence of	because
at the same time	while
at present, at the present time, at this point in time	now
could potentially	may
due to the fact that, in light of the fact that	because
during the course of, during the time that	when, while
fewer in number	fewer
for the purpose of	for, to
for the reason that	because
has the opportunity, is able to	can
in a routine manner	routinely
in order to	to
in regard to, with regard to, with respect to	about, regarding
in spite of the fact that	although, despite, even though
in terms of	in, of, for
in the case of	for
in the course of	during
in the event that	if
in the near future	soon
it is often the case that	often
it is possible that	may
it is worth pointing out that	note that
it would appear that	apparently
on the basis of	by, from
on the order of	about
prior to	before
subsequent to	after
the authors	we

Exercise

1. **Roundabout expressions are a form of**
   _____.

2. **Shorten the prepositional phrases in the following sentences:**
   A. Continuous treatment with steroids was necessary to prevent inflammation of allergies.
   B. The method of greatest efficiency included a number of steps in standard use.

3. **Repeating an idea using different words is called:**
   A. nominalisation
   B. redundancy
   C. circumlocution
   D. passive voice

4. **Revise the nominalisations in the following sentences.**
   A. Our tasks were the collection of data and the development of innovative products.
   B. Performance of the new protocol caused a 10% increase in the desired effect.

5. **Which of the following answers are correct? A sentence that starts with 'It is known that' contains:**
   A. an expletive
   B. a qualifier
   C. a cliché
   D. an empty filler

6. **Identify and correct the redundancies in the following sentences:**
   A. As a general rule, we like to keep our presentations brief and concise.
   B. They emptied out the flask before repeating the procedure again.
   C. In their study, Smith et al. (2000) focused specifically on three species that were similar in nature.

7. **Replace the following roundabout phrases with one word:**
   A. as a result of
   B. have an effect on
   C. at a slow rate

8. **Rewrite the following paragraph to reduce wordiness:**
   In this review, an attempt is made to provide a description of the nature of Alzheimer disease (AD), including the causes, symptoms, and management of this condition. There is reason to believe that AD is an extremely common form of dementia that causes an increase in a number of difficulties with memory, an escalation in issues with behaviour or with conduct, and a gain in problems with thinking. In spite of the fact that the majority of patients show signs of the development of AD after they are older than 65 years of age, some patients receive a diagnosis of AD prior to that age. A quite progressive neurodegenerative disorder, AD is a disease with worsening effects over the course of a person's lifetime. The stages range in the amount of severity from an absolutely mild to severe stage until substantial interference with daily activities occurs. It was already reported earlier in the literature by several investigators that in AD, amyloid plaques develop for the most part in the hippocampus, which is a brain structure that helps in the encoding of memories, as well as in other areas that are largely involved in our thinking and behaviour. It is not known at the present time whether the plaques cause AD or whether they are a consequence of the AD disease process. (221 words)

Answer Key

1. circumlocution

2. A. Continuous steroid treatment was necessary to prevent allergic inflammation.
   B. The most efficient method included standard steps.

3. B

4. A. Our tasks were to collect data and develop innovative products.
   B. Performing the new protocol increased the desired effect by 10%.

5. A, C, and D.

6. A. As a rule, we like to keep our presentations brief.
   B. They emptied the flask before repeating the procedure.
   C. In their study, Smith et al. (2000) focused on three similar species.

7. A. because
   B. affect
   C. slowly

8. Wordiness can be reduced in many ways in this paragraph. *Here is one suggestion:*
   In this review, we describe the causes, symptoms, and management of Alzheimer disease (AD). A common form of dementia, AD increases difficulties in memory, behaviour, and thinking. Although most patients show signs of the disease after age 65, others are diagnosed at an earlier age. A progressive neurodegenerative disorder, AD worsens by stage from mild to severe until individuals experience substantial interference with daily activities. Several investigators have reported that the amyloid plaques in AD develop mostly in the hippocampus, a brain structure that helps encode memories, and in other areas implicated in thinking and behaviour. Whether these plaques are a cause or consequence of AD is unknown. (108 words)

How to shorten a text by up to 30% and improve clarity without losing information

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Abstract

What if everything you read was up to 30% shorter and more easily understood? What if everything you *wrote* was up to 30% shorter and more easily understood? Would that be a skill worth developing? Would your employer or clients notice if your work improved this much? Would their opinion of your skills change if they did? Reducing the number of words in a text without losing information is easier than you might think. Reducing or eliminating nominalisations (verbs turned into nouns or adjectives) and the passive voice can substantially improve the clarity of the text as well as shortening it. In this article, I review these two grammatical constructions, describe their strengths and weaknesses, tell how to recognise them, and explain when you can change them to improve your writing.

Introduction

"Nouns formed from other parts of speech are called nominalisations. . . I call them "zombie nouns" because they cannibalise active verbs, suck the lifeblood from adjectives, and substitute abstract entities for human beings."

Helen Sword[1]

In the 1970s and '80s, the introduction of the personal computer created the need for documentation manuals. Unfortunately, early manuals were poorly written and thus confusing and difficult to use. However, you couldn't really sell computers without effective manuals. In response, groups like the Society for Technical Communication became interested in ways to improve print documentation and electronic help menus. At about the same time, concerns about difficulties in understanding contracts, legislation, insurance policies, and other essential technical documents led to the Plain English movement[2] and the Paperwork Reduction Act.[3] These forces led to questioning traditional conventions of writing and to a new interest in research into technical communication to determine which factors of a text improve comprehension and which reduce it (see, for example, references[4-7]).

One of the seminal studies in this movement was conducted by Veda Charrow, a linguist at the American Institutes of Research, and her husband, Robert Charrow, a law professor at Howard University. In their 1979 study of how people understood jury instructions,[8] they identified several grammatical constructions of interest. In particular, they established that the confusion associated with legal documents – "legalese" – was the result of the interaction of three grammatical constructions: the passive voice, nominalisations, and negatives with qualifiers.

Here, I discuss the implications of the passive voice and nominalisations for medical-technical writers by presenting two guidelines. Rigorously applying these guidelines can shorten a text by up to 30%, without losing information and yet improving clarity in the process. What's not to like?

Guideline #1: Prefer the active voice but use the passive voice when appropriate

The most common sentence structure in English is probably agent (or subject)-verb-object, a structure called the "active voice": *The physician treated the patient*. In contrast, the "passive voice" – which is also grammatically correct – is structured object-verb-agent (or subject): *The patient was treated by the physician*. That is, the object of the first sentence, *patient*, is now the grammatical subject of the second sentence. The passive voice also always uses a form of the verb "to be:" is, was, were or has, have, or had been.

Most grammarians and most readers prefer the active voice, but no studies show that the passive voice by itself reduces comprehension.[4] In fact, where the doer of the action is unknown or is less important than the object and what happened to it, the passive voice is actually more appropriate. In, say, the methods section of a scientific article, the active-voice sentence, *We washed the specimens,* mentions the "we," which is unnecessary; the researchers obviously washed the specimens. The important point is that they were washed. Here, the passive voice emphasises the real subject; the specimens: *The specimens were washed.*

The passive voice also avoids assigning responsibility for the action and can thus be used disingenuously: *Mistakes were made*, rather than *We made mistakes*. For the same reason, it can also be used thoughtfully: *The prognosis of patients with this disease is generally poor*, rather than *Your prognosis is poor*.

Some authors recommend avoiding the passive voice at all costs,[9] but the research doesn't support this practice.[4] The passive voice is understood just as well as the active voice.[4] However, when the passive voice is combined with one or more nominalisations, comprehension suffers.[8] The combination increases not only the length of a sentence but also its grammatical complexity, and grammatical complexity reduces comprehension.[4,8] (Incidentally, shortening sentences, by itself, does not necessarily improve comprehension;[10,11] longer sentences just have more opportunities to be complex.[12] Many readability formulas use longer sentences as surrogates for increased complexity and so penalise their use.[4,13] The advice to use shorter sentences is not necessarily bad, it's just simplistic; based on correlation, not causation; and not supported by the research.)[4]

Guideline #2: Be careful of "nominalising" verbs into nouns or adjectives

A "nominalised" verb is one that has been changed into a noun or an adjective. For example, *to regulate* is the verb, *a regulation* is the noun, and *regulated* (e.g., a "regulated process") is the adjective. As with the passive voice, nominalisations are not always bad. However, they can force sentences to accommodate them by requiring certain grammatical changes, additions, and deletions that interfere with comprehension. Removing these nominalisations allows the sentence to be written more economically and clearly.

Note - In the following sections, SUBJECTS are in upper case, verbs are underlined once, and the nominalisations are underlined twice.

Appropriate uses of nominalisations

1. They can name ideas that are expressed only as nominalisations.

Example #1: *a clinical rotation*

Example #2: *an advanced directive*

2. They can name a subject that refers to a previous sentence.

Example: *WE analysed the data. This ANALYSIS indicated that the treatment was effective.*

3. They can name what would otherwise be the object of a verb.

Example: *The PHYSICIAN did not understand either the patient's intentions or his meaning (compared with: The PHYSICIAN did not understand either what the patient intended or what he meant).*

Problematic uses of nominalisations

1. Nominalising a verb requires adding a new verb to make the sentence complete again. The new verb is usually weak because the stronger verb has been nominalised. In the example below, the verb *sutured* has been nominalised as the noun, *sutures*:

Original: The SURGEON placed the sutures across the wound.

Revised: The SURGEON sutured the wound.

2. Nominalisations make sentences wordy and hard to understand:

Original: THERE was a review of the case and a finding by the committee, but no explanation was offered for the decision to retain the physician.

Revised: The COMMITTEE reviewed and ruled on the case but did not explain why it decided to retain the physician.

3. As direct objects, nominalisations turn concrete images into abstract concepts.

Original: The NURSE conducted an examination of the patient.

Revised: The NURSE examined the patient.

In the original, *examination* is an abstract concept, not a concrete noun, whereas *patient* is a noun we can see. Concrete terms communicate better than abstract ones, making the revised sentence more effective.

4. Nominalisations confuse the actor-action relationship.

Original #1: His REACTION was fast.

Revision #1: HE reacted quickly.

Ideally, the subject causes the action; nominalisations rarely do. In Example #1, *he* reacted; the reaction was just fast.

Original #2: Stain REMOVAL was complete.

Revision #2: STAINS were removed.

In #2, the *stains* were removed; the removal was just complete.

5. Nominalisations favour using other nominalisations. One of the best reasons to avoid nominalisations is that, just like potato chips, you can't have just one.

Original: The CONFUSION of the intern caused her failure on the test.

Here, using the first nominalisation, *confusion,* led to using a second nominalisation, *failure.*

Revised: The confused INTERN failed the test.

6. Nominalisations favour using prepositional phrases to compensate for the weak verb.

Original: The SURGEON <u>tied</u> the <u>ligature</u> [around the artery] to stop the bleeding.

Here, the prepositional phrase *around the artery* is necessary because the nominalisation *ligature* prevented its use as a verb.

Revised: The SURGEON <u>ligated</u> the artery to stop the bleeding.

How to find nominalisations

1. Nominalisations often follow the phrases "it is or was" and "there is, was, or are." Given that these constructions are subject and verb, they are complete sentences. They impart no information, however, and should not be used for that reason alone.

Original: THERE <u>was</u> considerable <u>bleeding</u> after the procedure.

Revised: The PATIENT <u>bled</u> considerably after the procedure.

2. Look for weak, generic verbs. The stronger verb in the revision also makes the meaning more specific:

Original #1: SHE <u>used</u> a scalpel to cut.

Revised #1: SHE <u>cut</u>.

Original #2: SAMPLES <u>were taken</u> for testing.

Revised #2: SAMPLES <u>were tested.</u>

Original #3: THEY <u>made</u> the decision to continue.

Revised #3: THEY <u>decided</u> to continue.

Original #4: HE <u>performed</u> the surgery.

Revised #4: He <u>operated</u>.

3. Look for several prepositional phrases.

Original: The <u>REDUCTION</u> [in the census] <u>was caused</u> [by the <u>lack</u>] [of a favourable <u>response</u>] [by physicians].

Here, returning to the active verb eliminates four prepositional phrases and reduces the sentence by 38%, from 16 to 10 words.

Revised: The <u>LACK</u> of a <u>favourable</u> physician <u>response</u> <u>reduced</u> the census.

4. Look for common word endings or suffixes. When verbs are nominalised, the new word often has a distinctive ending (Table 1). Looking for these endings can help you find the nominalisations in your writing.

Avoiding nominalisations and writing in the active voice

Here is the proof that avoiding nominalisations and writing in the active voice are two of the most effective techniques for improving your writing.

Table 1. Common Nominalisations and Their Suffixes

Ending	Nominalisation	Original verb
-act	reaction, contraction	react, contract
-age	Package, passage	pack, pass
-al	removal, refusal	remove, refuse
-ance	assistance, variance	assist, vary
-ee	Employee, trustee	Employ, trust
-ence	conference, dependence	confer, depend
-ing	writing, feeding	write, feed
-ion	organisation, investigation	organise, investigate
-ment	assignment , resentment	assign, resent
-ure	failure, enclosure	fall, enclose

The first paragraph below contains 5 nominalisations, 3 passive sentences, and 111 words. The second contains no nominalisations, only 1 passive sentence, and 81 words. It's 27% shorter. The third paragraph has some additional edits and has 71 words. It's 36% shorter than the first one and more easily understood.

Paragraph 1: Once an injury to the neck has been recognised as severe, a physician and an ambulance should be summoned immediately. Primary emergency care involves maintaining normal breathing, treating for shock, and keeping the athlete quiet and in the position found until medical assistance arrives. Not until the physician has examined the athlete and has given his permission should transportation be attempted. The athlete should be transported while lying on his back, with the curve of his neck supported by a rolled-up towel or pad or encased in a stabilisation collar. Neck stabilisation must be maintained throughout the hospital procedure. If stabilisation is not continued, additional cord damage and paralysis may ensue.

Paragraph 2: When you suspect a severe neck injury, immediately summon a physician and an ambulance. Until medical assistance arrives, maintain the athlete's respiration, treat for shock, and keep her quiet and immobile. Do not move her without a physician's permission. When moving the athlete, keep her supine and stabilise her neck with a rolled towel or a pad under her neck or with a stabilisation collar. The neck must be stabilised, especially during transit, to prevent further damage to the spinal cord.

Paragraph 3: If you suspect a severe neck injury, call a physician and an ambulance. Until medical assistance arrives, maintain the athlete's respiration, treat for shock, and keep her quiet and immobile. Do not move her without a physician's permission. When moving her, keep her supine and stabilise her neck with a rolled towel or stabilisation collar. Her neck must be stabilised, especially during transit, to prevent further damage to the spinal cord.

Conclusion

As a medical-technical editor for more than 40 years, I can say that using the passive voice and nominalisations appropriately – that is, removing them when possible – is not only the technique I use most often, it is also the single most effective way to shorten and improve the clarity of a text. It takes time to learn how to recognise these grammatical features because they are so familiar that we don't think to question them. However, given the substantial improvements in shortening and clarifying the text, the time is well spent.

Conflicts of interest and disclaimers

The author reports no competing interests.

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Exercises

Recognising nominalisations
Instructions: Circle the subject of the sentence (uppercase in the example), underline the verb, and put parentheses around the nominalised verb (italicized in the example). Then, rewrite the sentence without the nominalisation and shorten it when possible, without changing the meaning:

"The PHYSICIAN created a *solution* to the problem."
"The PHYSICIAN solved the problem."

1. We performed a review of the relevant regulations.

2. The patient was taking deep breaths.

3. We need to take a different view of this new technology.

4. The change is an indicator of a deleterious process.

5. Preference is given to the use of titanium in artificial joints.

6. An increase in protein was observed.

7. Regeneration of the resin bed is achieved by a calcium chloride solution.

8. During inspiration, there is reversal of flow.

9. The reason an inventory was taken of the drawer was their suspicion of theft.

10. The committee has every expectation that it will reach a decision.

Recognising the passive voice
Instructions: Circle the subject (uppercase in the example), underline the verb once, and the object twice. Then rewrite the sentences in the active voice and shorten them when possible. In the revised sentence, again circle the subject and underline the verb once and the object twice:

"The SLIDE was read by the pathologist."
"The Pathologist read the slide."

1. The report has been filed by the library.

2. It has been reported that hemolysis occurs in severely burned patients.

3. The hospital was billed directly by the insurance company.

4. The drug is still being marketed by the company.

5. The bone had been broken by the fall.

6. The article will be written by the resident.

7. Sample processing is being done by an automated analyser.

8. There are several limitations in assessing diastolic filling with Doppler echo-cardiography.

9. A study was conducted to determine whether pH had an effect on the rate.

10. The patient's records are subject to evaluation after admission by a nurse.

Create your own nominalisations!
In the right-hand column, write a phrase that uses the verb as a noun or an adjective and one that revises the nominalisation back into the verb.
The verb *A nominalised phrase (the phrase with the active verb)*
"To choose" He made a choice. (He chose.)

1. To change

2. To break

3. To develop

4. To suture

5. To diagnose

6. To discuss

7. To inject

8. To compromise

9. To laugh

10. To prescribe

Answer key

Recognising Nominalisations

1. WE performed a *review* of the relevant regulations.
Without the nominalisation: WE reviewed the relevant regulations.

2. The PATIENT was taking deep *breaths*.
Without the nominalisation: The PATIENT was breathing deeply.

3. WE need to take a different *view* of this new technology.
Without the nominalisation: WE need to view new technology differently.

4. The CHANGE is an *indicator* of a deleterious *process*.
Without the first nominalisation: The CHANGE indicates a deleterious process.

5. *PREFERENCE* is given to the *use* of titanium in artificial joints.
Without the nominalisations: TITANIUM is preferred in artificial joints.

6. An *INCREASE* in protein concentration was observed.
Without the nominalisation: Protein CON-CENTRATION increased.

7. *REGENERATION* of the resin bed is achieved by a calcium chloride solution.
Without the nominalisation but in the passive voice: The resin BED is regenerated by a calcium chloride solution.
Without the nominalisation and in the active voice: A calcium chloride SOLUTION regenerated the resin bed.

8. During inspiration, THERE is *reversal* of flow.
The nominalisation: Flow REVERSAL occurs during inspiration.
Without the nominalisation and in the active voice: FLOW reverses during inspiration.

9. The reason an *INVENTORY* was taken of the drawer was their *suspicion* of theft.
With one nominalisation removed and in the passive voice: The *INVENTORY* was taken of the drawer because they suspected theft.
With both nominalisations removed and in

the active voice: THEY inventoried the drawer because they suspected theft.

10. The COMMITTEE has every *expectation* that it will reach a *decision*.
With one nominalisation removed: The COMMITTEE expects to reach a *decision* about that issue.
With both nominalisations removed: The COMMITTEE expects to decide that issue.

Recognising the passive voice
(Nominalisations are in talics)

1. The REPORT has been filed by the library.
In the active voice: The LIBRARY filed the report. (Or, as one resident once told me, "The report has been lost . . ." Possibly correct, but it's still in the passive voice.)

2. IT has been reported that hemolysis occurs in severely burned patients.
In the active voice: HEMOLYSIS occurs in severely burned patients.

3. The HOSPITAL was billed directly by the insurance company.
In the active voice: The insurance COMPANY billed the hospital directly.

4. The DRUG is still being marketed by the company.
In the active voice: The COMPANY still markets the drug.

5. The BONE had been broken by the fall.
In the active voice: The FALL broke the bone.

6. The ARTICLE will be written by the resident.
In the active voice: The RESIDENT will write the article. (Same resident as above, "The article will not be written . . ." Still in the passive voice, however.)

7. Sample PROCESSING is being done by an automated analyser.
In the active voice and without the nominalisation: The ANALYSER automatically processes the sample.

8. THERE are several *limitations* in assessing diastolic *filling* with Doppler echocardiography.
Without the empty subject and verb but with the nominalisation: Doppler ECHOCARDIO-GRAPHY has several *limitations* in assessing diastolic *filling*.
In the active voice and without the first nom-inalisation: Doppler ECHOCARDIOGRAPHY is limited in assessing diastolic *filling*.

9. A *STUDY* was conducted to determine

whether pH had an effect on the rate.
In the passive voice without the nominalisation: A STUDY was conducted to determine whether pH affected the rate.
In the passive voice with the object now in the subject position: The *EFFECT* on the rate was determined by the study. In the active voice: The STUDY determined the effect of pH on the rate.
In the active voice : The STUDY determined the effect of pH on the rate.

10. The patient's RECORDS are subject to *evaluation* after admission by a nurse.
Without the nominalisation: The patient's RECORDS are evaluated after admission by a nurse.
In the active voice: A NURSE evaluates the patient's record after admission.

Create your own nominalisations!

1. To change
Changing behaviour is difficult (Behaviour is difficult to change)

2. To break
There was a break in her fever (Her fever broke)

3. To develop
We began to develop (We began developing)

4. To suture
He placed sutures to close the wound (He closed the wound with sutures)

5. To diagnose
The diagnosis was cancer (Cancer was diagnosed

6. To discuss
We had a discussion (We discussed)

7. To inject
He received an injection (He was injected)

8. To compromise
We accepted the compromise (We compromised)

9. To laugh
He had a good laugh (He laughed)

10. To prescribe
He gave her a prescription (He prescribed)

Troublesome words

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Abstract

Medical writing tends to contain longer, less common, words than English fiction, and they are here termed troublesome words. Troublesome words are an indicator of poor style, and often point to grammatical errors. An easy way to start improving one's writing is to look for these troublesome words and replace them with shorter, more common, synonyms. From quantitative analysis of medical and general English, lists can be drawn up of common troublesome words, and of troublesome words whose prevalence is increasing particularly in medical English. The words discussed here are *novel, demonstrate, exhibit, explore, quantify, evaluate, option, perform, execute, represents,* and *target.* Exercises are provided, and readers are encouraged to seek out poor medical writing and to improve it.

This sentence is taken from what is ironically called "the medical literature".

> We aim to demonstrate the value of the alternative concept of social practices for quantitatively operationalising drinking culture.

Francis Crick, who with James Watson won the Nobel Prize for work on DNA, wrote, "There is no form of prose more difficult to understand and more tedious to read than the average scientific paper."[1] Sir Andrew Macphail, who was professor of the history of medicine in Montreal, reckoned, "There is probably more bad writing in medical journals than in any other kind of periodical."[2] So it is not just me, or my fellow writers in this issue, or the editorial board of *Medical Writing*, who see this problem of poor style in medical English. Alex Paton, who was a regular contributor to the *British Medical Journal*, now the *BMJ*, nailed it: "The first (and rarest)

quality is brevity: short words, short sentences. Why is it that intelligent people (among whom I include doctors) become imbued with verbosity the moment they put pen to paper?"[3]

This article is about words because, once alerted to them, spotting troublesome words is easy. As a general rule, a short word is better than a long one. I asked someone at a meeting why he had used the words "were haemorrhaged" instead of "were bled". He replied that he thought *haemorrhaged* was more scientific. Sometimes we do need to use a term more precise than the one in common usage, but *bled* is a perfectly good word, and *haemorrhaged* tells us no more about the process.

Resist the urge to use less familiar words. Sir Peter Medawar, another Nobel laureate, reckoned, "People who write obscurely are either unskilled in writing or up to some mischief."[4]

The prevalence of words in medical writing can be measured from PubMed®[5], and can be compared with the prevalence of words in English fiction, obtained using Ngram.[6] This allowed me to put numbers[7] to the long accepted impression that medical writers tend to use longer words – e.g., *administered* instead of *given*, less familiar words – *lethality* instead of *death*, and less precise words – *address* instead of *ask, consider, answer* and many other possible verbs. I searched PubMed® for 1975 and 2010, and used Ngram (corpus of English fiction) for 1975 and 2008. The prevalence of a word in medical English was recorded as the number of PubMed titles or abstracts in which the word occurred (corrected for the total number of available articles in English and with available abstracts). Ngram gives a percentage of the corpus. The troublesome words I discuss below are all common words in medical English, or have increased greatly in prevalence between 1975 and 2010. The first word is *novel*.

NOVEL instead of *new*

Because the definition given in the Concise Oxford Dictionary (COD) is "interestingly new or unusual", *novel* must be more than simply *new*. In medical articles *novel* rarely means anything more than *new,* and is often used for things that are not even new. Between 1975 and 2010, the

prevalence of *novel* increased 18-fold.[7] The rise goes on: 7.5% of titles or abstracts contained *novel* in 2010; 8.7% – not far short of one in every ten medical articles – did so in 2015.

First, an example of correct usage (taken, as are some of the examples and rewrites, from my book,[8] and originally from, or adapted from, articles in medical journals):

> *The project… discovered a **novel** class of substances, called benzothiazinones, that could be used in the treatment of tuberculosis and drug resistant tuberculosis.*

Novel is correct: when this was published, the benzothiazinones were a completely new class of drug.

> *With the introduction into practice, side effects of these novel anaesthetics have to be evaluated.*

This is from an article published in 2001. The "novel anaesthetic" was xenon, whose anaesthetic properties were described in the early 1950s. Improved technology has made it (just about) economical only recently, but that does not make xenon a novel anaesthetic.

> *The aim of the study was to assess a **novel** clinical treatment method for perforated teeth.*

The treatment was atelocollagen, which might not have been used before the publication date of 2011 for perforated teeth, but research into its use in dental practice began in the late 1980s.

> *…might be achieved by applying **novel** technologies such as video simulation to colonoscopy.*

By 2012, when this article was published, video simulation was not even new.

Another word to avoid is *innovative* (COD: featuring new methods or original ideas), which increased 12-fold between 1975 and 2010.[7]

Although *novel,* and *innovative,* are better replaced by *new*, most of the time even *new* isn't necessary: an article titled "Update on novel trends in PET/CT technology and its clinical applications" loses nothing from losing *novel*.

> Sometimes we do need to use a term more precise than the one in common usage, but *bled* is a perfectly good word, and *haemorrhaged* tells us no more about the process."

DEMONSTRATE or EXHIBIT instead of *show* or *has*

Reserve *demonstrate* for an active illustration – a working model, an experiment in front of an audience, a computer simulation. *Exhibit* (and also *display*) has an unnecessary theatricality.

*Studies have **demonstrated** a decline in prevalence of abdominal aortic aneurysm.*

The studies have *shown* is sufficient here, although better is *Abdominal aortic aneurysm is becoming less prevalent.*

*First, a correlation needs to be **demonstrated** between the screening test and injury risk.*

A correlation needs to be *shown*.

*Crohn's disease **exhibits** marked clinical heterogeneity.*

Crohn's disease *has* or *shows*; alternatively, *Crohn's disease is clinically heterogeneous.*

*It **exhibits** prebiotic properties and was shown to improve mineral absorption.*

Exhibits is better replaced by *has*, but better still is, *It is prebiotic….* Note the phrase "was shown to improve". Such phrases are common in medical writing and here can be replaced by the simple verb, *improves*.

EXPLORE instead of *study* or *investigate*

*Surgical **exploration** revealed a well-circumscribed, encapsulated mass.*

This is correct: surgeons do *explore*. *Revealed* is an over-dramatic word, often used instead of *showed*, but it is here used appropriately.

*The authors tested whether two doses of ischemic conditioning affected motor and cognitive learning to an equal extent, and **explored** a panel of blood biomarkers…*

*…strategies to reduce this resistance have not been **explored**.*

Surgeons explore but medical scientists *study* or *investigate*. In both examples, *studied* is the better word than explored. Depending on exactly what they did, *measured* might be better in the first example.

QUANTIFY or EVALUATE instead of *measure*

Quantify and *evaluate* are imprecise words: they both imply forming an idea of the amount or number or value of something. To *measure* implies a standard for comparison.

*The assay **quantifies** free immunoglobulin kappa and lambda light chains…*

*The limits of **quantification** were 5 ng/mL for… and 10 ng/mL for…*

*The aim of this study was to **evaluate** the effect of sodium hypochlorite on surface micro-hardness…*

*Radiofrequency ablation induces gas bubbles in ablation zones, and the ablation margin cannot be **evaluated** accurately on ultrasound immediately after ablation.*

In the above examples, the correct words, from the first down, are *measures, measurement, measure,* and *measured*.

If precision is not required, if the report is more general, then *evaluation* (or *assessment*) is correct, as in these two examples.

*…it emphasises issues relevant to the comprehensive planning, implementation and **evaluation** of national radon programmes.*

*…the clinical **evaluation** of new pharmaceuticals…*

OPTION

Option is a vogue word in colloquial English, but its prevalence has increased more in medical writing (25-fold) than in English fiction (3-fold).[7] By 2012, one in 50 papers contained *option* or *options*, and more than two thirds of the occurrences were in the phrase *treatment* or *therapeutic option(s)*.

*The results from this patient indicate that darinaparsin may be a good treatment **option**…*

*These results should encourage clinicians and young active adult patients to consider rehabilitation as a primary treatment **option** after an acute tear.*

*Heart failure is a major cause of hospital admission, yet there remains a paucity of effective pharmacological management **options**.*

A "treatment option" is just a *treatment*: omit *option*. "Effective pharmacological management options" are *effective drugs*.

PERFORM or EXECUTE instead of *do* or *carry out*

*Patients also **performed** two walks at 6-month follow-up…*

*The majority of previous studies on inattentional blindness have been **performed** at rest…*

Perform has connotations of performance and the arts. *Did* and *done* are the better words.

*…with matching **performed** at a group, rather than individual, level.*

Yes, *done* is better than *performed*; but better still is, *matched by group rather than by individual*.

*The system **executes** double-stranded DNA cleavage efficiently.*

The system *carries out* double-stranded DNA cleavage, but *to carry out cleavage* is *to cleave*, so, *The system cleaves double-stranded DNA efficiently.*

*…and **executes** its function through binding with the downstream factors without phosphorylation.*

Here, neither *does* nor *carries out* is correct: "executes its function" means *works*.

*For moderate sized sequences, the method **executes** on a laptop computer within seconds or minutes.*

…the method takes seconds or minutes on a laptop computer.

REPRESENTS instead of *is*

Represents means to be entitled or appointed to act or speak for (COD). This correct usage is taken from a well written abstract, which was easily understood at first reading.

*The group **represents** five antenatal centres along the Irish Atlantic seaboard, providing care for women with diabetes throughout pregnancy.*

Another correct usage is the representation of sensation in the sensory cortex. But *represents* is usually an indicator of poor style, often embedded in abstracts that are impenetrable. Mostly, *represents* means *is*.

*Tissue expansion **represents** an important new approach to...*

*An impaired pathway contributes to septic death and may **represent** a novel therapeutic target in critical care medicine.*

*Gram-positive organisms **represented** 47%, gram-negative organisms 32%, fungal organisms 13%, and Acanthamoeba 7% of corneal isolates.*

Tissue expansion *is* an approach. An impaired pathway may *be* – and note *novel* and *therapeutic target* (q.v.). Gram-positive organisms *were* 47% of isolates – but this sentence needs inverting: *Of corneal isolates, 47% were Gram-positive, 32% were fungal,…*

TARGET

Target, and the derivatives *targeting* and *targeted*, have a correct use in medical writing.

*This gene may serve as a potential therapeutic **target** in glioma in the future.*

*…were infused with remifentanil at a **target** organ concentration of 2.0 ng/mL…*

Physical targets, which are shot at, have to be hit exactly: overshooting and undershooting are both bad, so particular genes and desired concentrations of a drug are appropriate. *Target* as a noun, like *focus*, is fashionable and liked particularly by politicians and administrators, presumably because it sounds more solid than the preferable *aim* or *objective*. But, too often, *target* is used as a "catch-all" in imprecise writing, as noun, verb and adjective: *Our target is to target resources to the target population*, which may mean, *We aim to make our resources available to the right people*, or may mean more simply, *We want to give money to the right people*. Avoid using *target* as a verb.

It is necessary for us to know who operates on children so that we can **target** *our questionnaire accurately.*

There is no verb that easily replaces *target* here. *Direct* is possible, but *target* is a sign that the sentence is badly written. Try: *We need to know who operates on children so that we can send the questionnaire to the right people*. Those who receive the questionnaire are the *intended recipients* not the *target recipients*.

There is a need for interventions **targeted** *at those alcohol-dependent patients who are hard to engage in conventional treatment.*
Aimed is a better word here.

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Exercises
I have discussed only 11 words in this article, and mentioned a few more, of the well over 200 in my book.[8] Not all those 200 are words to avoid; many are good words, when used properly. You can identify many troublesome words by asking yourself: is that word – ignoring technical medical terms – one that I would use in everyday speech?

Try out the exercises below. These will help you identify troublesome words and troublesome phrases in medical writing.

Exercise 1: Replace the troublesome word
In the following phrases, replace the italicized word.
1. …side effects of these newly introduced anaesthetics have to be *evaluated*.

2. …might be achieved by applying *technologies* such as video simulation to colonoscopy.

3. Home telehealth is a *pragmatic* approach to *enhance* early detection of symptoms requiring intervention.

4. The authors tested whether two doses of ischemic conditioning affected motor and cognitive learning to an equal extent, and measured a *panel* of blood biomarkers…

5. …*strategies* to reduce this resistance have not been studied.

6. Radiofrequency ablation *induces* gas bubbles in ablation zones…

7. Heart failure is a *major* cause of hospital admission, yet there remains a paucity of effective drugs.

Exercise 2: Replace the troublesome phrase
In the following sentences, replace the italicised words.
1. Home telehealth is a practical approach to *improve early* detection of symptoms requiring intervention.

2. The authors tested whether two doses of ischemic conditioning affected motor and cognitive learning to an *equal extent*, and measured a number of blood biomarkers…

3. The aim of the study was to assess a *clinical treatment method* for perforated teeth.

4. Heart failure is an important cause of hospital admission, yet there *remains a paucity* of effective drugs.

5. The *majority of* previous studies on inattentional blindness have been done at rest…

6. This gene *may serve* as a potential therapeutic target *in the future*.

Create your own exercises
PubMed makes it easy to set your own exercises. Search on a combination of any two of the discussed troublesome words, e.g., *option* AND *represents*. Limit the search to articles with abstracts and written in English, and scan the retrieved abstracts. Ignore any that are crammed full of abbreviations. (Abbreviations make abstracts impossible to understand: note that I did not use the abbreviation TW for "troublesome words" in the abstract, but instead repeated "troublesome words".) Also ignore those that are clearly written by someone whose first language is not English. Then rewrite your selected abstracts. You will find that many abstracts are very difficult to understand at first reading: let that be a stimulus to make your articles easy to understand.

What about the sentence taken from "the literature"?

We aim to demonstrate the value of the alternative concept of social practices for quantitatively operationalising drinking culture.

This is, of course, a single sentence taken out of context from the full abstract. As far as I can make out, because the rest of the abstract is just as wordy, it means, *We aim to find another way by describing a usable scale of drinking habits*.

Answer key
Exercise 1

1. **Original**: …side effects of these newly introduced anaesthetics have to be *evaluated*.
Suggested revision/commentary: Side effects are *sought* or *looked for*.

2. **Original:** …might be achieved by applying *technologies* such as video simulation to colonoscopy.
Suggested revision/commentary: Video simulation is not a technology; it is a *method* or a *technique*. A similar error is writing *pathology* instead of *disease* or *condition*.

3. **Original:** Home telehealth is a *pragmatic* approach to *enhance* early detection of symptoms requiring intervention.
Suggested revision/commentary: Home telehealth is a *practical*, not a *pragmatic* approach (even though it turned out not to be worthwhile). *Improve* is better than *enhance*, which has the sense of intensifying, as in the use of isotopes in radiography.

4. **Original:** The authors tested whether two doses of ischemic conditioning affected motor and cognitive learning to an equal extent, and measured a *panel* of blood biomarkers…
Suggested revision/commentary: The authors measured a *number* of biomarkers, not a panel.

5. **Original:** …*strategies* to reduce this resistance have not been studied.
Suggested revision/commentary: Strategies to reduce resistance are *ways* to reduce, or *methods of reducing*. The prevalence of *strategy* (or *strategies*) increased 22-fold between 1975 and 2010, and occurs in 5% of articles. A *strategy* is a plan designed to achieve a particular long-term aim (COD); unless that is what you mean, prefer *plan*, *way* or *scheme*. But *strategy* is often redundant. One in 20 strategies in PubMed is a *treatment strategy*, and there are other strategies such as *therapeutic strategies, coping strategies, teaching strategies, shoulder rehabilitation strategies*, and so on. They are no different from *treatment, treatment, coping, teaching,* and *shoulder* rehabilitation.

6. **Original:** Radiofrequency ablation *induces* gas bubbles in ablation zones…

Suggested revision/commentary: Radio-frequency ablation *causes* gas bubbles; it does not *induce* them (in the way a therapist might induce someone to drink less, or syntocinon induces labour).

7. **Original:** Heart failure is a *major* cause of hospital admission, yet there remains a paucity of effective drugs.
Suggested revision/commentary: Heart failure is an *important* cause of hospital admission, not a *major* one. Major is an overused word, correct in *major operation, major complication* or (with care) *major cause*. It should not be used instead of a more explicit adjective such as *main, large* (or *largest*), *important, serious, obvious*, or *extensive*.

Exercise 2

1. **Original:** Home telehealth is a practical approach to *improve early* detection of symptoms requiring intervention.
Suggested revision/commentary: *To improve early detection* is neater as *for earlier detection*.

2. **Original:** The authors tested whether two doses of ischemic conditioning affected motor and cognitive learning *to an equal extent*, and measured a number of blood biomarkers…
Suggested revision/commentary: *To an equal extent* is *equally*.

3. **Original:** The aim of the study was to assess a *clinical treatment method* for perforated teeth.
Suggested revision/ commentary: A *clinical treatment method* is a *treatment*. It could also be written a *method of treating* perforated teeth.

4. **Original:** Heart failure is an important cause of hospital admission, yet there *remains a paucity* of effective drugs.
Suggested revision/commentary: A *paucity* of is *few*; so is *a dearth of*. Similarly, a *myriad, litany* or *plethora* of is *many* or *a lot of*.

5. **Original:** The *majority of* previous studies on inattentional blindness have been done at rest…
Suggested revision/commentary: A *majority of* is *most*. Similarity, *a minority* of is *few*.

6. **Original:** This gene *may serve as* a potential therapeutic target in glioma *in the future*.
Suggested revision/commentary: There is

redundancy in this sentence: something that *may* happen is by definition *potential*, and therefore *in the future*. Thus: *This gene may be a therapeutic target in glioma*. I think *target for treatment* is better than *therapeutic target*.

> "One in 20 *strategies* in PubMed are *treatment strategies*, and there other strategies such as *therapeutic strategies, coping strategies, teaching strategies, shoulder rehabilitation strategies*, and so on. They are no different from treatment, *treatment, coping, teaching,* and *shoulder rehabilitation."*

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Can you recognise the four main ways that English sentences can be structured?

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Abstract

Although scientific text typically has a more complex structure and vocabulary than fiction or text written for the general public, its message should still be clear and concise. One way to ensure this is to use correct sentence structure. If a scientific text is hard to understand, it may be because the sentences do not follow the expected structure and have a confusing number of commas or short phrases. This article provides a short overview of the four main ways that English sentences can be structured, with accompanying examples and exercises for each type.

This article is primarily intended for medical writers who edit texts written by non-native English speakers, especially if they want to be able to help them improve their written English by explaining some basic sentence patterns. We hope it will also help non-native English speakers to construct informative but grammatically correct sentences. We have found these guidelines to be useful in our writing courses for PhD students at the University of Southern Denmark, as they help the students structure their writing and provide a framework for discussing the text with co-authors.

The sentence is the basic unit of a written paragraph or text. We can probably all agree that

a sentence such as *CT scans were undertaken every three months.* makes sense and sounds natural, but what if the same sentence belongs to this text: *Each patient underwent blood tests and CT scans. CT scans were undertaken every three months. The CT scans were reviewed by the same radiologist.* These sentences are grammatically correct but the text does not flow well because the sentences are disjointed with repetitive phrases. The text would flow better – and the message would be clearer – if we combined some of this inform-ation, e.g. *Each patient underwent blood tests and CT scans. The CT scans were undertaken every three months and were reviewed by the same radiologist.*

Combining sentences to make a more compact message sounds simple enough, but in practice, it is not! Combining sentences requires us to think about the meaning of the messages we are trying to communicate and how they fit together logically. It is actually quite fascinating (maybe just to 'word nerds'?) to realise how we can make subtle, or not-so-subtle, changes in our message just by using different linking words. Consider the following examples:

- *CT scans were undertaken at varying intervals and were reviewed by the same radiologist.* [factual information]
- *CT scans were undertaken at varying intervals, but they were reviewed by the same radiologist.*

[indicating a study strength]
- *CT scans were undertaken at varying intervals because they were reviewed by the same radiologist.* [maybe the radiologist was only available at certain times]

If you can recognise the four basic types of English sentences, then you will be able to follow some of the main rules about sentence structure. You will be able to see why some sentences have a better flow than others and are easier to read. Often, if someone says that a piece of text is 'heavy' or hard to follow, it is because the sentences do not follow the expected structure.

What then is the expected sentence structure in English? There are four main ways that sentences can be structured, based on the number and type of clauses they contain[1]:

- The simple sentence
- The compound sentence
- The complex sentence
- The compound-complex sentence

Before describing these sentence types let's look at some definitions:

A **sentence** is a set of words that contains a **subject** (what the sentence is about, the topic of the sentence) and a **predicate** (what is said about the subject). In *Atrial fibrillation is an important*

factor because its prevalence has increased in western countries, atrial fibrillation is the subject of the sentence and the rest is the predicate.[2] Thus, a sentence:

- includes at least one **verb** (*Atrial fibrillation is an important factor.*),
- expresses a **complete thought,**
- **begins** with a capital letter and **ends** with a full stop, question mark (?), or an exclamation mark (!), and
- is also called an **independent clause** (or main clause).

In contrast, a **dependent clause** (or subordinate clause) is a group of words that contains a subject and verb but **does not express a complete thought** and is therefore not a sentence, e.g. *because its prevalence has increased in western countries.*

1. The simple sentence

- has only one independent clause, and
- contains a subject and a verb and expresses a complete thought, i.e. it makes sense on its own.

The **subject** (underlined in the examples below) can comprise several words (called a noun phrase, e.g. *Most trauma surgeons work full-time*), can be a gerund (a verb which functions as a noun, e.g. *Monitoring is essential in diabetes*), or can be a compound subject (*The tubes and syringes were washed in saline*). The subject is often at the start of the sentence.

The **verb** (underlined twice in the examples) is the action word and the most important part of the predicate. It is called action word because it says something about the subject(s) and gives information on aspect of time (past, present, future). It can comprise a single word (*Many people worry about global warming*) or can be a verb phrase (*Samples were collected later*).

The sentence *Both the laser scanner and the modified gauging system performed well for three-dimensional measurements.* has two noun phrases making a double subject (i.e. *Both the laser scanner and the modified gauging system*; verb = *performed*].

The predicate of the sentence *WHO's Global Action Plan specifies a 25% reduction or containment of the prevalence of raised blood pressure as one of its nine voluntary targets.* includes one verb and a phrase with several other elements.

The sentence *The data were collected and*

analysed. can be classified in two ways. We classify it here as a simple sentence with one subject (*the data*) and a compound predicate, i.e. two verbs that share the same helping verb (*were*); thus both verbs are linked to the same subject.[3] But it can also be classified as a compound sentence[4] (see below) in which two simple sentences – each with one subject and one predicate (*The data were collected* and *The data were analysed*) – are fused to avoid repetition. The important issue here, however, is to be able to identify the subject and its verb(s) to ensure correct subject-verb agreement.

The simple sentence is useful for conveying messages, but too many of them one after the other can make the text choppy and boring. The added benefit of being able to identify the subject of a sentence is that it helps the writer to conjugate the verb correctly, i.e. *the finding is* or *the findings are*.

(See Box 1 for exercises on simple sentences.)

Box 1. Simple sentences
Identify the subject and verb of these sentences by underlining the subject once and the verb twice.

e.g. A specialist nurse interviewed the patients. → A specialist nurse interviewed the patients.

1. Infection from wet gangrene can spread quickly through the body.

2. Cancellation and non-attendance without notice were registered daily.

3. Signs and symptoms of sunburn typically appear a few hours after sun exposure.

4. Submitting to a journal and having a paper published have been considered a challenge by many researchers.

5. Being overweight, eating unhealthy food, and failing to get adequate exercise all contribute to the risk of developing diabetes.

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2. The compound sentence

- has two independent clauses (i.e. simple sentences) joined by the conjunctions 'F.A.N.B. O.Y.S.' i.e. for – and – nor – but – or – yet – so.
- These 'FANBOYS' serve as coordinating conjunctions and signal the start of an independent clause.

The following sentences use these conjunctions:

More children survive to the age of five, **and** *significant progress has been made against infectious diseases.*

Laser scanners are particularly useful for making three-dimensional measurements, **but** *few hospitals can afford them.*

The new procedure was cheaper and more effective, **so** *the committee quickly agreed to implement it in all the outpatient clinics.*

Two patients were injured, but they managed to arrive safely.

The independent clauses in a compound sentence should communicate related messages. In the first example above, the underlying topic in both sentences is child mortality. In the second example, both sentences refer to laser scanners. In the third example, the first sentence explains why the committee quickly agreed to implement the procedure. (See Box 2 for exercises on compound sentences.)

Box 2. Compound sentences
Join the following pairs of sentences using a FANBOYS word. (In some cases, there may be more than one correct answer.)

e.g. More children survive to 5 years old. Significant progress has been made against infectious diseases.

→ More children survive to 5 years old, and significant progress has been made against infectious diseases.

1. No curative treatment exists. Over-the-counter medications can help relieve symptoms.

2. The patient was offered a higher dosage of morphine. He chose to remain on the lower dosage.

3. Children with ear infections may have trouble hearing. This is not usually a problem after treatment.

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4. The neck of the glass stopper should have a length of 20 mm. The sealing surface of the jar's finish should have a width of 5-6 mm.

5. Almost half of all antibiotic prescriptions written for children are for ear infections. The cost of treating middle ear infections in the U.S. is estimated to be over $2 billion a year.

3. The complex sentence

- has one independent clause (i.e. a simple sentence) and a dependent clause.
- The dependent clause 'depends' on the independent clause to have a meaning. It adds more information to the sentence and starts with a subordinating conjunction (e.g. because, until, when, after…). Another type of a dependent clause is the relative clause, which starts with a relative pronoun (who, which, whose, whom, that).

In *Many people are concerned about global warming because it affects the environment,* the dependent clause is *because it affects the environment* as it cannot stand alone.

The dependent clause in *All the university students who passed their exams received a diploma.* is the relative clause *who passed their exams* signalled by the relative pronoun *who*. It adds the information that not everyone received a diploma, but only those who passed the exams.

If the dependent sentence comes at the start of the sentence, it usually has a comma after it especially if the dependent clause is relatively long, e.g. *Although progress in immunisation coverage has been made, various challenges remain.* (See Box 3 for exercises on complex sentences.)

Box 3. Complex sentences
Underline the dependent clause in each sentence.
e.g. Frostbite requires medical attention <u>because it can damage the skin and other areas of the body.</u>
1. Response rates for individual questions varied because some respondents did not answer every question.
2. The patients were concerned about confidentiality, although study participation was anonymous and the information was archiever using only their project number.
3. Workers usually receive compensation if

a serious or debilitating injury occurs on the job or during the commute to work.
4. Every Friday, patients were given schedules for physiotherapy sessions, which helped them organise their time and prepare for the upcoming week.
5. Parents tend to worry and often give their children over-the-counter medications to alleviate discomfort even though fever is a common childhood symptom.

4. The compound-complex sentence

- has at least two independent clauses (linked to form a compound sentence) and one or more dependent clauses.

For example, *The instructions in the two questionnaires differ, and although the meaning is the same, it is possible that patients' responses will be altered.* has two independent clauses (*The instructions in the two questionnaires differ* and *it is possible*). Dependent clauses are *although the meaning is the same* and *that patients' responses will be altered*.

In *The medication should be taken in the morning, but the patients took it in the evening because it made them sleepy.* there are two independent clauses linked by *but* and a dependent clause starting with the subordinating conjunction *because*. (See Box 4 for exercises on compound-complex sentences.)

Box 4. Compound-complex sentences
In the sentences below, first identify the simple sentences and then the dependent clause.
1. Therapeutic hypothermia is associated with several complications, and patients with complex heart arrhythmias or in-hospital cardiac arrest could be more vulnerable to these complications because they have a higher risk of co-morbidity.

2. Nearly 35% of Danish geriatricians agree that people have the right to decide for themselves when to die, but only 25% think that euthanasia is justifiable when a suffering patient expresses a wish to die.

3. The analysis is based on hospital admissions, and if a person has had more than one hospital admission, the most recent one is used.

4. Polypharmacy has been linked with increased risk of adverse drug reactions, which significantly rises with the number of concomitant drugs used, and drug interactions may interfere with the intended effects of the drugs.

5. Over half of the prescriptions are made over the telephone, and the quality of prescription refills tends to be lower compared to paper prescriptions because information about the medication is often omitted.

Note that compound-complex sentences can get quite long, so try to avoid too many independent and dependent clauses in the same sentence.

Putting it all together

With practice it gets easier to recognise these four sentence types. By combining simple sentences in the ways described, you can make the text more interesting and easier to understand. (See Box 5 for an exercise on combining sentences.)

Box 5. Combining short, choppy sentences
Revise the following paragraph to avoid the many short sentences. See if you can use and identify compound and complex sentences.
Osteoporosis is a disease of the bones. The disease is characterised by reduced bone mass and poor bone quality. People with osteoporosis often have no symptoms. People with osteoporosis have an increased risk of fractures. This is because the bone is weaker. Bone mineral density scans are used to detect bone density. They measure bone density in the spine, hip, or wrist. The bone mineral density results help doctors diagnose osteoporosis. Doctors use the bone mineral density results to predict the likelihood of developing osteoporosis in the future. Osteoporosis is more common in women than in men. The risk of osteoporosis increases with age. It increases after menopause.

As a last exercise (Box 6), see if you can break up the long sentences to give a clearer message.

When you are satisfied with the written text, read it aloud. This is surprisingly effective for identifying problematic text. You will soon hear (or you will run out of breath) if the sentences are too long or complicated!

Box 6. Breaking up long sentences

The following sentences are long-winded. Break them up into shorter sentences to make the message clearer.

1. The final article in the series describes why writing for the general public can be so difficult and time-consuming and gives some advice on how scientists can cope with this challenge and what institutions and organisations can do to help.

2. After discharge from the ward many intensive care patients and their families will feel the need to discuss their experiences with the medical staff who treated them and may feel that only the intensive care clinicians can adequately address their questions, so to help meet this need for communication, intensive care team members should consider making follow-up phone calls to discharged patients and their families.

3. A limitation in the present study was the low participation rate among schools, as only 30% of the eligible schools participated, and this to some degree can be explained by the recent school reform, which demands extra resources of the school staff and therefore some school headmasters refused to participate.

4. In agreement with a large number of international reports, our results showed that younger users (20-40 years) were less likely to attend appointments than other age groups and at both clinics, non-attendance among males was significantly more frequent than among females, but other studies have reported a higher non-attendance among both females and males.

5. Not all scientists are gifted writers, but because they are trained to think logically, they should be able to write clearly and share their enthusiasm not only with their peers but also with the public.

For further information and exercises on English grammar and style, see the online resources, e.g. Purdue Owl.[1]

Summary

This article provides a short overview of the four main ways that English sentences can be structured. We hope that the exercises have helped you to distinguish between these sentence types and that you will be able to use this knowledge in your future writing or editing. You will be able to make a piece of text more interesting by varying the sentence types.

You may have noticed how you can make subtle changes to the meaning of a sentence by simply altering the linking word or the order of the phrases. When you analyse sentence structure, you are forced to think about the meaning and logic of the sentences, and this can only be useful! It takes time, but is well worth the effort, considering that the final goal is to produce an informative text that flows well and is easily understood.

Acknowledgements

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Can you recognise the four types of English sentences? – Gudex and Pedersen

Answers to Exercises

Box 1. Simple sentences
1. <u>Infection from wet gangrene</u> can spread quickly through the body.
2. <u>Cancellation and non-attendance without notice</u> were registered daily.
3. <u>Signs and symptoms of sunburn</u> typically appear a few hours after sun exposure.
4. <u>Submitting to a journal and having a paper published</u> have been considered a challenge for many researchers.
5. <u>Being overweight, eating unhealthy food, and failing to get adequate exercise (all)</u> contribute to the risk of developing diabetes.

[Examples 2, 3, and 4 have two subjects, and example 5 has 3 subjects. They all have one predicate.]

Box 2. Compound sentences
1. No curative treatment exists, but over-the-counter medications can help relieve symptoms.
2. The patient was offered a higher dosage of morphine, but/yet he chose to remain on the lower dosage.
3. Children with ear infections may have trouble hearing, but this is not usually a problem after treatment.
4. The neck of the glass stopper should have a length of 20 mm, and the sealing surface of the jar's finish a width of 5-6 mm.
5. Almost half of all antibiotic prescriptions written for children are for ear infections, and the cost of treating middle ear infections in the U.S. is estimated to be over $2 billion a year.

Box 3. Complex sentences
1. Response rates for individual questions varied <u>because some respondents did not answer every question</u>.
2. The patients were concerned about confidentiality, <u>although study participation was anonymous and the information was archived using only their project number</u>.
3. Workers usually receive compensation <u>if a serious or debilitating injury occurs on the job or during the commute to work</u>.
4. Every Friday, patients were given schedules for physiotherapy sessions, <u>which helped them organise their time and prepare for the upcoming week</u>.

5. Parents tend to worry and often give their children over-the-counter medications to alleviate discomfort <u>even though fever is a common childhood symptom</u>.

Box 4. Compound-complex sentences
(The simple sentences are in red. The linking word (in italics) turns them into compound sentences. The dependent clauses are in black.)
1. Therapeutic hypothermia is associated with several complications, *and* patients with complex heart arrhythmias or in-hospital cardiac arrest could be more vulnerable to these complications because they have a higher risk of co-morbidity.
2. Nearly 35% of Danish geriatricians agree that people have the right to decide for themselves when to die, *but* only 25% think that euthanasia is justifiable when a suffering patient expresses a wish to die.
3. The analysis is based on hospital admissions, *and* if a person has had more than one hospital admission, the most recent one is used.
4. Polypharmacy has been linked with increased risk of adverse drug reactions, which significantly rises with the number of concomitant drugs used, *and* drug interactions may interfere with the intended effects of the drugs.
5. Over half of the prescriptions are made over the telephone, *and* the quality of prescription refills tends to be lower compared to paper prescriptions because information about the medication is often omitted.

Box 5. Combining short, choppy sentences
(Please note that there are different ways of revising the text. Here is one example.)
Osteoporosis is a disease that is characterised by reduced bone mass and poor bone quality. People with osteoporosis often have no symptoms, but they have an increased risk of fractures because the bone is weaker. Bone mineral density scans measure bone density in the spine, hip, or wrist, and doctors use the results to diagnose osteoporosis or to predict the likelihood of its development in the future. Osteoporosis is more common in women than in men, and the risk of osteoporosis increases with age and after menopause.

Box 6. Breaking up long sentences
1. The final article in the series describes why writing for the general public can be so difficult and time-consuming. It gives some advice on how scientists can cope with this challenge, and what institutions and organisations can do to help.
2. After discharge from the ward, many intensive care patients and their families will feel the need to discuss their experiences with the medical staff who treated them and may feel that only the intensive care clinicians can adequately address their questions. To help meet this need for communication, intensive care team members should consider making follow-up phone calls to discharged patients and their families.
3. A limitation in the present study was the low participation rate among schools, as only 30% of the eligible schools participated. This can be explained to some degree by the recent school reform, which demands extra resources of the school staff and therefore some school headmasters refused to participate.
4. In agreement with a large number of international reports, our results showed that younger users (20-40 years) were less likely to attend appointments than other age groups. At both clinics, non-attendance among males was significantly more frequent than among females, but other studies have reported a higher non-attendance among both females and males.
5. Not all scientists are gifted writers, but they are trained to think logically. This means they should be able to write clearly and share their enthusiasm not only with their peers but also with the public.

Three strategies to help you write clearly for a lay audience

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Abstract

When writing health and medical content for a lay audience, it is important to think beyond simply writing well. Defining your ideal readers, reducing medical jargon, and producing a well-formatted piece of work can all enhance your reader's understanding. In this article, I explain how these three key strategies will help you write clearer medical content for lay readers. I also give some exercises to help you put these strategies into practice.

When writing health and medical content for a lay audience, it is important to think beyond simply writing well. You need to consider about who you are writing for and how your readers might understand or misunderstand what you are saying. After describing strategies for addressing these issues, I provide exercises so you can practice putting them into action.

Strategy 1: Define your ideal readers

When writing health content for the general public, it's important to define your ideal readers before you start writing. Your ideal readers are never "everyone" – they are the group of people you want to educate or persuade. Because different publications have different requirements, you should define your ideal reader at the beginning of every new writing project. Doing so will help to:

- **Set the tone of your writing** – For example, decide whether you will opt for a chatty, empathetic, trusted friend, professional, scientific, humorous or sarcastic style of writing.

- **Dictate the type of content you will include** – For example, you might include evidence, anecdotes, stories, case studies.
- **Determine the overall topic/subject matter** – Understanding your audience's problems will give you ideas for unique content. What issues and concerns matter to them?
- **Shape the simplicity level of your content** – How educated are your readers?
- **Create highly targeted content** – This will give the article a better chance for success.
- **Create engagement** – You can engage your readers by answering a question of theirs or helping them with a problem or concern.

The following short exercise about your ideal readers can help you to stay focused as you write.

Step 1: Consider the basic demographics of your ideal readers: age, gender, location, industry, income level, education.

Step 2: Think about their preferences, habits, and what's important to them. What else do they read, like and share on social media? What is their health concern, and how can you help them by solving an important problem?

The more targeted your content is, the more chance it has of resonating. Without a solid understanding of your audience, you won't be able to measure the effectiveness of your messages.

Strategy 2: Remove jargon

Medical jargon can feel like a foreign language to non-medical people. Jargon refers to complicated medical terms that a lay person doesn't understand. Jargon can include drug names, disease names, biological terms, procedures, and abbreviations. Here's an example of how jargon can create problems for lay readers:[1]

Patient: "What caused my arm pain during my recent heart attack?"

Surgeon: "The pericardium is innervated by C3, 4, 5 (phrenic nerve). There may be some neuronal connections to the intercostobrachial nerves."

Around the world, health literacy rates are low – even in educated populations.[2] For example, nearly 9 in 10 American adults may lack the skills needed to manage their health and prevent disease, according to the US National Assessment of Adult Literacy.[3]

With this in mind, it's now more important than ever to produce clear medical content when writing for the general public. Reducing and eliminating jargon will help make scientific content easier to read.

Strategies to help you reduce jargon include:

- **Employing in-text definitions and explainers** – for example:
  - the area in your brain where…
  - the section in your brain responsible for…
  - a disease in which…
- **Using straightforward analogies** – as well as similes and metaphors, for example:
  - Hoses and pipes for blood vessels
  - A 4-cylinder car engine for the heart's function
  - Preventative health check-ups are like servicing your car regularly
  - Resilience is like dam walls
- **Substituting** – Use simpler words or phrases where possible, for example:
  - *Kidney* instead of *renal*

- *Heart* instead of *cardiac*
- *Bones* instead of *skeletal*
- **Sharing your ideas with your target audience** – Ask non-scientific people to review your content.
- **Linking out** – When writing web copy, link out to a definition or clarification.

Strategy 3: Readability

"Readability" is the ease with which a reader can understand your writing. Readability is not just about producing high-quality writing – it's also about making it as easy as possible for your readers to read and understand your content. For content to be readable, it should be aesthetically pleasing and welcoming.

Readability can be affected by:

- How fast or slow your reader reads
- Where your reader reads (a quiet library or a noisy café)
- The device your reader is using (book, paper, phone, tablet)
- Your reader's abilities (health literacy skills)

Here are some strategies to help you produce more "readable" content when writing for a lay audience:

- **Include plenty of "white space"** – Add space between headings and paragraphs to make the text less dense.
- **Stick to short paragraphs** – Avoid paragraphs that are over four or five lines. Paragraphs of one to two sentences or even just one

sentence are acceptable for lay audiences.

- **Include lots of subheadings** – Your subheadings should contain key points helping the content to flow logically. Subheadings help the reader scan the text and quickly find the information they seek.
- **Use short sentences** – Avoid sentences longer than 1 ½ lines.
- **Use short words** – Avoid words with more than three syllables.
- **Insert bullet and numbered lists** – Lists break up the copy and are especially useful when describing symptoms, causes, and treatments.
- **Links** – Link out to relevant text to continue the user journey.
- **Avoid distractions** – Keeping the pages clean and minimalist will ensure the content is aesthetically pleasing.
- **Vary your sentence length** – A combination of long and short sentences helps readability.
- **Use a clear font size and type** – Ensure that your writing is legible and uses a consistent typeface.

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BELs Exam Announcement

For the very first time since 1996 and for the convenience of EMWA members attending the May 2017 Conference in Birmingham, the Board of Editors in the Life Sciences (BELS) is planning to hold its examination in Birmingham on the day before the conference is due to start (May 2, 2017 at 12:00) with the venue to be announced. The exam is offered world-wide

and tests proficiency in all aspects of manuscript editing. Candidates who pass this certification exam are allowed to use the credentials "ELS" after their names (Editor in the Life Sciences).

Delegates wishing to register for the BELS exam should contact BELS via www.bels.org. Delegates should note that while EMWA and BELS are co-ordinating the timing of these

events, the BELS examination is a separate event, and not part of the EMWA conference. EMWA accepts no liability arising from registration for, conduct of, or potential cancellation of the BELS examination event, and is not able to provide assistance with BELS registration, or authorised to answer any queries regarding the BELS examination.

Exercises

Exercise 1: Identifying your audience

Complete the following ideal reader profiles for the specified writing projects:

Patient handout on in vitro fertilisation (IVF)

- My content helps ⬚⬚⬚ who ⬚⬚⬚ and are ⬚⬚⬚ .
- For example: My content helps women who are trying to conceive and are feeling anxious.

Asthma infographic

- My content helps ⬚⬚⬚ who ⬚⬚⬚ and are ⬚⬚⬚ .

Skin cancer prevention leaflet

- My content helps ⬚⬚⬚ who ⬚⬚⬚ and are ⬚⬚⬚ .

High blood pressure prevention article

- My content helps ⬚⬚⬚ who ⬚⬚⬚ and are ⬚⬚⬚ .

Exercise 2: Reducing jargon

Explain these terms in plain English:

- Aphthous stomatitis
- Choledocholithiasis
- Costochondritis
- Benig
- Control group

Exercise 3: Readability

This following text is from a published article.[4] Rewrite it into more readable copy:

"Adults who have few social contacts (ie, who are socially isolated) or feel unhappy about their social relationships (ie, who are lonely) are at increased risk of premature mortality. The influence of social relationships on mortality is comparable with well-established risk factors, including physical activity and obesity. Yet, compared with our understanding of these risk factors, we know much less about the implications of loneliness and social isolation for disease aetiology. Researchers have identified three main pathways through which social relationships may affect health: behavioural, psychological and physiological mechanisms. Health-risk behaviours associated with loneliness and social isolation include physical inactivity and smoking. Loneliness is linked to lower self-esteem and limited use of active coping methods, while social isolation predicts decline in self-efficacy. Feeling lonely or being socially isolated is associated with defective immune functioning and higher blood pressure. This evidence suggests that loneliness and social isolation may be important risk factors for developing disease, and that addressing them would benefit public health and well-being."

Answer key

Below are my suggested answers.

Exercise 1: Your ideal reader

Patient handout on IVF

- My content helps women who are trying to conceive and are feeling anxious.
- **Comment:** The content should appeal to these emotions, using empathy and reassurance to connect with the target audience.

Asthma infographic

- My content helps mothers who have children with asthma and are looking for best-practice advice.
- **Comment**: The content should address mothers directly and relate to them, showing an understanding of the issues involved in raising a child with asthma.

Skin cancer prevention leaflet

- My content helps young people who spend a lot of time in the sun and are not aware of the dangers of skin cancer.
- **Comment**: The content should be written in language that suits the target audience – fun, friendly – without downplaying the risk or the importance of skin cancer prevention.

High blood pressure prevention article

- My content helps men aged 50+ who are at high risk of heart disease and are not aware of the risk factors or consequences.
- **Comment**: The content should address the reasons why the men should care about heart disease in order to instigate the behaviour change process.

Exercise 2: Reducing jargon

- Aphthous stomatitis – Aphthous ulcers are painful yet harmless mouth sores that usually go away in a couple of weeks.
- Choledocholithiasis – Choledocholithiasis refers to one or more gallstones in the common bile duct.
- Costochondritis – Costochondritis is redness and swelling (inflammation) of the cartilage in the rib cage.
- Benign – A benign tumour isn't cancerous and doesn't spread to other parts of the body.
- Control group – The group in a study that doesn't receive treatment is called the control group.

Exercise 3: Readability

Adults who have few social contacts (ie, who are socially isolated) or feel unhappy about their social relationships (ie, who are lonely) are at increased risk of premature mortality.

The influence of social relationships on mortality is comparable with well-established risk factors, including:

- physical activity, and
- obesity

Yet, compared with our understanding of these risk factors, we know much less about the implications of loneliness and social isolation for disease aetiology.

Researchers have identified three main pathways through which social relationships may affect health:

1. behavioural
2. psychological
3. physiological mechanisms

Health-risk behaviours associated with loneliness and social isolation include physical inactivity and smoking.

Loneliness is linked to lower self-esteem and limited use of active coping methods, while social isolation predicts decline in self-efficacy.

Feeling lonely or being socially isolated is associated with defective immune functioning and higher blood pressure.

This evidence suggests that loneliness and social isolation may be important risk factors for developing disease, and that addressing them would benefit public health and well-being.

Structuring paragraphs

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Abstract

Paragraphs are meant to make a text understandable and readable, and to help tell the story. Key aspects of good paragraphs include using topic sentences and story structures. Starting with an outline or a plan and using it to build to topic sentences can help. With the topic sentences and body content decided, sentences within the paragraph can be logically connected using linking words. The article also provides several exercises to help you practice making effective paragraphs.

Paragraphs are meant to make a text understandable and readable, and to help tell the story. A well-written paragraph describes only one complete idea, where the main part of the idea comes first. From there, the different parts of the idea (supporting sentences) should be organised according to a logical sequence that fits the storyline, with information placed according to its importance. This logical sequence is helped along by words link one sentence to the next.

Use topic sentences to start paragraphs

In biomedical research texts, each paragraph is usually structured with the main idea first, followed by further sentences containing supporting data, information, or examples. This makes it easy for the reader to skim read the article to obtain an overview of the whole paper before narrowing down to a specific paragraph.

This first sentence is known as a *topic sentence*. A topic sentence should be written as powerfully as possible, thus a simple sentence structure is best, with the main subject close to the verb.

Use story structures to build from topic sentences to paragraphs

Within each paragraph, information is ordered according to the storyline. Some common structures used in biomedical research are:

Old information ▶ New information
Least important ▶ Most important
For ▶ Against
Problem ▶ Solution

Start with outline or a plan and build to topic sentences

When writing, start with an outline or a plan. Then, build each paragraph from the main points in your outline or plan. Each sentence in your outline will probably be a main idea and therefore become a topic sentence. This will ensure that each paragraph only contains one idea and that you stick you your storyline.

The example below shows how you can build from an outline of an introduction or background section to topic sentences.

Outline

- Lung cancer is one of the most prevalent cancers worldwide
- Non-small cell lung cancer (NSCL) is a rare cancer
- It effects X% of the population Ref 1
- It increases with age Ref 2
- Current treatment is efficacious but is limited to younger patient groups
- Ref 3 and 4
- Some epidemiological data has indicated safety in older patients
- Ref 5
- The objective of this study is to identify toxicity of treatment B in older patients with NSCL lung cancer.

Topic sentences

- Topic sentence 1: Lung cancer represents one of the most prevalent cancers in the world. *Supporting idea*: Non-small cell lung cancer (NSCLC) is the most frequent and deadly form. Example: NSCLC occurs in 85% of cases and are diagnosed 30-40% of the time at a non-operable stage
- Topic sentence 2: However, over the last 25 years, improved treatment with radiotherapy and chemotherapy has increased long-term survival.

Transition: In the 1990s, sequential radio chemotherapy became the protocol of choice. Recently, concomitant radio and chemo therapy has been shown to increase survival with minimal toxicity.

- Topic sentence 3: Concomitant radio- and chemotherapy has been shown to increase survival (mode of action and/or key clinical data here).

Hypothesis: The objective of this study is to evaluate the toxicity of a combined therapy regimen to treat NSCLC.

Link ideas between sentences

Several techniques can be used to ensure that the story flows clearly from sentence to sentence and paragraph to paragraph.

Use linking words to link sentences in a paragraph

Linking words indicate the relationship between one idea and another and guide the reader along the logical steps from one sentence to the next. In biomedical research, there are six main relationships the author would usually highlight: contrast, comparison, cause/effect, list, chronological order, and examples. Some example linking words are shown in Figure 1.

Here is an example of how a linking word can be used to link sentences:

*Traditional cell-culture methods are still used today to study cutaneous bacteria; **however**, they have been found to be relatively limited.*

Linking words may be used between sentences to connect neighbouring ideas, as in the following example.

*When mesenteric panniculitis suspected following computed tomographic scan reports, it is also important to exclude the presence of a tumour. **Although** mesenteric panniculitis and neoplastic disease occur frequently together, the association between them is still debated. **Furthermore**, non-malignant tumours cause chronic infectious or inflammatory abdominal disease such as Crohn's disease.*

Use parallel sentence structure to link sentences

Ideas are easier for the reader to follow if they are presented in a similar pattern. This means, that the same ideas should be written in the same way, that is, with the same grammatical structure. This technique is known as "parallel structure".

To use parallel structure, keep the subject (sentence topic) the same or in the same word category from sentence to sentence. Also, when two or more items are listed in the topic sentence, the supporting sentences should follow the same order.

Discuss each data point separately, and avoid using *respectively*, which tires the reader by making them look backward. Remember to repeat key terms to remind the reader where you

> *A topic sentence should be written as powerfully as possible, thus a simple sentence structure is best, with the main subject close to the verb.*

are up to in your argument.

For example, take a look at the following paragraph:

***Natriuretic peptides** (BNP, NT-proBNP and ANP) are produced by myocardial cells in the heart in response to mechanical stress due to increased pressure in the heart chambers. **These peptides** are strong, independent predictors of heath following hospitalisation. However, **guiding treatment** has not been shown to be useful using natriuretic peptides.*

In this version, the last sentence is written with "guiding treatment" as the subject. This is disruptive because the reader has become accustomed to following a story where natriuretic peptides are the subject.

Now take a look at the paragraph written with parallel structure:

***Natriuretic peptides** (BNP, NT-proBNP and ANP) are produced by myocardial cells in the heart in response to mechanical stress due to increased pressure in the heart chambers. **These peptides** are strong, independent predictors of health following hospitalisation. However, whether **they** are useful for guiding treatment continues to be debated.*

Contrast

- Alternatively / but
- Although / however / while / yet
- Despite/ nevertheless

Comparison

- Alternatively / but
- Although / however / while / yet
- Despite/ nevertheless

Cause / Effect

- Since / as / because
- Consequently
- Therefore / hence /so

List

- Firstly/secondly/additionally
- Too / also
- Furthermore

Chronological order

- Afterwards
- Simultaneously
- Meanwhile
- Despite

Examples

- specifically
- such as
- particularly

Figure 1

In the revised example, the subject of each sentence matches the topic sentence, guiding the reader from one idea to the next.

Parallel structure refers not only to subjects but also to verbs, adverbs, and other parts of speech, as well as to various grammatical structures. Below is an example of parallel verb structure or tense:

*During study visits, the subjects **received** the study drug, **completed** a quality of life questionnaire, and **had** a physical examination.*

In this example, all verbs are in the same tense and, in fact, a parallel structure of past tense verb + article + noun is maintained.

The following example illustrates parallel adverb structure:

*After each dose adjustment, patients were asked to record their pain levels **hourly** during the first day, **daily** during the first week, and **weekly** thereafter.*

In this example, a parallel structure of an -ly adverb + prepositional phrase is maintained.

Consistently use terminology

Despite what you may have learned in English writing classes, employing different words (synonyms) for biomedical terms can make the text difficult to follow. For example, heart muscle contractility means the same as myocardial inotropic state. Where possible, choose the single most appropriate word or term for your reader and continue with it throughout the manuscript.

As a general rule, technical terminology and acronyms should be consistent throughout a text. Keep the repeated terms as close as possible in the paragraph. Non-native English writers should check that all technical terms are correct English words or acronyms, e.g. use WHO (World Health Organisation) instead of *OMS (Organisation Mondiale de Santé)*.

In the examples below, observe how the terminology is repeated from one sentence to the next:

*The bound ligand inhibits the receptor, allowing the antagonist to activate the **signalling mechanism**. These **signals** drive specific proteins, which activate gene transcription and may thus influence cells proliferation.*

*Beta-blockers inhibit sympathetic stimulation to the heart and **reduce** heart muscle **contractility**. This **reduced contractility** reduces cardiac output, decreasing the demand for oxygen.*

Author Information

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Exercises

Example 1

Rewrite this text to make it easier to read.
After each dose adjustment, patients recorded their pain levels every hour, for the first day, then daily for the first week and finally once a week thereafter.

Example 2

Rewrite this text to make it easier to read.
Blood samples were taken at Visit 1, Visit 2 and Visit 3. The investigator measured O_2 saturation before inclusion. Patients were randomised to the treatment or placebo group at visit 2.

Example 3

Rewrite this text to make it easier to read.
Although there is no proof to support the hypothesis of a different pathogenesis between adolescent and adult acne, clinical evidence suggests there may be some differences. Among them, the hormonal influence on acne, indicated by the high frequency of flares before menstruation. Moreover, adult female acne relapses more frequently after treatment with systemic antibiotics and even with isotretinoin.

Example 4

Rewrite this text to make it easier to read.
This guideline describes techniques for preparing poorly water-soluble organic compounds and introducing them into test vessels for a subsequent biodegradability test.

The subsequent tests on biodegradability are primarily methods using the analysis of the released carbon dioxide described in normative reference ISO 0000 and the determination of the oxygen described in normative references ISO 9408 and following the usual precautions for ISO 0000X.

Example 5

Reorder the sentences into one or more logically organised paragraphs and make any other changes needed to improve the logical flow of ideas.
Because the mediastinum is a common site for relapse, some chemotherapy regimens have included mediastinal radiation therapy. Mediastinal irradiation can be a useful local treatment, but whether it improves outcome remains controversial. In addition, mediastinal irradiation delays chemotherapy and can cause cardiac damage, radiation pneumonia, thyroid dysfunction, and secondary malignancies. Because of this, mediastinal irradiation has been eliminated from paediatric treatment protocols. A retrospective study showed that mediastinal irradiation significantly decreases the risk of mediastinal recurrence in adult patients. However, in another study, around half of patients receiving mediastinal irradiation had mediastinal recurrence. Also, because of the risks of mediastinal irradiation and the equivalent or better responses observed for newer treatment protocols lacking it, mediastinal irradiation does not appear to have an added benefit in current treatment.

Example 6

Add a topic sentence to the following paragraph and make any other changes needed to improve the logical flow of ideas.
In temperate countries, the pattern of virus circulation is well established, with the main

activity during the winter. In Asia, two different patterns occur: year-round circulation with no clear peak of activity or peaks that coincide with cool or rainy seasons.

Example 7
Add a topic sentence to the following paragraph and make any other changes needed to improve the logical flow of ideas.
Pain from herpes zoster is usually acute, lasting 2 weeks, but in 17% of elderly adults, the pain can be chronic and can limit physical activity and cause emotional distress. The lifetime risk has been estimated to be around 10-30%. The risk for the illness and for severe complications significantly increases after 50 years of age.

Example 8
Add a topic sentence to the following paragraph and make any other changes needed to improve the logical flow of ideas.
Studies conducted in 2009 showed that reports of morbidity associated with the illness were several times higher in pregnant women than in non-pregnant women. A long-term study conducted between 1990 and 2002 showed that, compared to non-pregnant women, the hospital admission rate was 1.7-fold higher for the first trimester, 2.1-fold higher for the second trimester, and 5.7-fold higher fro the third trimester. The risk of complications increased from 2.5-fold higher at week 21 to 4.7-fold higher during week 37 to 42.

Example 9
Reorder the text into chronological order and add linking words to the steps in time, such as now, before, after, or since.
The treatment of metastatic pulmonary adenocarcinoma began in (1975), with the discovery of therocil, which had a median overall survival (OS) of 1.8 months. Since the 1980s chemosine was the only standard chemotherapy available for metastatic pulmonary adenocarcinoma. It is well tolerated, and the median overall survival of 6.5 months was longer than therocil. In 2011, a new chemotherapy regimen COMBINEX (a combination therapy regimen) was trialled in a pilot study and achieved an OS of 12.2 months compared to chemosine, 7.6 months ($p < 0.001$) in the COMPARE trial. Now, a larger trial is necessary to establish this new, combination therapy regimen as standard therapy.

Example 10
Write a topic sentence and edit the text to make it easier to read. Add additional text where needed to ensure a logical argument.
Usually, side effects appear early and although mostly mild at onset, can become severe, impairing quality of life. These skin reactions may lead to dose reductions or treatment discontinuations, potentially detrimental to the treatment outcome. Although cutaneous reactions may differ between treatments, protecting the skin barrier function before and during therapy has been shown to prevent these reactions from appearing. Patients should be advised to apply an emollient to their skin before and during each cycle of chemotherapy.

Answer key

Example 1
Suggested revision:
After each dose adjustment, patients were asked to record their pain levels hourly for the first day, daily for the first week, and weekly thereafter.

Reason:
By using parallel structure and describing the dosage routine with adverbs, the sentence is easier to read.

Example 2
Suggested revision:
At visit 1 oxygen saturation was measured and recorded. At visit 2, eligible patients were included into the study and randomised to either the treatment or placebo group. Blood samples and oxygen saturation were measured at each study visit.

Reason:
Following a logical order is easier to read. Information like *the investigator measured* is probably not the reality and not essential information.

Example 3
Suggested revision:
Although there is no evidence in the literature that the pathogenesis differs between adolescent and adult acne, clinical evidence suggests there may be some differences. One difference is the hormonal influence on acne, indicated by the high frequency of flares before menstruation. Another difference is adult female acne, which relapses frequently following antibiotic or isotretinoin treatment.

Reason:
Firstly, the opening sentence has been simplified by shortening *there is no proof to support the hypothesis* to *there is no evidence in the literature* to make it more powerful and precise. Then, the structure was made parallel by repeating the word *differences*. This links the first sentence to the second and the second to the third.

Example 4
Suggested revision:
This guideline describes techniques to prepare water-soluble organic compounds and introduce them into test vessels for subsequent biodegradability testing. These biodegradability tests measure carbon dioxide release as described in ISO reference ISO0000, and determine oxygen levels as described in ISO reference ISO 0000. All tests are performed to standards described in ISO 0000X.

Explanation:
To improve this text, start by putting the verbs in the same tense form. So, keeping with the present tense *it describes*, change *introducing* to *introduces*. Next join sentence 1 with 2 and repeat the subject of the sentence, *these biodegradability tests*. Lastly, *use methods that analyse carbon dioxide release* can be simplified to *measure carbon dioxide*.

Example 5
Suggested revision:
Mediastinal irradiation can be a useful local treatment *to prevent relapse*, but whether it improves outcome remains controversial. A retrospective study showed that mediastinal irradiation significantly decreases the risk of mediastinal recurrence in adult patients. However, in another study, around half of

patients receiving mediastinal irradiation had mediastinal recurrence.

In addition, mediastinal irradiation delays chemotherapy and can cause cardiac damage, radiation pneumonia, thyroid dysfunction, and secondary malignancies. Because of this, mediastinal irradiation has been eliminated from paediatric treatment protocols. Also, because of the risks of mediastinal irradiation and the equivalent or better responses observed for newer treatment protocols lacking it, mediastinal irradiation does not appear to have an added benefit in current treatment.

Explanation:
The main topic of the paragraph is not clear – there seems to be more than one idea: (1) mediastinal irradiation can be a useful local treatment, but whether it improves outcome remains controversial; and (2) mediastinal irradiation delays chemotherapy and can be toxic. Each thought should therefore be in its own paragraph, each with its own topic sentence. In the first paragraph, the topic sentence (sentence 2) is followed by the information related to the different outcomes (sentences 4 and 5). In the second paragraph, the topic sentence (sentence 3) is followed by information related to the problem (sentences 4 and 7). Finally, sentence 1 is not needed anymore and the relevant information can be combined with the topic sentence of the first paragraph (sentence 2) by adding the phrase *to prevent relapse.*

Example 6
Suggested revision:
Temperate countries and Asia have different patterns of virus circulation. In temperate countries, the pattern of virus circulation is well established, with the main activity during the winter. *In contrast,* in Asia, two different patterns occur: year-round circulation with no clear peak of activity or peaks that coincide with cool or rainy seasons.

Explanation:
This paragraph needs a topic sentence to express the main idea and lead to the body of the paragraph. The topic is that there are differences in virus circulation between temperate countries and Asia. The two sentences logically follow this, although the second sentence could benefit from the addition of *In contrast* or *However* to highlight that the sentences are showing different things.

Example 7
Suggested revision:
Herpes zoster is a common, painful viral infection mostly affecting elderly adults. Pain from herpes zoster is usually acute, lasting two weeks, but in 17% of elderly adults, the pain can be chronic and can limit physical activity and cause emotional distress. The lifetime risk has been estimated to be around 10-30%, *although* the risk for the illness and for severe complications is highest after 50 years of age.

Explanation:
As in the previous example, this paragraph needs a topic sentence to express the main idea and lead to the body of the paragraph. The topic is that herpes zoster is (a) common, (b) painful, and (c) mostly affects adults over 50 years of age. In addition, the paragraph can benefit from a logical link between the last two sentences. In this case, *although* is a good linking word because it makes the distinction that the 10-30% is not evenly distributed by age.

Example 8
Suggested revision:
Pregnancy increases the rate of complications from the illness. Studies conducted in 2009 showed that reports of morbidity associated with the illness were several times higher in pregnant women than in non-pregnant women. *Also,* a long-term study conducted between 1990 and 2002 showed that, compared to non-pregnant women, the hospital admission rate was 1.7-fold higher for the first trimester, 2.1-fold higher for the second trimester, and 5.7-fold higher for the third trimester. *The study further showed* that risk of complications increased from 2.5-fold higher at week 21 to 4.7-fold higher during week 37 to 42.

Explanation:
The topic is that complications from the illness are increased by pregnancy, as expressed in the added topic sentence. In addition, the paragraph can benefit from a logical links between the sentences. Between the second and third sentences of the revised version, *Also* was added to show that this is additional information. Similarly, between the third and fourth sentences, *further* was added to show that this is additional information, and *The study … showed* was added to indicate that this was from the same study as in the previous sentence.

Example 9
Suggested revision:
The treatment of metastatic pulmonary adeno-carcinoma began in 1975, with the discovery of therocil, leading to a median overall survival (OS) of 1.8 months. Since the 1980s chemosine was the only standard chemotherapy available for metastatic pulmonary adenocarcinoma. It is well tolerated, and the median overall survival of 5.6 months was longer than with therocil. In 2011, a new chemotherapy regimen COMBINEX (a combination therapy regimen) was investigated in the COMPARE trial and achieved a longer OS (12.2 months) than chemosine (7.6 months; $p < 0.001$) in the COMPARE trial. Now, a larger trial is necessary to establish this new, combination therapy regimen as standard therapy.

Explanation:
This paragraph has been edited to describe how chemotherapy has improved over time. The text has been rearranged in chronological order and specific dates have been added (*over X years ago* would have been an acceptable alternative). Note that the introductory words and dates (*began, since, in 2011,* and *now*) lead the reader through the story.

Example 10
Suggested revision:
Cutaneous reactions are a side effect of chemotherapy that usually appear early in the treatment phase and differ from one chemotherapy agent to another. They are mild at onset and with continued treatment can become severe and impair quality of life. These reactions may lead patients to reduce their dose or discontinue their treatment, which could be detrimental to the treatment outcome.

Skin barrier function has been shown to play an essential role in the development of cutaneous reactions related to chemotherapy.

Explanation:
The text refers to side effects, skin reactions and cutaneous reactions. Creating a topic sentence with cutaneous reactions defines the topic for the sentence and explains that they are a side effect. The phrase *These reactions lead to dose reductions* has been made more direct by adding a subject, who make the reductions. *Although cutaneous reactions may differ between treatments* has been moved to the topic sentence. A second paragraph has been created to address the topic of skin barrier function.

A checklist to improve your writing

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Abstract

In this article, I provide a checklist of eight items to improve your writing. Several of the checklist items are discussed in detail in other articles in this issue of *Medical Writing*, although I provide explanations and examples for each item. I also provide a series of exercises to help you put them into practise.

For the last several years, I have lead several courses on scientific writing in the US and Europe. In my courses, I provide participants with several simple things they can do to improve their writing. Recently, several participants have requested a checklist summarising these ideas. My eight-item checklist is shown in Figure 1, and in this article I explain and give examples for each item.

Item 1: Avoid nominalisations

Nominalisations are probably the most pervasive problem in scientific and medical writing. They are verbs turned into nouns, such as *demonstration of* instead of *demonstrate*. Nominalisations create sentences that are awkward and difficult to understand. Several articles in this issue of *Medical Writing,* especially the article by Michelle Arduengo (page 12), discuss nominalisations in

☐ Eliminate nominalisations
☐ Avoid phrases and sentences starting with "it is" or "there are"
☐ Eliminate useless words
☐ Eliminate "respectively"
☐ Use parallel structure
☐ Avoid multiple hedges
☐ Keep the subject and verb close together and where the reader expects to find them
☐ Reduce abbreviations

Figure 1. Writing checklist

more detail. Below are some simple examples of how nominalisations can be replaced:

Measurement of concentration was made by ELISA.
Replace with: *Concentration was **measured** by ELISA.*

*A **need** exists for a new technique.*
Replace with: *A new technique **is needed**.*

*We observed **the migration** of the cells.*
Replace with: *The cells migrated.*

Note: Eliminate nominalisations whenever you can, but not all are bad. For example, *treatment* is a nominalisation of the verb *treat*, but of course it's ok to use it.

Item 2: Avoid phrases and sentences starting with "it is" or "there are"

Like nominalisations, *it is* and *there are* create awkward sentences and so should be avoided. This is discussed in more detail by Tom Lang (page 21) in this issue of *Medical Writing*. Below are some examples and how they might be replaced:

*In patients treated with ibuprofen, **there was** a much earlier onset of pain relief.*
Replace with: *In patients treated with ibuprofen, onset of pain relief was much earlier.*

***It is** known that oestrogen is a steroid hormone…*
Replace with: *Oestrogen is a steroid hormone…*

***It is** possible that neutrophils contribute to other aspects of passive protection.*
Replace with: *Neutrophils **might** contribute to other aspects of passive protection.*

Note: As with nominalisations, *it is* and *there are* are sometimes the best solution, but consider whether an alternative solution is possible. By the way, I could also have said "consider whether *there is* an alternative solution", which would have been ok. However, keep *it is* and *there are* phrases to a minimum to avoid tiring your reader.

Item 3: Eliminate useless words

Wordiness is a frequent problem for many writers. Do what you can to eliminate un-necessary words, because they are another way of tiring your reader. For further detail, refer to articles in this issue of *Medical Writing* by Christine Møller (page 14), Barb Every (page 17), and Tom Lang (page 21). The following are some examples of useless words and how they can be eliminated:

In order to
Replace with: *to*
Explanation: I know that most people say *in order to,* but *to* means exactly the same thing.

A past history of
Replace with: *A history of*
Explanation: The word *past* is redundant when you say *history*

A bigger/higher/larger amount
Replace with: *more*
Explanation: This is a common construct in writing by non-native speakers of English. Keep a lookout for these in your own and others' writing.

Showed/demonstrated an increase
Replace with: *increased*
Explanation: This is also a common construct in writing by non-native speakers of English. It also falls under the topic of nominalisations because the noun *increase* can be converted to the verb *increase*.

The objective/aim/goal of the study was to investigate…
Replace with: This study investigated
Explanation: Just say what was done!

It is well known that/previous studies showed that/ it is thought that…
Replace with: Nothing – delete!
Explanation: These are called "preambles". They are a way of sounding the trumpets or somehow announcing that important information is coming later in the sentence. Again, just say what is.

Item 4: Eliminate "respectively"

Respectively causes the reader to look backwards to decipher what happened. This tires and confuses the reader so is best avoided. Unlike nominalisations and *it is* and *there are*, I recommend that you <u>always</u> delete the word *respectively*. Here are some examples:

Jack and Jill are a boy and a girl, respectively.
Replace with: *Jack is a boy, and Jill is a girl.*

The incidence of herpes zoster decreased by 17.2%, 27.3%, and 55.2% in subjects immunised with 5 µg, 12.5 µg, and 25 µg antigen, respectively.
Replace with: *The incidence of herpes zoster decreased by 17.2% in subjects immunised with 5 µg antigen, 27.3% in subjects immunised with 12.5 µg antigen, and 55.2% in subjects immunised with 25 µg*

antigen. Alternative: *The incidence of herpes zoster decreased by 17.2% at 5 µg antigen, 27.3% at 12.5 µg antigen, and 55.2% at 25 µg antigen.*

Item 5: Use parallel structure

Parallel structure means using similar grammatical constructions for different items in a list. It makes complex sentences easier to understand. Parallel structure is discussed in some detail in a previous article in *Medical Writing* by Michelle Arduengo.[1] Here are some examples:

The time to treatment failure was 12.2 months in the group treated with drug X, compared to 3.1 months in the placebo group.
Replace with: *The time to treatment failure was 12.2 months in the drug X group and 3.1 months in the placebo group.* Alternative: *The time to treatment failure was longer with drug X than with the placebo (12.2 vs. 3.1 months).*

Explanation: The construct in the original text is common in writing by non-native English speakers. It causes the reader to stop to realign the information. In the revisions, the information is realigned so that the reader does not have to do it. In the first suggested replacement, the construct in both halves of the sentence is *xx months in the xx group*; in the second suggested replacement, it is simply *with x.*

Item 6: Avoid multiple hedges

A hedge is simply a way of avoiding doing something definite. For example, you can *hedge* your bets when you play cards by not betting all of your money. Scientists are frequently told to not say anything definite because new information can come along invalidating their conclusions. Similarly, in medical writing, company compliance officers often ask to avoid saying anything definite for legal reasons. Hedges are ok, but you only need one. For example:

*These **preliminary** results suggest the **possibility** that the drug **might** be effective at reducing the incidence of the disease in **some** populations.*
Replace with: *These results **suggest** that the drug will reduce the incidence of the disease.*
Explanation: The original sentence contains the following hedges: *preliminary, possibility, might,* and *in some populations*. By hedging four times, this sentence ends up concluding nothing.

These results indicate that the factor enhances wound healing, but further studies are needed.
Replace with: These results indicate that the factor enhances wound healing.
Explanation: Avoid saying that *further studies are needed*. Further studies are always needed, if not, science would come to a halt! This is a very weak way to end a text. If you must say that further studies are needed, be specific, for example, *but this needs to be validated in a large randomised controlled trial.*

Item 7: Keep the subject and verb close together and where the reader expects to find them

This is another common problem for non-native speakers of English, although it can also be a problem for native speakers too. In English, the subject and verb need to be obvious. Searching for them tires and confuses the reader. Also, within a paragraph, the topic of the previous sentence needs to be linked to the subject of the following one to create a logical flow of ideas. This issue was also discussed in detail in the previous article in *Medical Writing* by Michelle Arduengo.[1] Linking ideas within paragraphs is discussed in this issue of *Medical Writing* in an article by Amy Whereat and me (page 38).
Here is an example:

A critical gene that serves as a beacon and gives cells a much needed sense of direction in the chaotic days of early development has been identified by HHMI researchers.
Replace with: *HHMI researchers have identified a critical gene that serves as a beacon and gives cells a much needed sense of direction in the chaotic days of early development.*

Explanation: In the original sentence, the subject is not clear and needs to be identified to understand what the writer meant. In addition, the verb is not clear. Is it *gives* or *has been identified*? In the revision, the subject is clearly *a critical gene* and the verb *have identified*. In addition, the verb comes just after the subject, making the sentence easy to understand.

Item 8: Use abbreviations sparingly

Although counter-intuitive to many writers, having more abbreviations makes a text more difficult, not easier, to understand. The reason is that abbreviations often make the reader go back and search for definitions. Reserve abbreviations

Exercises

Rewrite the following sentences for maximal simplicity.

1. Previous studies have shown that AIDS is caused by the HIV virus.
2. The rate of response showed an increase with the dose.
3. The trial subjects exhibited an apparent dose response to the treatment with responder rates of 17%, 40%, and 61% after treatment with placebo, 100 mcg, and 600 mcg, respectively.
4. It is well known that there are no differences between the effects of the treatments in terms of fertilisation rate or number of embryos transferred.
5. A positive correlation has been shown between monoclonal antibody-dependent complement deposition on pneumococci and passive protection in mice.
6. In a majority of cases it is a combination of social, psychological, and biological factors that cause major depressive disorder.
7. A larger proportion of cells treated with polymixotine underwent apoptosis compared to cells treated with placebo.
8. We observed the death of all mice in these treatment groups within two days.
9. Macrophage depletion using clodronate liposomes resulted in the elimination of the protection of all mice from death.
10. At this point, it is important to consider whether counselling may be productive.
11. Local reactions were observed with a higher intensity and with a longer duration in subjects treated with bigizimab compared with morizimab.
12. The occurrence of influenza epidemics has a well-established link with various climate and meteorological parameters.

for complex, multi-word expressions that are used at least three times.

Acknowledgment

Answer key

1. **Original:** Previous studies have shown that AIDS is caused by the HIV virus.
   Suggested rewrite: HIV causes AIDS.
   Explanation: *Previous studies have shown that* is a preamble and can be deleted. With *HIV*, *virus* is redundant because the "V" stands for "virus". Finally, the sentence can be further shortened by changing the word order.

2. **Original:** The rate of response showed an increase with the dose.
   Suggested rewrite: The response rate increased with the dose.
   Explanation: *Rate of response* can be simplified to *response rate,* and *an increase* is a nominalisation and can be replaced with the verb *increased*.

3. **Original:** The trial subjects exhibited an apparent dose response to the treatment with response rates of 17%, 40%, and 61% after treatment with placebo, 100 mcg, and 600 mcg, respectively.
   Suggested rewrite: The response rate increased with the dose (17% with placebo, 40%, at 100 mcg, and 61% at 600 mcg).
   Explanation: As in the previous sentence, *exhibited an apparent dose response* is a wordy way of simply saying that the response increased with the dose. *Respectively* should also be removed.

4. **Original:** It is well known that there are no differences between the effects of the treatments in terms of fertilisation rate or number of embryos transferred.
   Suggested rewrite: The effects of the treatments on fertilisation rate and number of embryos transferred do not differ.
   Explanation: Eliminate the preamble *it is well known that* and *there are*. Also, delete *in terms of* because it is a wordy way of saying nothing. Finally, *differences* is a nominalisation of *differ*.

5. **Original:** A positive correlation has been shown between monoclonal antibody-dependent complement deposition on pneumococci and passive protection in mice.
   Suggested rewrite: Monoclonal antibody-dependent complement deposition on pneumococci correlates with passive protection in mice.
   Explanation: *Correlation* is a nominalisation and can be replaced by *correlates*. Doing this makes *has been shown* unnecessary and forces a choice of subject (*complement deposition on pneumococci* or *passive protection in mice*).

After choosing the subject, keep the verb close by.

6. **Original:** In a majority of cases it is a combination of social, psychological, and biological factors that cause major depressive disorder.
   Suggested rewrite: In most cases, major depressive disorder is caused by a combination of social, psychological, and biological factors.
   Explanation: *A majority of* can be simplified to *most*. After that, the subject needs to be clarified. Is it *major depressive disorder* or a combination of social, psychological, and biological factors? In this case, I think that the main topic is the former, so it makes sense to move it to the beginning of the sentence. Finally, eliminating *it is* simplifies the sentence and forces it to be reorganised.

7. **Original:** A larger proportion of cells treated with polymixotine underwent apoptosis compared to cells treated with placebo.
   Suggested rewrite: More cells treated with polymixotine than with placebo underwent apoptosis. Alternative: Polymixotine induced apoptosis.
   Explanation: *A larger proportion* can be simplified to *more*. In addition, this sentence needs parallel structure. The sentence can be further simplified to the alternative version by thinking about its meaning – the placebo should not induce apoptosis, so the only thing inducing apoptosis is polymixotine.

8. **Original:** We observed the death of all mice in these treatment groups within 2 days.
   Suggested rewrite: All mice died within 2 days.
   Explanation: *The death of* is a nominalisation and can be replaced by the verb *died*. Also, *We observed that* is unnecessary wordiness; just say what is. Finally, *in these treatment groups* is probably not necessary.

9. **Original:** Macrophage depletion using clodronate liposomes resulted in the elimination of the protection of all mice from death.
   Suggested rewrite: All mice died when the macrophages were depleted using clodronate liposomes.
   Explanation: This sentence includes four nominalisations: *depletion, elimination, protection,* and *death*. If you change the first two of these into verbs, you arrive at: Depleting macrophages using clodronate liposomes eliminated protection of all mice from death.

Eliminating protection from death, however, simply means that the mice died when the macrophages were depleted.

10. **Original:** At this point, it is important to consider whether counselling may be productive.
    Suggested rewrite: At this point, counselling should be considered.
    Explanation: Eliminating *It is* forces the introductory phrase to become *should, must,* or something similar. This also make *productive* redundant.

11. **Original:** Local reactions were observed with a higher intensity and with a longer duration in subjects treated with bigizimab compared with morizimab.
    Suggested rewrite: Local reactions were more intense and lasted longer in subjects treated with bigizimab compared with morizimab. Alternative: Bigizimab caused more intense and longer-lasting local reactions than morizimab.
    Explanation: *A higher intensity* can be simplified to *more intense.* After that, parallel structure is provided by rewriting as *were more intense and lasted longer*. You can further simplify the sentence by changing the subject to *Bigizimab* and then keeping the verb *caused* close.

12. **Original:** The occurrence of influenza epidemics has a well-established link with various climate and meteorological parameters.
    Suggested rewrite: Influenza epidemics are linked to climate and weather.
    Explanation: The sentence includes two nominalisations. The first, *occurrence*, can be deleted, and the second, *link*, can be changed to the verb *linked*. Also, *well-established* is a kind of preamble and can be deleted. Finally, *climate and meteorological parameters* can be simplified to *climate and weather*.

Author information

Phillip Leventhal is the Editor-in-Chief of *Medical Writing* and is a scientific writer for 4Clinics where he specialises in publication writing and medical communications. He also teaches scientific writing for several universities in the US and Europe.
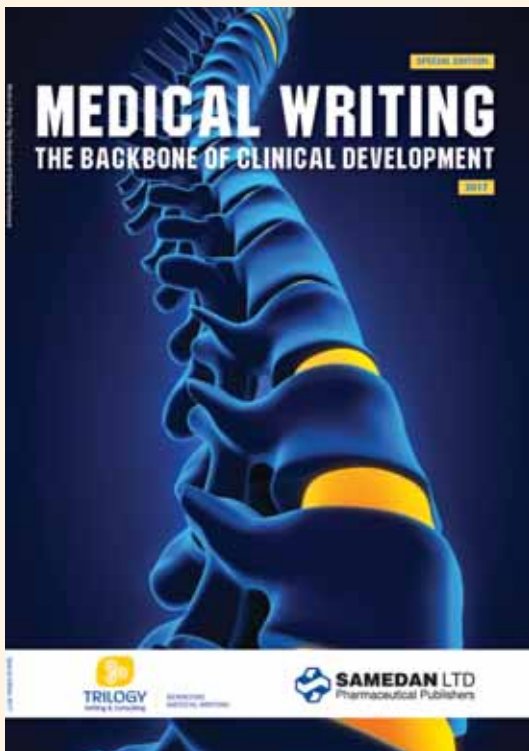
Medical Writing: The Backbone of Clinical Development
is a special-edition magazine published by *International Clinical Trials*. The magazine is dedicated to raising awareness about the importance of medical writing and compiles a series of insightful articles by international thought leaders.

The magazine is a valuable resource not only for medical writers but also for people who work with them. Topics include good medical writing practice, how to prepare different kinds of documents, tricks of the trade, and the benefits of using experienced writing professionals.

The issue is available for free and can be accessed at http://edition.pagesuite-professional.co.uk//launch.aspx?eid=f6b80f6a-ddd6-4705-bc9a-8af003f96adb.

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Results of the 2016 EMWA member survey

Alison Rapley[1] and **Phillip Leventhal**[2]
on behalf of the EMWA Executive Committee
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    Association
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Abstract

In October 2016, EMWA's Executive Committee sent an on-line survey to all EMWA members. The purpose of the survey was to obtain more information about our members, what they do, and what they want from the organisation. 286 responses were received. Over 90% of respondents reported that they read *Medical Writing*, over 90% reported using the website, and over 70% reported attending the conference at least once every five years. About one-third attended live webinars or consulted the webinar archive. Membership discounts and the freelance directory were less frequently used. Overall, the respondents seemed to appreciate the services EMWA provides, although some areas can be developed further or could benefit from better publicity.

Introduction

In October 2016, as part of EMWA's commitment to representing, supporting, and training all our members, the Executive Committee initiated a short on-line survey via SurveyMonkey. The purpose of the survey was to obtain more information about our members, what they do, and what they want from the organisation.

Methods

The survey was produced using SurveyMonkey (http://www.surveymonkey.com) and included 26 questions. The survey was available online from October 13 to November 11, 2016. An email with a link to the survey was sent to all EMWA members, and a reminder was sent out 4 days before the survey closed. Results are presented using descriptive statistics only and only for selected questions.

Results and discussion

The survey was sent out to all EMWA members, which included just over 1000 members at the time it was conducted. 286 responses were received, although not all questions were answered by all respondents.

Demographic data

Many of the respondents (43.0%) had been medical writers for more than 8 years. The respondents also included a number of less experienced writers, with 15.0% who had been a medical writer for less than 1 year and 18.9% who had been a medical writer for 1–3 years (Figure 1).
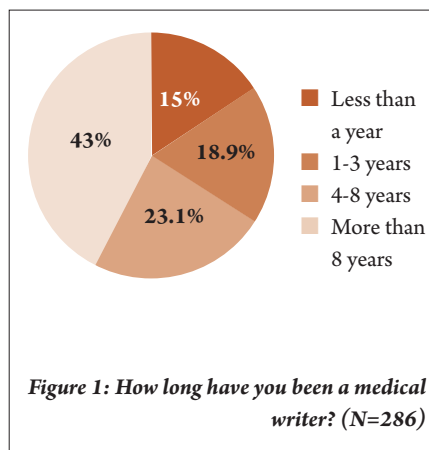

Figure 1: How long have you been a medical writer? (N=286)

Approximately one-quarter of the respondents had been an EMWA member for more than 8 years, one-quarter, for 4–8 years, one-quarter for 1–3 years, and one-quarter for less than 1 year. (Figure 2).

Over one-third of members (37.4%) were freelance and over one-quarter (26.4%) worked in the pharma industry (Figure 3). The rest of the respondents were working for a contract research organisation, in academia, for a communications
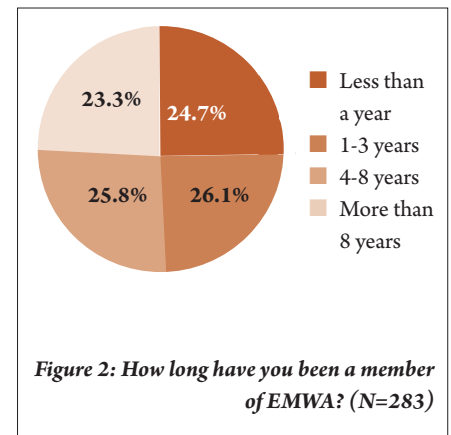

Figure 2: How long have you been a member of EMWA? (N=283)

agency, or were retired or semi-retired. Over 60% reported being members of other organisations. Of these, the American Medical Writers Association, International Society for Medical Publication Professionals, and Drug Information Association were the most common.
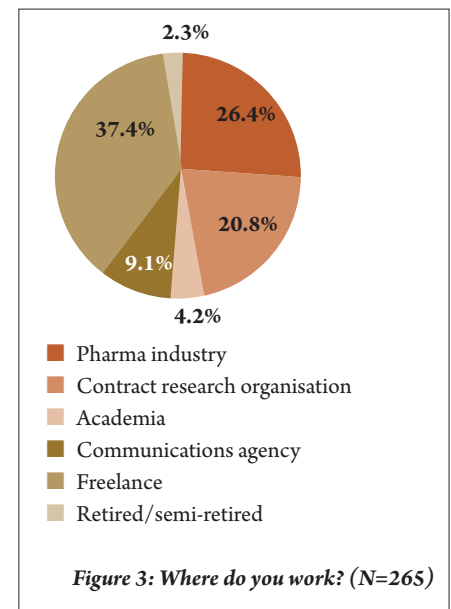

Figure 3: Where do you work? (N=265)

Use of EMWA services

Over 90% of respondents reported reading *Medical Writing*, EMWA's official publication, and nearly 80% reported using the EMWA website. Nearly 70% reported having attended a conference or symposia and over 50% reported having attended workshops. The Freelance Business

Forum, Special Interest Groups (SIGs), and Internship Forum were used less frequently, as expected for areas of specialist interest. Only 4.6% of members used the member discounts (Figure 4).
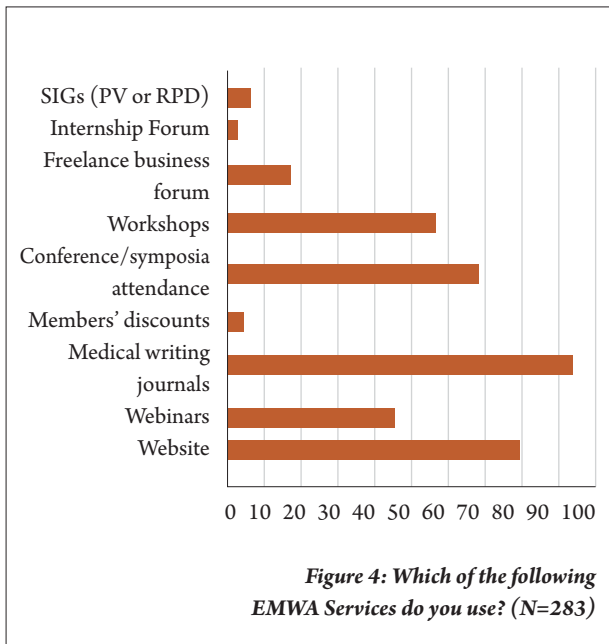

Figure 4: Which of the following EMWA Services do you use? (N=283)

Use of the Website

More than 40% of respondents reported using the website at least once a month, and just over 40% reported using it two to five times per year
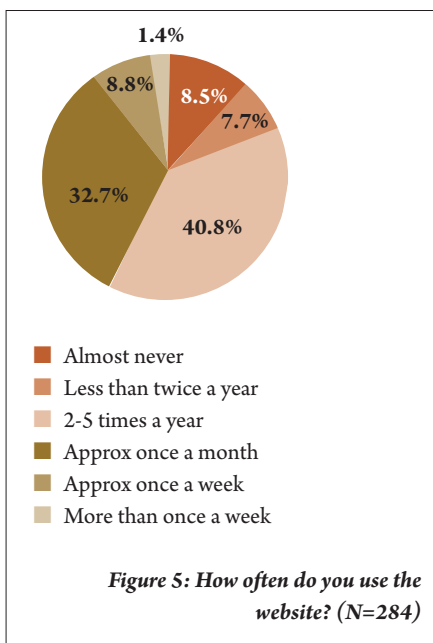
(Figure 5). When asked in an open question "What information do you find most useful on the website?", respondents frequently responded that they appreciated access to information on conferences and webinars and general medical writing updates in the news section, as well as access to back issues of *Medical Writing*. In addition, several respondents mentioned features that they would like to see on the website, some of which the Executive Committee will be following up on. (Figure 5).

Webinars

Just over one-third of the respondents (37.0%) reported having attended live webinars. Slightly more reported having consulted the archive of webinars on the website (41.6%). Again, we received a number of suggestions for topics that members would like to see covered, and the Webinar committee will try and include some of these in the future programme. The Executive and Education Committees will be looking at how to increase awareness and involvement in the webinar programme.
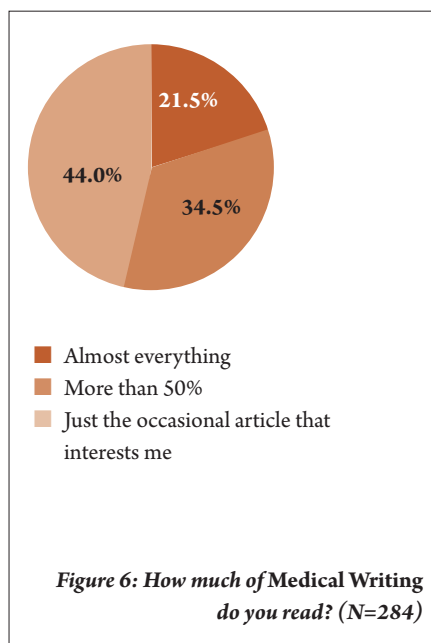
The journal

Over 90% of respondents reported reading *Medical Writing*, EMWA's official publication. More than half of the respondents (56.0%) reported reading at least half of the content, and 21.5% reported reading almost everything. (Figure 6).

Conferences and other meetings

Over one-third of respondents (37.5%) reported attending EMWA conferences at least once a year (Figure 7). Only 19.0% reported never attending. Conference location was one of the most important issues in the decision as to whether to attend conferences as well as cost and timing.

Currently, only 14.0% of respondents reported participating in local medical writing meetings, whether organised by EMWA or independently. A number of these local meeting groups are relatively new and it will be interesting to see if the number of members attending such groups increases over time.

Education programme

Most respondents (90.9%) rated the EMWA Professional Development Programme as good or excellent (Figure 8). 126 respondents reported having an EMWA certificate. Of these, 60.3% reported having at least one foundation certificate and 39.7% reported having at least one advanced certificate (Figure 9). The Education Committee will be reviewing suggestions

Almost never — 8.5%
Less than twice a year — 7.7%
2-5 times a year — 40.8%
Approx once a month — 32.7%
Approx once a week — 8.8%
More than once a week — 1.4%

Figure 5: How often do you use the website? (N=284)

Almost everything — 21.5%
More than 50% — 34.5%
Just the occasional article that interests me — 44.0%

*Figure 6: How much of **Medical Writing** do you read? (N=284)*

At least once a year — 37.5%
Every 2-5 years — 34.6%
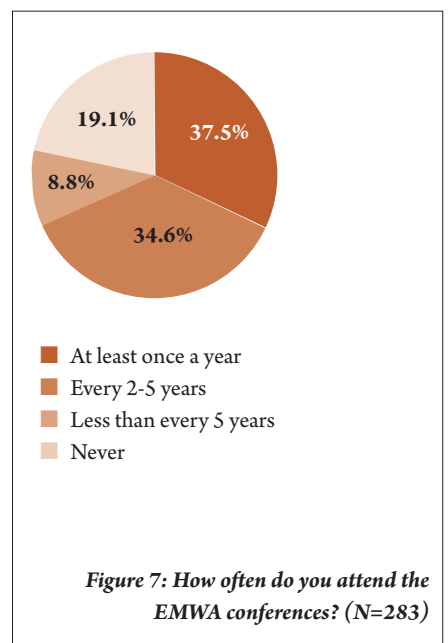Less than every 5 years — 8.8%
Never — 19.1%

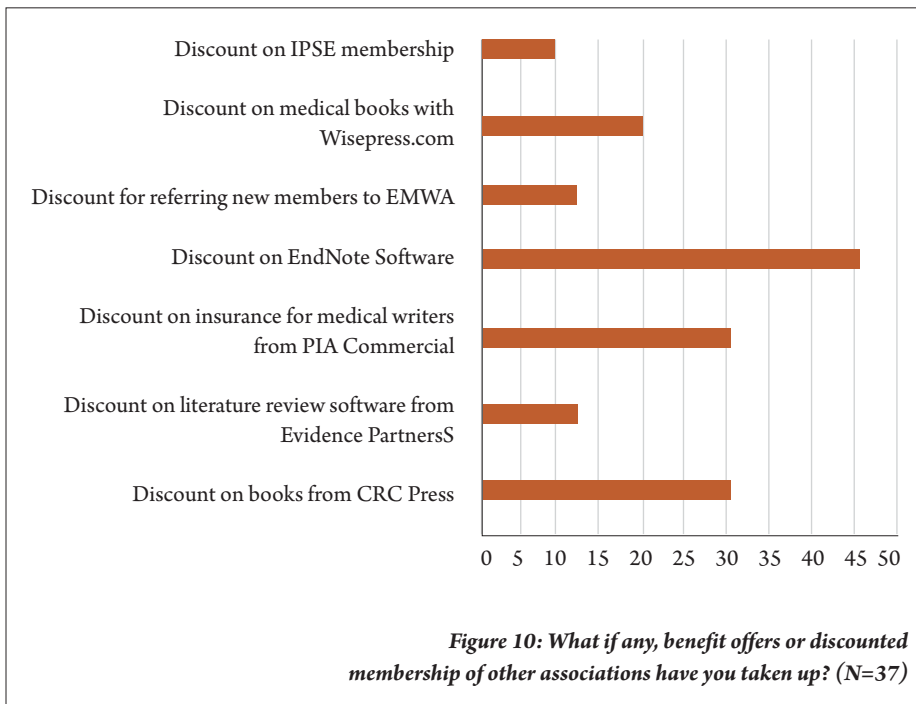*Figure 7: How often do you attend the EMWA conferences? (N=283)*

provided for additions and changes to the programme.

Benefits and discounts

Only 37 members responded when asked about the use of discounts. The most frequently used benefit was the discount obtained on EndNote software (46.0%) (Figure 10). Discounts on books from CRC press and insurance for medical writers from PIA Commercial also being popular (29.7% each). We received suggestions for additional discounts that writers would like to see, mostly relating to membership in other societies, computer software, and publications.

Freelance services

Only 17.2% of respondents reported using the freelance directory to find medical writers, editors or translators. Of course, this does not reflect the use of the directory by non-members. On a positive note, of those using the Freelance Directory to advertise their services (n=59), close to half (n=27; 45.8%) reported being offered work as a result in the last 2 years, although the remainder said they had not received any offers of work through the Freelance Directory. The Executive Committee will be looking at updating the format of the freelance directory and will be exploring how it might be better publicised.

Figure 10: What if any, benefit offers or discounted membership of other associations have you taken up? (N=37)

Conclusion

The Executive Committee would like to thank those of you who took the time to complete this survey. Your responses will be taken into account and hopefully you will see some of your suggestions come to fruition in the near future.

Overall, the respondents reported that they appreciated the services EMWA provides. The vast majority of members take advantage of the journal, website, and conferences. Also, most members consider the EMWA Professional Development Programme to be good or excellent. Some areas can be developed further, especially the webinars, member benefits, and freelance services.

We understand that the results may be biased by the profile of the members who were willing to respond–those that chose not to respond may have a less positive or at least different perspective. Regardless, the findings provide the Executive Committee with some information about how the association is perceived by members and some ideas about how the association and its services and benefits can be developed.

Figure 8: How do you rate the EMWA Professional Development Programme? (N=209)

Figure 9: Which EMWA certificates do you have? (N=126)
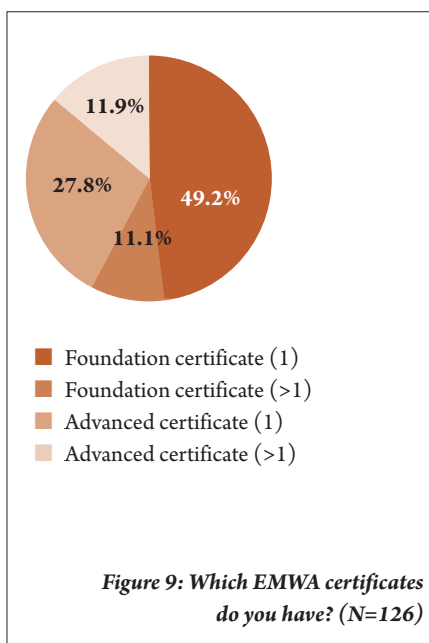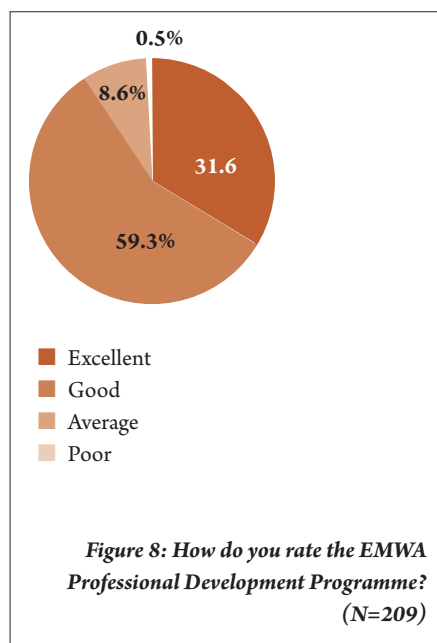
Author information

Alison Rapley is currently President of EMWA. She worked as a medical writer in the contract research industry for over 20 years, and now provides freelance medical writing consultancy and training services.

Phillip Leventhal is the Editor-in-Chief of *Medical Writing* and is a scientific writer for 4Clinics where he specialises in publication writing and medical communications.

News from the EMA

The articles included in this section are a selection from the European Medicines Agency's News and Press Release archive from October 2016 to December 2016. More information can be found on the Agency's website: www.ema.europa.eu

Revising the guideline on first-in-human clinical trials

November 15, 2016 — The EMA, in cooperation with the European Commission and the Member States of the EU, is proposing changes to its existing guideline on first-in-human clinical trials, to further improve the safety of trial participants. The revised guideline was open for public consultation until 28 February 2017.

Between July and end of September 2016, EMA released for public consultation a concept paper which outlined the major areas that needed to be revised in the guideline, to reflect the evolution of practices in the last ten years. The review also took into account the lessons learnt from the tragic incident which took place during a phase I first-in-human clinical trial in Rennes, France, in January 2016.

The consultation of the concept paper served as the basis for the revision of the guideline, which was carried out by an EU-wide group made up of experts from the national competent authorities who authorise clinical trials in the EU. The draft revised guideline was adopted by EMA's Committee for Medicinal Products for Human Use (CHMP).

This revised guideline aims to address the increasing complexity of protocols of first-in-human clinical trials in recent years. Strategies to mitigate and manage risks for trial participants are outlined, including principles to be used for the calculation of the starting dose in humans, the subsequent dose escalation, and the criteria for maximum dose, as well as principles on the conduct of the clinical trial including the conduct of studies with multiple parts.

In particular, guidance is proposed on non-clinical aspects such as the better integration of pharmacokinetic and pharmacodynamic data and toxicological testing into the overall risk assessment, as well as the role of non-clinical data in the definition of the estimated therapeutic dose, maximal dose, and dose steps and intervals. Guidance is also provided on clinical aspects, including criteria to stop a study, the rolling review of emerging data with special reference to safety information for trial participants, and the handling of adverse events in relation to stopping rules and rules guiding progress to the next dosing level.

The aim is to publish a final revised guideline for the conduct of first-in-human clinical trials in the first half of 2017.

Notes

- In a single ascending dose trial, a single dose of the investigational medicine is given to each volunteer in a small group of clinical trial participants to assess the safety; if this is positive each participant in the next group receives a single dose at the next higher dose of the investigational medicine.
- In multiple ascending dose trials, each subject is treated on multiple occasions (e.g. once a day for a week) at a given dose level. The treatment is then increased progressively to higher doses in successive groups of volunteers, provided the safety and tolerability at the previous dose is acceptable.

Also see the editorial: Sergio Bonini, and Guido Rasi. *First-in-Human Clinical Trials – What We Can Learn from Tragic Failures*, N Engl J Med 2016; 375:1788-1789.

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Opening up clinical data on new medicines: EMA provides public access to clinical reports

October 20, 2016 – The European Medicines Agency (EMA) has now given open access to clinical reports for new medicines for human use authorised in the European Union (EU).

For every new medicine, citizens, including researchers and academics, will be able to directly access thousands of pages from clinical reports submitted by pharmaceutical companies to EMA in the context of marketing-authorisation applications. Clinical reports give information on the methods used and results of clinical trials conducted on medicines. EMA is the first regulatory authority worldwide to provide such broad access to clinical data.

With EMA's proactive approach to providing access to the data, patients and healthcare professionals will be able to find out more information about the data underpinning the approval of medicines they are taking or prescribing. It will also facilitate the independent re-analysis of data by academics and researchers after a medicine has been approved. This will increase scientific knowledge, and potentially further inform regulatory decision-making in the future.

Increased transparency will also benefit innovation. The shared knowledge about a medicine helps developers learn from the experience of others and can lead to more efficient medicine development programmes.

The publication of the clinical reports follows the adoption by EMA of a policy on the publication of clinical data for human medicines. The website, available at https://clinicaldata.ema.europa.eu, will include the clinical reports contained in all initial marketing-authorisation applications submitted to the Agency on or after the policy's entry into force on 1 January 2015. According to current forecasts, EMA expects to offer access to approximately 4,500 clinical reports per year.

The European Commission launches a public consultation on the Paediatric Regulation: More medicines for children are now available

November 15, 2016 — The European Commission (EC) has launched a public consultation to get views and feedback from stakeholders, to support the Commission in drafting its second report on the Paediatric Regulation after nearly ten years of implementation. The consultation launched today is based on a report prepared by the EMA and its Paediatric Committee (PDCO). The feedback received will form an integral part of the Commission's final report assessing the impact of the Paediatric Regulation on public health and the pharmaceutical industry, which is expected to be published in 2017.

The Paediatric Regulation came into force in the EU ten years ago, on 26 January 2007. Its objective is to improve the health of children in Europe by facilitating the development and availability of age-appropriate medicines for children, and by increasing available information on the use of medicines for children.

A comparison of data collected between 2004 and 2006, immediately before the regulation came into force, and data collected between 2012 and 2014, shows that the Paediatric Regulation has led to more medicines and new indications being authorised for children in the EU. From 2004 to 2006, 31 new medicines and new indications were centrally authorised for paediatric use. From 2012 to 2014, this number more than doubled to 68 new medicines and new indications. For example, medicines to treat certain rheumatology conditions in children, infectious diseases such as chronic hepatitis C and HIV infection, hypertension and paediatric cancers like acute lymphoblastic leukaemia are now available on the basis of studies conducted in children.

By the end of 2015, the PDCO had adopted 860 opinions for paediatric investigation plans (PIP). PIPs are the main tool of the regulation to ensure that previously unmet therapeutic needs in children are researched and appropriate medicines are developed.

Clinical trials in children initiated as part of an agreed PIP now represent about 30% of paediatric trials recorded in the EU Clinical Trials database (EudraCT). Additionally, the European Network for Paediatric Research at the EMA (Enpr-EMA) was set up to facilitate the conduct of clinical studies in children. Enpr-EMA is an umbrella network of 38 national and international networks recognised for their paediatric research experience. It acts as a platform for sharing good practices as well as a pan-European voice for promoting research into medicines for children.

Tailored scientific advice to support step-by-step development of new biosimilars

December 16, 2016 – The EMA will launch a pilot project in February 2017 to test the added value and feasibility of tailored scientific advice for the development path of biosimilar medicines. Through this new initiative, EMA aims to provide developers of biosimilars with advice on the studies/tests they should be conducting, on the basis of the quality, analytical and functional data they have already available for the medicine.

This is expected to better support the stepwise development of biosimilars that is recommended in EU guidelines. According to this approach, the extent and nature of the studies/tests required depend on the level and robustness of data already accumulated.

Biosimilars are biological medicines developed to be highly similar to another biological medicine (also known as the reference medicine) already authorised in the EU. To obtain a marketing authorisation, developers need to establish similarity to the reference medicinal product in terms of quality characteristics, biological activity, safety and efficacy based on a comprehensive comparability exercise.

The standard scientific advice procedure can advise applicants on the proposed biosimilar development strategy, however it does not allow for a formal assessment of data. As part of this pilot, an in-depth review of the quality, analytical and functional data available will be carried out. Advice will be given on the basis of the data submitted allowing for more tailored recommendations on the studies/tests that should be carried out in the next step of the development. This will allow applicants to make a more informed decision on the development strategy once sufficient quality data has been accumulated. However this will not constitute a formal pre-assessment of the data submitted during the marketing authorisation application.

The pilot is open to all companies seeking scientific advice for the development of a biosimilar medicine. Any type of biosimilar will be accepted in the pilot. Companies wishing to take part in the pilot will have a pre-submission meeting during which the suitability of the data package is reviewed. EMA's Scientific Advice Working Party (SAWP) will need an extra month in addition to normal scientific advice timelines to review the requests accepted in the pilot.

The pilot is planned to run until six scientific advice requests have been completed, with maximum one scientific advice request accepted per month. After the completion of the pilot, EMA will carry out an analysis of the outcome.

Scientific advice provided to developers is separate from the assessment of a marketing authorisation application which takes place later and does not pre-empt the recommendation from the CHMP on whether or not the medicine can be authorised.

Getting Your Foot in the Door

Editorial

In this edition of GYFD, we are happy to present to you two great contributions. Danae Rokanas shares with us some interesting statistics and important lessons learned from the first *Live* Internship Forum (IF) in Munich. In the second piece, St Gilesmedical – one of the companies who participated in Munich – and their interns give us a peek into the educational and internship environment of a small but dynamic MedComms company. Two articles that set the mood of anticipation as we gear up towards the second *Live* IF! See you in Birmingham.

SECTION EDITOR

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The EMWA Internship Forum – Let us introduce you!

The EMWA Internship Forum (IF) is celebrating its 16 month anniversary this March and we (the EMWA IF team) are proud to announce its success in introducing 13 of our partnering companies with over 100 enthusiastic applicants. Our programme continues to grow and evolve at a remarkable rate.

Almost one year since the launch of the first

Live IF at EMWA's 42nd annual spring conference in Munich, Germany, we have compiled some key observations and lessons learned that may be useful to our supporting companies and aspiring applicants.

Observations – *for companies*

1. Applicant characteristics.

Applicants who attended the *Live* IF were predominantly European (73%), in their mid-twenties to mid-thirties (60%), recently out of university and with no previous experience in medical writing or other industry employment (60%). Experienced applicants (40%) were in their mid-thirties to mid-fifties and had previously worked in: clinical research organisations (13%), pharmaceutical companies (13%), medical clinics (6%), animal diagnostics companies (6%), independently as freelancers (6%) or other companies (6%). Half of all experienced applicants worked in more than one company. Half of all applicants had a PhD and one third had a post-doctorate degree (Figure 1). All were eager to start a career in medical writing.

2. 80% of applicants who attended the first *Live* IF were hoping to gain an internship and/or job in medical writing.

Over half of all applicants were hoping to secure internships as gateways to a more permanent role with their chosen companies. Twenty six percent were looking for an internship or a job (Figure 2). Others were hoping to gain: "a way into the industry", "advice" or "connections".

3. Three out of four applicants believed it is difficult to find a job in medical writing.

Applicants were either "too young and in-experienced" or "too old and experienced" for entry-level medical writing roles according to recruiters. *How could applicants reach the golden middle?* A common problem amongst applicants was *how to get a job without experience in medical writing*. It is worth considering whether the criteria applied are perhaps too stringent and exclude a category of talented applicants that may be real assets for companies. The solution may lie in adopting a more flexible and individualised approach to recruiting; as a wise man once told me: "*We don't use a set checklist to recruit candidates. We interview them, and if we like them, the checklist writes itself*" – I am now a proud employee in his company.

Key learnings – tips *for applicants*

1. Be positive, be yourself and write a strong application letter.

When asked about the most important criteria in distinguishing successful applicants, the majority of companies favoured a strong application letter and positive attitude (rated 3.4 on a scale of 1 [not so important] to 4 [imperative]) over higher level education and relevant work experience (Figure 3).

2. Become an EMWA member – get involved.

If you're reading this article, you've already won half the battle. Almost one in three companies interviewed at the *Live* IF maintained that an EMWA membership could significantly boost an applicant's credibility when looking for an entry-level role in medical writing. An additional 43% felt that a membership could add value to an application depending on the overall strength of
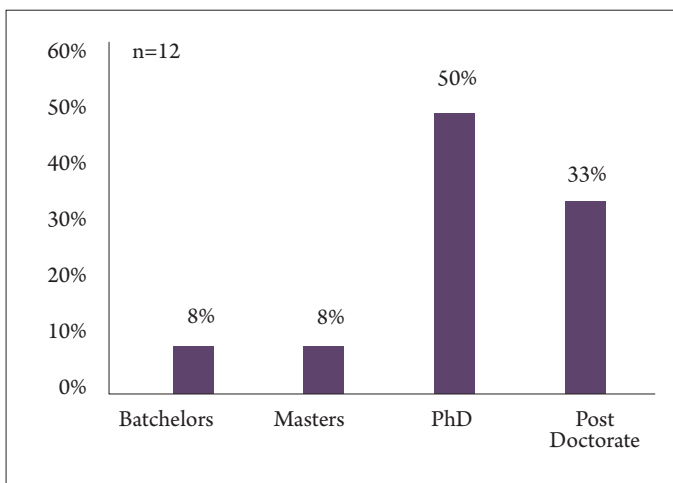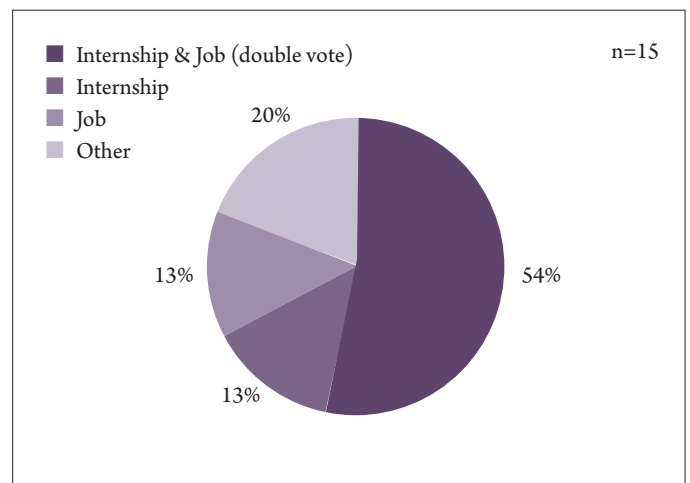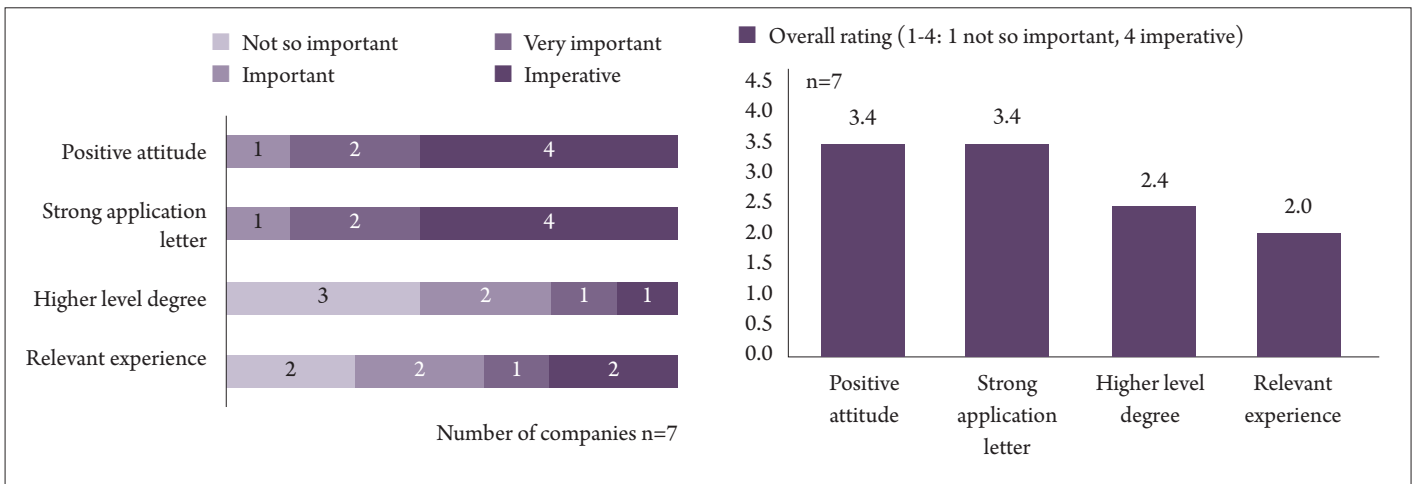
Figure 1

Figure 2

Figure 3

the application itself. From personal experience, I confidently vouch for EMWA – not just as a potent CV booster and source of medical writing training; but as an inspiring community which offers you the chance to get involved and build experience.

3. Give it a try – apply.
Entry-level roles in medical writing are like needles in a haystack, painful to look for but not impossible to find if you know where to look. Six out of seven companies that attended the *Live* IF have offered permanent entry-level roles to applicants with no previous experience in medical writing. Four claimed to offer entry-level roles "all the time", while two companies admitted they only "sometimes" offered entry-level roles. One company never considered offering permanent positions to inexperienced applicants prior to the *Live* IF. One of the aims of the IF is to increase the number of companies offering entry-level roles and help you refine your search to target companies that are right for you.

4. Let us introduce you.
We are proud to announce that 100% of the attendees – both applicants and companies – were satisfied with their meetings at the *Live* event. Overall, the *Live* IF was rated 4 or 5 on a scale of 1 (poor) to 5 (excellent) in terms of usefulness by 82% of participants.

If you are looking for an opportunity to work in medical writing, please feel free to contact us at internship@emwa.org or visit our website (www.emwa.org/internship) for more information. We are happy to help!

Key learnings – *for EMWA and the IF team*
Despite our recent success, we are constantly looking for ways to further develop the IF to better suit the needs of the applicants and companies involved. In the words of the ancient Greek philosopher Heraclitus: "there is nothing permanent except change" (4th century BC). At the EMWA IF we plan to make positive change permanent by realising some key goals.

1. Maximise the potential of the EWMA website and members' emails.
When asked how they had heard of the IF, the majority of applicants voted for the EMWA website (50%) and the members' emails (33%). Company representatives were largely (71%) informed of the IF by their colleagues or acquaintances who had been personally invited by the EMWA IF team. Underwhelmingly, the EMWA flyer and social media such as LinkedIn, Facebook, and Twitter had little-to-no impact on publicising the IF to applicants and companies (Figure 4).

At first glance, it seems as though the pilot *Live* IF mainly attracted applicants from within the EMWA community (i.e., existing EMWA members). Moving forward, we should place emphasis on pursuing interested applicants outside of EMWA to grow and diversify our applicant pool.

Ultimately, when it comes to the dissemination of key information regarding the IF, our approach should be two-fold. First, we must maximise the potential of the EMWA website and email distribution list to maintain the interest
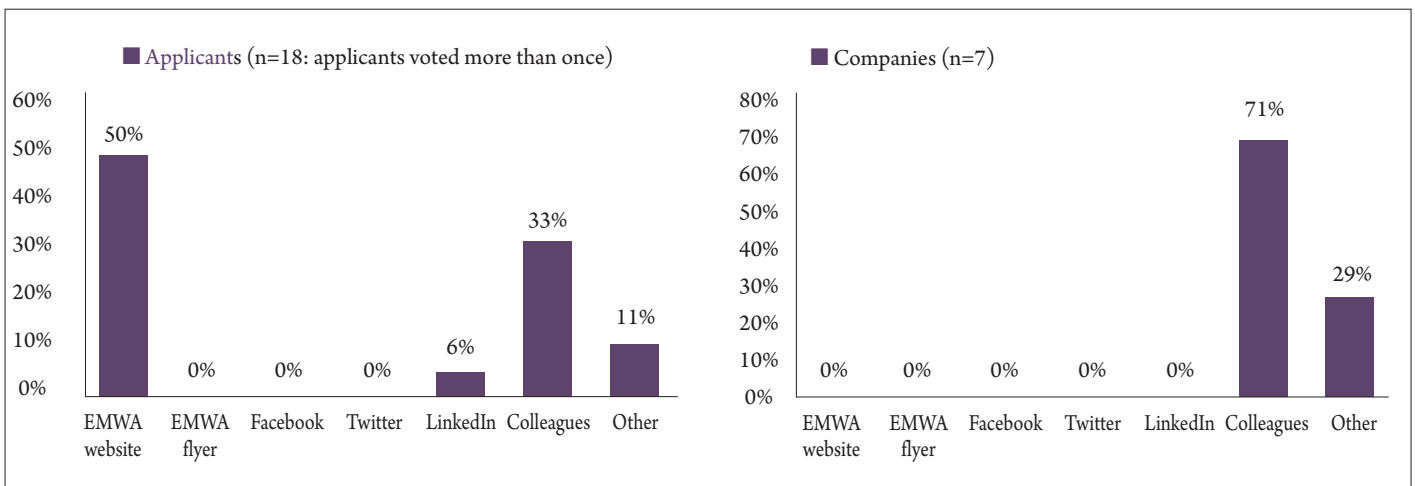

Figure 4

of existing members. Second, we must make an impact via social media to draw attention to the EMWA website and attract new members to the EMWA community.

2. Make an impact via social media.

It's true, we won't become Kendall Jenner overnight, but it might be worth reassessing our strategy when advertising the IF on social media. *Are we producing regular posts on EMWA's Facebook and Twitter accounts? Are posts openly accessed by the public? Are we drawing enough attention to the IF website? Are we appealing to our target audience? Are we bringing value to applicants and companies*? In a world dominated by Facebook, Twitter, and the Kardashians, it is important that we find a way to engage our target audience and make a lasting impact via social media.

3. Provide all participants with a complete IF guide.

We found that many companies had questions about their roles within the IF, the processes involved to arrange meetings with applicants at the *Live* IF, and their responsibilities when offering internships to successful applicants. A common question was "*once the internship is finished, what happens next*?" Our aim is to produce a complete IF guide, individually tailored to applicants and companies, to help address these questions and provide clarity on how the IF works.

4. Address wider audiences, not just 'MedComms'.

Despite often using the term 'MedComms' on the IF website, it is important to clarify that in addition to MedComms we welcome the participation of any company – be it CRO, pharmaceutical company or other – which could offer medical writing positions to prospective applicants. To paraphrase the words of Gus Portokalos "*We're all different, but in the end, we're all medical writers*".

5. Establish a place for the *Live* IF at EMWA's annual spring conferences.

When we launched our first *Live* IF at EMWA's 42nd annual spring conference in Munich, the event only lasted 1.5 hours and took place at the conference centre's lunch area with a couple of standing tables and borrowed microphones. Today, I am happy to report that due to popular demand, the *Live* IF has been extended to half a day and will be taking place on Thursday, 4th May 2017 at the next spring conference in Birmingham – in a conference room and with all the necessary equipment. Slowly but surely, the EMWA IF is establishing its place in the EMWA community... and this is only just the beginning.

Danae Rokanas
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Internship joys and challenges: experience within a small agency

"**Tell me and I forget, teach me and I may remember, involve me and I learn.**" – Chinese Confucian philosopher Xunzi (312-230 BC) in *The Teachings of the Ru*, popularised in the West in the 1960s and often attributed wrongly to Benjamin Franklin.

We describe our experiences of supporting medical writing interns from the perspective of a small agency. Simultaneously, we seek the views of some of the talented trainees we have had the privilege to be associated with.

The Directors' view

Education is central to our role at St Gilesmedical. This was especially the case with a new business and the need to develop a writing team in a short space of time. We were fortunate in having access to experienced associates we had known for some time, but it was necessary to provide balance in our workforce by also developing an in-house team. In previous ventures we had enjoyed very successful results from internships and this was coupled with a desire to offer opportunities to people who for any reason might need support to gain a foothold in the industry.

As we became more established, approaches from prospective medical writers for work experience proliferated. In many cases, though well qualified, they were not able to secure a placement without experience and to gain experience one needed a placement.

Around the same time, we were invited to take part in the first Internship Forum at the EMWA Conference in Munich. The level of interest in our small organisation was surprising: in response to our posting of a potential apprenticeship-based internship, 38 talented individuals from a wide variety of backgrounds and nationalities requested to meet with us. Since there were limited scheduled slots within the programme, we offered to meet with the majority throughout the conference, usually at our exhibition stand. Among those we spoke to some were seeking paid full-time employment in our London or Berlin locations, others were looking for periodic unpaid distance learning opportunities to fit in with family and employment commitments, with a spectrum of requests in between. In the end we took on one intern who had cleverly engaged our interest ahead of the Forum and offered a number of others the opportunity to work on a few training pieces from home, for which we would give feedback and support. Though time consuming, we have continued to help a few individuals in this way since then.

We are supporting our current in-house intern to build on his work experience at St Gilesmedical in applying for a full-time position as a medical writer.

One exciting initiative has been our support for the Manchester Metropolitan University Master in Science Communication Course, which contains a Medical Writing Module. St Gilesmedical has been involved with course development and delivery. Recently we hosted one of the course students as a short-term intern at our London office. Similarly, another helped us organise a major scientific conference at Imperial College London (www.euhic.com) and then deliver an eBook covering all presenter content and slides.

Our interns have spanned a wide demographic, from bioscience undergraduates thinking about career options to established scientists (and a medic) looking for a change in direction. They have ranged in age and gender and have included diverse ethnicities and heritage. Important learning is that being a non-native English speaker brings challenges for both the intern and the employer, particularly given the fundamental need for highly developed communication skills in this field.

Early on we made the mistake of thinking we could rely on fairly simple documents such as a short meeting reports being completed quickly and in a near finished format. This proved not always to be the case. By comparison, other pieces of work such as complex fact checking or the creation of original work have always been carried out diligently. We have learned not to make assumptions, to remember that interns are there to learn from us as well as to help with our

tasks and that they should be regarded as supernumerary. As supervisors we need to be clear in what we are asking, keep a check on progress and monitor all client documents carefully. It is advisable to seek HR advice concerning terms and conditions at the outset and to find time for regular review meetings.

The fresh perspective and energy that interns bring is of great value to a small agency like ours and more than repays the effort needed to support them. We continue to learn and grow.

The intern perspectives

Farzad Heidari

Before I knew much about the field, I thought medical writing in a medical communication agency would be a dry job where you sit at a desk in isolation and write all day. But my misperception soon stood corrected as I discovered the unique and inspiring field of medical writing in St Gilesmedical.

Yvonne and Steven, directors of St Gilesmedical, explained that medical writers integrate myriad scientific knowledge into comprehensive communications for diverse audiences, ranging from the general public, to physicians, and to regulatory agencies including the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA).

The more I learned about medical writing, the more it sounded like something I could be passionate about, perfectly complementing my academic training. I was used to managing multiple research projects from start to finish and comfortable with communicating findings through a variety of outlets: in peer-reviewed manuscripts, internal grant submissions, international conferences, and regulatory submissions.

Working in St Gilesmedical, however, has extended and diversified my range of skills and abilities such as in:

- Presenting research findings at seminars, and conferences
- Hosting and managing a CPD-accredited medical conference
- Completing projects within stringent timelines: clinical trial reports, and conference abstracts
- Strategic planning and managing high-level research projects.

Learning about a variety of medical innovations and exciting new products, as well as knowing that our work makes a difference, definitely keeps me interested and motivated in St Gilesmedical.

Valeria Clausi

I had the pleasure to meet Steven, one of St Gilesmedical's directors, during the EMWA 2016 Spring Conference in Munich. Since our first informal chat, I was impressed by his enthusiasm about the wonder of science communication. It was so contagious that I did not hesitate further about my enrolment at the Manchester Metropolitan University as MSc student in Science Communication: a choice I do not regret, but treasure every day. In short our meeting was inspiring, fruitful, and enjoyable. It was an excellent opportunity not only to share knowledge and experience but also to seize the opportunity to take part as a volunteer at the first EuHIC Conference in London.

EuHIC 2016 was my first foot in the door of medical symposium organisation in the UK. It was not a classical medical conference: the audience comprised future leaders in healthcare and science, people with energy and ideas who wished to learn, collaborate, and make things happen. Science took the stage throughout the day and I truly enjoyed and benefited from the day. I was delighted to meet Steven again and for the first time the other members of St Gilesmedical's team: different personalities and nationalities but all as one in front of a glass of wine during the pre-conference meeting and all committed to making the conference a success. Indeed, the event was a resounding success with very positive feedback from all parties involved. From my personal viewpoint, it was a superb opportunity to interact with amazing people and update myself with scientific breakthroughs in a wide range of fields and therapeutic areas. The icing on the cake was my involvement in writing the conference eBook.

Nothing is more direct than gaining hands-on experience and St Gilesmedical is the right place. This small medical communications agency has a good balance in terms of workload and the types of tasks you are given. It is a place where you play a role in helping the company run smoothly whilst the company, in turn, teaches you the ropes.

Rob Davies

Finding the office was not as tough a challenge as first anticipated, armed with Google maps, it was only a short walk from Tottenham Court Road tube station. I met Steven again (who had coordinated two seminars earlier in the year at MMU) and was introduced to the in-house team. The office itself was very different from any I had experienced before, and most likely different to most people's expectations of a typical office space. It had a much quirkier and comfortable atmosphere with the smaller space and the 18th century build.

In terms of the work I was given, I helped with contributions toward editing the St Gilesmedical company slides, and began work on a publication based around a medical student survey on compulsory reflective practice as part of their curriculum. Sophia showed me a very useful yet simple technique of collecting large numbers of references and abstracts into a spreadsheet so they can be systematically reviewed and a decision can be made whether they are appropriate.

I attended two very interesting meetings during my time at St Gilesmedical. My first was at the Marie Curie Hospice at Hampstead, where a range of medical staff ranging from GPs to social workers discussed real-life issues concerning a difficult to manage inpatient at the hospice. This I found particularly interesting in view of the differing opinions regarding management offered by the experienced medical and nursing audience. The second meeting I attended was at Islington Council, where Yvonne was discussing and planning a workshop the following week based around the points of entry of young offenders into the youth justice system and how these can be integrated within healthcare pathways.

Overall, I loved my time at St Gilesmedical. The team were all very friendly and welcoming, with Farzad helping me improve my bland Linkedin profile, and Allon showing me the nicest Thai food in London. I feel as though I received a good insight into what it is like to be a medical writer, and learnt some new and useful techniques to take back with me to Manchester. Thank you, St Gilesmedical!

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Teaching Medical Writing

Are you interested in helping non-native English speakers to write academic texts?

Do you teach written English to non-native academics? Or are you a language editor or translator who would like to get involved in this sort of teaching? If so, we would very much like to hear from you. There are not many of us teaching in this area, and it would be great to exchange experiences and ideas.

As noted by Christine Møller and Monika Schoell in a 2008 piece in *The Write Stuff*[1], there are many PhD students and researchers in non-native English-speaking countries who need help with writing manuscripts for publication. An alternative to editing their manuscripts year after year is to help them develop their own language skills to make them better writers. This should help to reduce the need for heavy editing input due to poor sentence construction and incorrect grammar. There is also a joy in being able to express oneself and share one's research and discoveries, even if the text is ultimately submitted to a text editor for a final polish.

Developing the skills of non-native English-speaking researchers can seem like a daunting task, however, given the wide spectrum of language difficulties many of these writers face. Our main challenges when designing an English language workshop for PhD students at the University of Southern Denmark were deciding which aspects of written English grammar to cover and finding a relevant but easy starting point. Our goal was to provide these students with some useful writing tips and strategies to use in their scientific writing. We also felt it was important that students came out of the workshop feeling more confident about writing in English and inspired to write.

Rather than presenting a pre-determined set of grammar rules, we decided to focus on the problems that were common to most of our course participants. We researched websites from other university writing labs, such as those of Purdue[2] and Stanford[3] universities and found a range of useful explanations and exercises covering different aspects of English grammar and style. However, the drawback of consulting websites is that the language difficulties can differ from person to person and from one group of non-native language speakers to another. The challenges a native Danish speaker might face when writing in English may thus differ from those of a native Mandarin speaker. Therefore, we required the students to submit a one-page sample of their writing two weeks prior to the course.

As the writing samples came in, we reviewed them and began listing out the language use problems that emerged. The most common issues were:

- subject-verb agreement (Danish does not distinguish between singular and plural verbs)
- adjective/adverb confusions
- lengthy, complex sentences often including run-on sentences (subordinate clauses are more common in Danish than in English)
- faulty word order (small but important differences between Danish and English word order)
- misuse of "that" and "which" (different rules in Danish)
- unnecessary words or wordiness

This list may look different for academic students in different countries, but a common problem is likely to be texts that are disjointed or difficult to read. For our course, we decided that an understanding of the English sentence structure was essential to creating a clear text and that discussion of the main sentence types would also allow a review of the main parts of an English sentence, such as nouns, verbs, adjectives and adverbs. We then continued with specific grammar points, such as subject-verb agreement, and wordiness. The focus throughout the course was on using the students' own examples to highlight the relevance of the various aspects of grammar and style. We believe that this increased the student's understanding and thus also the likelihood that they would be able to remember the strategies and use them in future writing.

Our PhD course has been well received, and we believe we are making a difference. However, we are very open to new collaborations and ideas on how to teach academic writing skills and would like to hear about others' experiences.

If you are interested in teaching medical writing to non-native English speakers and would like to make new contacts, feel free to get in touch. Christine and Claire will also be holding an *"Open café" meeting at the EMWA meeting in Birmingham in May 2017*, where all interested are welcome to join us to hear more about teaching and to share experiences.

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In the Bookstores

Effective Onscreen Editing: New tools for an old profession (3rd edition)

By Geoff Hart;
Diaskeuasis Publishing, 2016.
ISBN: 978-1-927972-05-2 (PDF).
28.00 USD. 827 pages.

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Do you ever see someone else use an unfamiliar shortcut or by tapping a few keyboard keys achieve something that seems to take you an age? Maybe you would like to spend a little less time working at your computer? If so, this could be the book for you.

Available as printed, PDF, and eBook versions, *Effective Onscreen Editing: New tools for an old profession* is now in its third edition, which comprises 18 chapters, four appendices, and a lengthy glossary. It covers all imaginable aspects of editing, from inserting/moving/deleting text in Word documents and using Track Changes to working with other kinds of documents (such as databases and spreadsheets), using style sheets, and proofreading PDFs and online material. Importantly, there is detailed guidance for both PC and Mac users.

The book's author, long-time scientific editor Geoff Hart, uses Chapter 1 to outline his aim – to teach us "how to use the computer for things that computers do better than humans". He then attempts to persuade those of us still editing paper copies of documents that editing electronic versions is the way forward.

Perhaps displaying some of the conservatism Hart seeks to overcome, I initially wanted to review a printed copy of the book. In the event, I reviewed the 827-page PDF and quickly came to realise that this was more enriching than using a hard copy as it allowed me to test some of the author's tips and tricks onscreen directly after reading about them. I was also able to take advantage of the clickable table of contents and index.

For the averagely skilled Word user there will be much to learn. I myself was delighted to find out about exclusion dictionaries – lists of *correctly spelled* words that you get the spellchecker to flag. For example, you might wish to flag *form* and *from*, incorrect use of which may otherwise be missed. Or *thig,* a Scottish word for *beg* which I accidentally typed while writing this review. I will endeavour to use an exclusion dictionary henceforth.

Hart muses on what authors/clients want or expect from editors, referring to "authors who feel we're nothing more than glorified spell-checkers and grammar technicians" and "clients [who] often request proofreading of documents that really require moderate or heavy editing." However, rather than simply bemoaning such problems – ones which I am only too familiar with (!) – he constructively advises on avoiding and resolving them.

At various points throughout the book, Hart troubleshoots anticipated problems and provides advice on working more efficiently by creating or exploiting shortcuts in Word. Further trouble-shooting and a collection of useful shortcuts can be found in two of the appendices. Unless you have an encyclopaedic knowledge of shortcuts, you are bound to find something useful here.

Some chapters will be more generally or widely useful than others. Personal highlights include splendid chapters and sections on Find and Replace, Comments, navigating documents, and using macros. I can also highly recommend the author's advice on transforming AutoFormat and AutoCorrect from annoyances to assets.

Other parts, such as the guidance on editing text received in HTML, XHTML, or other markup languages, are no doubt of more specialist interest. The book's final two chapters, which cover overcoming resistance to and implementing onscreen editing, will inevitably become increasingly redundant as onscreen editing heads for ubiquity.

Hart seems to have thought of everything, offering detailed advice on backing up and protecting your work and your Word customisations and even covering avoiding injury while working at the computer and deciding how much to charge for your editorial services. Are there any deficiencies or limitations? Not many. Cross-references to other sections in the text are not clickable and some overly basic information is included, seemingly at the request of readers of earlier versions of the book. But skipping to the information you need is one of the things this book was designed for and something which the generous yet judicious use of headings and bold text only facilitates.

The author rightly does not view this third edition of *Effective Onscreen Editing* as a finished project. He actively invites input from readers and promises updates to the web versions of the different chapters. He does not yet look beyond Word 2010 (PC) and Word 2011 (Mac), already superseded by Word 2013 and now Word 2016. Other new versions of Word will emerge, each with added, modified, or lost functionality. Major changes to functionality will hopefully be described in future editions of the book or supplementary web pages.

This might just be the most useful book I have ever reviewed. Anyone who does any kind of editing work or who wishes to use Word more efficiently should strongly consider buying it.

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Editing Research: The Author Editing Approach to Providing Effective Support to Writers of Research Papers

By Valerie Matarese;
Information Today, Inc. 2016.
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38.88 GBP. 244 pages.

Research editors are rarely visible. Lurking in the background, they suggest simple solutions to solve complex linguistic problems, clarifying text and strengthening the author's voice. They pop into the acknowledgments for a quick thank you and disappear before the references. If an editor has done their job properly, they are discreet and inconspicuous, invisible to the audience. Seldom do we think about their contribution to research, and seldom do we glimpse inside the world of academic editing. *Editing Research: The Author Editing Approach to Providing Effective Support to Writers of Research Papers*, by Valerie Matarese, is a vivid dialogue about research editors, a peek inside their culture, and a practical guide, helpful to anyone starting a career as an editor.

Editing Research commences with a prologue, a third-person narrative about a fictitious post-doctoral fellow named Francesca who is writing her first research paper. Francesca and a not-so-fictitious authors' editor, named V., collaborate to edit and publish Francesca's research. This short story is an archetype of Matarese's ideal editing technique: author editing.

Matarese divides her book into 10 chapters, each with several subsections. Shifting to an informative tone, she proceeds deeper into author editing. Laying the book's foundations in the first four chapters, Matarese chronicles the history and culture of editing. She explains the globalisation of science, the increase in output of research papers, and the expansion of research in non-anglophone countries. As hard as academic writing may be, she argues, it is harder for researchers whose first language is not English. She then explores the etymology of *publish* and *edit,* tracking the words from their inceptions to modern usage. Afterwards, Matarese walks the reader through a quagmire of nonstandard terminology. Proofreading, copyediting, language editing, substantive editing, and developmental editing all have different meanings in different places, and Matarese takes care to explain them, giving each term its own section.

Chapter 3 introduces the crux of the book.

Matarese, borrowing wisdom from Sheryl Hinkkanen, defines the authors' editor as:
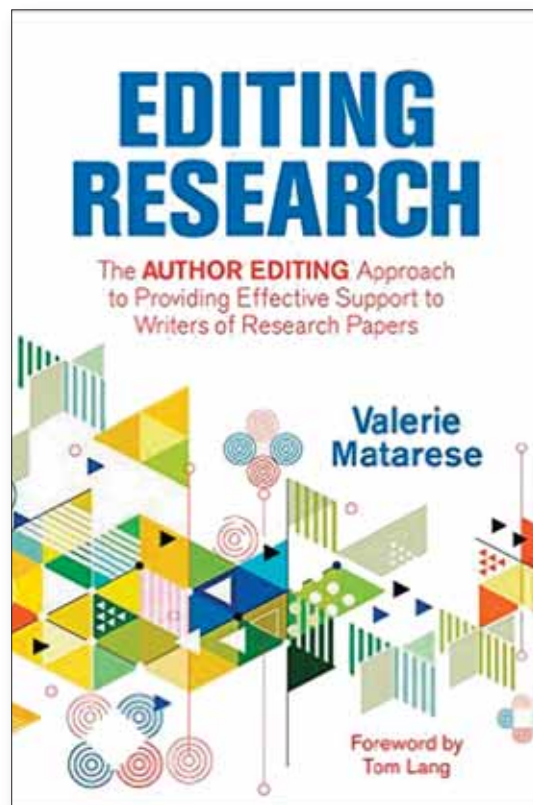
"A person who reads through a draft critically and makes any linguistic, stylistic, or contextual changes deemed necessary to ensure that the intended message is expressed logically, precisely, idiomatically, and appropriately, without cultural interference that could distort the message."

Although Valarie Matarese has extensive relevant experience, she insists that the "first book about author editing be informed by the experience and viewpoints of several highly experienced, dedicated authors' editors." This is why, in Chapter 4, she introduces several *informants*. These informants – who are freelancers, owners of editing services, and academics – bolster, contradict, or add information to Matarese's claims throughout the remainder of the book.

After laying her foundations and her key-stone, Matarese moves into the everyday work of the authors' editor. She starts by following a research manuscript through the submission process, weighing the advantages and disadvantages of editing before submission, after a revision request, or after a rejection. She continues by delving deep into reference checks, plagiarism checks, pre-review (a type of pre-submission peer review), dialogue with authors, and the ethical limitations of editors.

In Chapter 7, Matarese answers the question "How do I become an authors' editor?" and provides information on basic and continuing education. Then she transitions into the setting where authors' editors are employed. Here her recruitment of informants pays dividends, allowing Matarese to present insights into working as a freelancer, working as an employee at an editing service provider, and working for an academic institution.

After a short chapter on editing document genres other than research manuscripts (such as

> If an editor has done their job properly, they are discreet and inconspicuous, invisible to the audience. Seldom do we think about their contribution to research, and seldom do we glimpse inside the world of academic editing.

social media content, press releases, and dissertations), Matarese concludes the book with a passionate essay on contributions of authors' editors to research and their ongoing significance.

The book is short, about 200 pages, but its content provides weight. *Editing Research* is a history of author editing, a guide to entering the profession, an escort through a swamp of terminology, an advisor to the research editor, and – most of all – an engaging argument for authors' editors and their work. I would recommend it to anyone interested in an editing career.

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Lingua Franca and Beyond

Helpful hints from a cross-cultural perspective

This issue of *Medical Writing* is devoted to the improvement of our writing skills. Can you think of a better topic for our section? There is always room for improvement; whatever you do, and whatever you write improving your skills is a challenge, but for medical writers for whom English is not the first language, this challenge is often much more difficult to tackle. Language is a reflection of our way of thinking and is shaped by the culture we come from and were brought up in. One thing is to learn the vocabulary and grammatical rules, another is to switch your mentality and express your thoughts properly in a language, which by definition, is foreign to you. Ashley Cooper, an Australian, who lives in Europe and works across different cultures,

shares her experience and explains how different cultural backgrounds impact the way we write. She cites the work of Robert B Kaplan, who is Emeritus Professor of Applied Linguistics in the Department of Linguistics at the University of Southern California; he was the founding editor of the Annual Review of Applied Linguistics and took part in the preparation of the International Encyclopaedia of Linguistics.[1] As Ashley writes 'Kaplan described native English speakers as having a linear thought pattern, speakers of Semitic languages (e.g. Arabic and Hebrew) as having a parallel style, speakers of Asian languages as having an indirect style, and speakers of Romance and Slavic languages as having a digressive style'. Now I understand why coming

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from the Slavic language background I need so many parentheses when I write in English!

Maria

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Writing under the influence

During a recent discussion with a friend and client, I posed the question: 'what's the most valuable lesson you've learned about improving your writing through us working together?' The answer: 'learning how to structure a paragraph'. My friend completed part of her high schooling, a university degree and a PhD in Australia, and is now a successful young group leader at a large university; however, like many academics her first language was not English. My friend writes very well and although I am sure she was simply paying me a compliment, it was this discussion that prompted me to think about the influence of our culture and native language on the way we structure and develop text in a second language.

My aim in writing this piece is to share my experience; specifically, how having an appreciation of cultural norms in writing has helped me to improve my own writing and edit the work of others. Before I go any further, I should say that I am an Australian whose native language is English, and whose second language abilities extend only as far as high school Japanese and beginner-level German. That said, many of my clients are academics and doctors whose native languages include Chinese, French, German, Hindi, Polish, Portuguese, Spanish, Swedish and Turkish. Needless to say, I greatly admire and respect those who can master more than one language! I would also like to acknowledge that I

am by no means a linguist and the cultural differences discussed herein are not true of every piece of writing, nor every genre. I'd also like to mention that there is a great body of research in this area, so if you're interested, the references cited in this article will point you in the direction of further reading.

Cultural differences in style and structure

'[Medical writing] is a technique whose principles and practices are applicable whatever the language used. If the language used happens to be English of course it is best for it to be good English, but above all it should be plain and simple English…'[1]

Preferred patterns of writing have been said to be genre-dependent,[2] and this is particularly true of medical writing. Much of the text with which we, as medical writers, work follows a defined structure. Within this structure we are allowed some creativity, and it is here that our culture comes into play.

Thirty years of research has resulted in the publication of many pieces of work suggesting a range of reasons for cultural differences in writing. It has been generally agreed that the biggest influence is a result of the four dimensions across which cultures are said to differ: individualism versus collectivism; power distance; uncertainty avoidance; masculinity versus femininity. The discussion was expanded
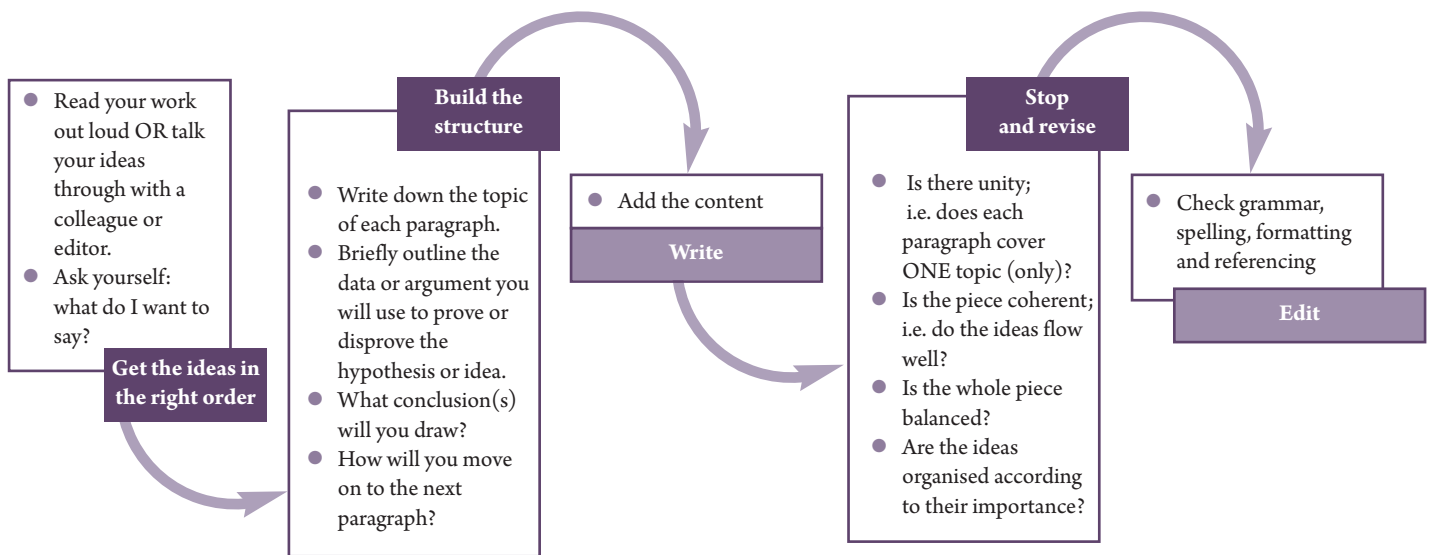
Get the ideas in the right order
- Read your work out loud OR talk your ideas through with a colleague or editor.
- Ask yourself: what do I want to say?

Build the structure
- Write down the topic of each paragraph.
- Briefly outline the data or argument you will use to prove or disprove the hypothesis or idea.
- What conclusion(s) will you draw?
- How will you move on to the next paragraph?

Write
- Add the content

Stop and revise
- Is there unity; i.e. does each paragraph cover ONE topic (only)?
- Is the piece coherent; i.e. do the ideas flow well?
- Is the whole piece balanced?
- Are the ideas organised according to their importance?

Edit
- Check grammar, spelling, formatting and referencing

Figure 1: Strategies to improve writing.

further in 1966 when Kaplan characterised and contrasted the writing of native and non-native English speakers.[3] This process, called contrastive rhetoric, compares the interference of the writer's first language on the second (in this case, English) due to the writer's choice of rhetorical strategies and content.[2] In his paper, Kaplan described native English speakers as having a linear thought pattern, speakers of Semitic languages (e.g. Arabic and Hebrew) as having a parallel style, speakers of Asian languages as having an indirect style, and speakers of Romance and Slavic languages as having a digressive style.[3] Although the ideas presented in Kaplan's study have been further developed since its publication,[2,4] the initial study shone a light on the topic, highlighting that culture does influence writing.

In English, the flow of an article – that is, the ease with which the author develops an idea and connects it to the next – shapes whether we perceive it to be a *good* or *bad* piece of writing. For this reason, if native-level English is the goal, then improving the unity and coherence within and between paragraphs can result in a significant improvement in the flow of the final product. This linear style of writing, where the logic between ideas is defined and explicit, is taught from an early age in the Anglosphere.[5] Topical cohesion, or repetition of the topic subject, and sequential progression or development of an idea are thought to be markers of *good* English.[2] This characteristic is not true of good writing in every language (see the cited literature for a detailed discussion). Siepmann presents a nice summary of stylistic differences, including overall coherence, between English, French and German text.[6] In my experience, compared with native English speakers, Spanish speakers tend to be more elaborate in their writing style. This results in

some digression from the main argument and thus less coherence (an anecdotal observation supported by Simpson).[5] This digressive style may be due to the fact that Spanish is said to have far more flexibility in word order than English, and this flexibility allows for more creativity in composition.[5]

Shaping our message when writing and our expectations when reading

In a study of the nature of written English by non-native English speakers, Silva highlights the importance of understanding the differences between a native and non-native English speaker to better comprehend and address non-native speakers' needs.[4] I would suggest that understanding these differences is also important for native English-speaking writers and editors, and more generally for editors whose first language is different from the writer's. Interestingly, a reader's expectations have been demonstrated to affect what is perceived to be straightforward writing,[2] and our own cultural expectations can result in our unfair evaluation of a text simply because it is different from the style typical of our native language.[7]

It is important for an editor to have a general awareness and understanding of cultural differences in rhetorical structure as this provides a framework within which to work. It allows the editor to interpret the author's intended meaning and then to help the author build the story for their intended audience. Much of my early experience as an editor involved correcting the English of researchers whose native language was Chinese. At the time, I did not fully appreciate the almost poetic way in which many of these authors wrote and did not recognise that this was typical of good writing in Chinese culture. Fortunately, my awareness has grown and

although I willingly admit to needing clarification from time to time, rather than assuming the author's message is unclear, I understand the message 'is simply not clear *to me*', which isn't to say it is unclear to others. This failure to appreciate cultural conventions is apparently not only true of English speakers. In a study published in the mid-'90s, Chinese speakers, who evaluated an English text written by a native speaker, found the work to be 'insufferably redundant, cyclical, excessively detailed, forced and unnecessary.'[8]

As a writer and/or editor, whether a native or non-native English speaker, being aware of your own perspectives in relation to writing structure can be extremely helpful in improving your own work. When revising a text, this self-awareness may also allow for easier identification of potential points of confusion. If your intent is to present a piece of writing as though it has been written by a native English speaker, I would recommend the following strategies as I have found them to be particularly helpful (a summary is presented in Figure 1, above):

- **Read your work aloud (and record yourself) or talk through your ideas with your colleagues or editor.** Stop and think. What do you want to say? In my experience, many of the non-native English speakers I work with are more confident with their spoken English than their written English. One of the most effective strategies I have found is to go through the planning process (see the next point) aloud. Getting the ideas in the right order is the first step – changing the register from spoken English to a more formal written style can come later! Even if you think your written English is better than your spoken English, I've found this process helps writers to more easily identify the main point(s) of their work.

- **Build the bones of your paper before you write.** If you're trying to achieve native-sounding English, give yourself a linear structure to work with. Make note of the topic of each paragraph, the data or arguments that prove or disprove your hypothesis or idea, the conclusion(s) you will draw, and the way in which you intend to move to the next paragraph. Once you have this skeleton, you can add the meat!

- **Consider the unity, coherence and balance of your piece.** Once you've added the meat to the bones of your skeleton and you've created a piece that's reasonably fleshed out, stop and revise your text. Ignore the sentence-level stuff at this point – you can come back to that later. Look at the ideas within each paragraph. Does your paragraph cover just one topic? Are the ideas coherent? Now look at the whole piece: is it balanced? Have you organised the ideas according to their importance?

Concluding thoughts

As a writer or editor, striving to achieve native-level written English is important to ensure clarity of message. This is particularly important when the register of a piece needs to be more formal or academic. That being said, non-native English speakers often use literary tools that a native English speaker would not. These non-traditional phrasings and word pairings often add richness to a piece of writing, and editors should appreciate and embrace them – as long as they do not impede or confuse the intended message.

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The Sarajevo Declaration on Integrity and Visibility of Scholarly Publications

Regional scientific journals can face all kinds of problems and threats, including plagiarism and other ethical issues, difficulties finding editors and reviewers to handle submissions, unscrupulous authors, and barriers to getting indexed. To discuss and address these and other challenges, the Academy of Medical Sciences of Bosnia and Herzegovina[1] convened a special congress on science writing, editing, and publishing in Sarajevo in December 2016.[2] Attended by interested parties from Balkan and Mediterranean countries, the congress ultimately yielded an aspirational ten-point declaration aimed at improving the quality of journals published in the represented countries: the Sarajevo Declaration on Integrity and Visibility of Scholarly Publications.[3]

The Declaration reminds editors, reviewers, and authors of their responsibilities in general and specific terms. The benefits of following ICMJE (International Committee of Medical Journal Editors),[4] CSE (Council of Science Editors),[5] and similar guidelines are emphasised. The Declaration also advocates using social media and ORCID (Open Researcher and Contributor ID)[6] to publicise scientific papers and suggests that journals devote space for students and more senior individuals to publish material in return for continuing professional development (CPD) credits. Publishers are urged to increase the skills of their editorial teams by recruiting experts in statistics and design, although this is perhaps easier said than done. Lastly, journals are encouraged to increase their visibility and credibility by improving their websites and by ensuring that their editorial practices are transparent.

While it will be hard to measure the Declaration's overall impact, journals that start following its guidance will surely be expected to improve their standards.

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The Webscout

By writers for writers

"11 tips to write better", "10 fast ways to become a better writer", and "5 unconventional ways to become a better writer". These are examples of what a Google search for "write better" gives you. Some read quite reasonably, some are rather awkward. Anyway, several similar pieces of advice drew my attention. The essence was as simple as: Read as much as you can to become a better writer. This brought me to the point where I thought that a collection of blogs created by writers for writers and intended to improve writing or related skills might be of interest to you.

http://write-better.blogspot.de/

This blog is run by LousyWriter.com, an online resource for writing skills and plain English writing. The blog is not limited to scientific or medical writing but addresses writing of all types, from business writing to speech writing. You will find a wide range of tips to improve your skills. Several blog entries are dedicated to plain English use and clarity. Others focus on punctuation, grammar, style, and readability.

http://clear-writing-with-mr-clarity.blogspot.de/

The title is rather self-explanatory. Unfortunately, the blog has not been updated for a while. Nevertheless, it is a wonderful resource. The blog entries are based on real-world examples of clear and unclear writing. Each entry ends with a take-home message that summarises what you can learn from the given writing example.

www.dailywritingtips.com/

Behind this blog is a team of writers and editors. Their backgrounds range from writing for new media and fiction writing to scientific writing. The blog is updated daily with entries on grammar, punctuation, spelling, and vocabulary. You can browse by category or by doing a keyword search. Some of the tips I do not agree with. They probably apply to fields other than medical writing. This holds true for all blogs on general writing. So always take some time to reflect on the advice you read.

www.grammarly.com/blog/

Grammarly is the name of an online proof-reading tool. The organisation behind

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Grammarly also runs a very broad-ranging blog with advice on grammar and spelling, but also with entries on language, vocabulary, general writing tips, and trends in writing.

www.publicationcoach.com/blog/

The woman behind "Publication Coach" is Daphne Gray-Grant, who offers writing coaching, training, and workshops. Her blog is full of helpful tips, not only for medical writers. Several entries are dedicated to the question of how to approach writing projects in order to avoid stress and to be effective as a writer.

www.healthwriterhub.com/blog

Health Writer Hub was created by Michelle Guillemard, a freelance health writer and the President of the Australasian Medical Writers Association. What started as a blog on health writing is now a great resource that offers courses and online training. The blog section is updated regularly. You will find general writing advice and software suggestions that could ease your life. One series of four entries is dedicated to different types of clinical evidence. This blog is highly recommended to medical writers.

www.apostropheabuse.com

The misuse of apostrophes is pervasive. Apostrophe Abuse presents examples from all around the world. I especially like "top 3'rd level feeder school", which was found outside a school. Although this blog is not primarily designed to help you become a better writer, I just had to share it with you. If you ever come across an example which you think is worth posting, you can submit a photo to the site.

Did you like this Webscout article? Do you have any questions or suggestions? Please feel free to get in touch and share your thoughts.

Good Writing Practice

Syntactic order

Adverb misplacement

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Introduction

Adverb placement is complicated by the variety and abundance of syntactic units that are modifiable by an adverb, ranging from words to phrases to sentences. The most likely such modified units are verbs (and verbals), adjectives (and adjectivals), and other adverbs (adverbials). Another complication is the inherent mobility of adverbs within a sentence.

In this article, examples of adverb placement are arranged in order of the number of possible positions within sentences. The reasons guiding such placement are (1) specificity (selecting the exact syntactic unit modified by the adverb) and (2) emphasis (selecting the syntactic unit to be emphasised).

Part 1 –Specificity

The following example and revision show that an infinitive phrase (a verbal) is the most specific modified unit by an adverb.

Example 1: Two possible adverb positions

Halothane was substituted for ether <u>lightly</u> to anesthetise rats used in this study.

Revision

*Halothane was substituted for ether **to lightly** anesthetise rats used in this study.*

Notes

In the example, logic determines that the verb phrase *was substituted* could **not** be the modified unit because *was lightly substituted* is illogical. In contrast, *lightly to anesthetise* is logical, but the back-modification (or squinting modification) of *for ether lightly* is possible. Consequently, to avoid mismodification, in the Revision, the adverb *lightly* is placed between the infinitive marker *to* and the infinitive *anesthetise*, thereby exclusively modifying the infinitive phrase.

Grammatical folklore has stigmatised the splitting of an infinitive. Should you abide by this rule? Avoiding a split infinitive can result in the modification of an unintended modified unit. In the Example, the word *lightly* seems to simultaneously back-modify *for ether* and premodify *to anesthetise*: The meaning *substituted for ether lightly* is unintended.

Splitting the infinitive is actually a misnomer, because the infinitive is the base form of the verb (i.e., *anesthetise*). The word *to* is the marker of the infinitive. Therefore, the split is actually between the marker and the infinitive or splitting an infinitive phrase.

Another consideration is that *lightly*, a manner adverb, is more mobility-limited than a degree adverb and a time adverb. As evidence, *lightly* could not be a front- or end-of-sentence modifier (see Part 2).

Part 2 – Emphasis vs. Specificity

A classic example of emphasis over specificity is *I **only** have eyes for you* rather than the more specific *I have eyes <u>only</u> for you*.

Example 1: Three possible adverb positions

Treatment of HT-4 cells with various tocopherol analogues protected cells <u>completely</u> against glutamate-induced cytotoxicity.

Revision 1

*Treatment of HT-4 cells with various tocopherol analogues **completely** protected cells against glutamate-induced cytotoxicity.*

Revision 2

*Treatment of HT-4 cells with various tocopherol analogues protected cells against glutamate-induced cytotoxicity **completely**.*

Notes

This Example shows that even though the adverb is placed before the specific syntactic unit *against glutamate-induced cytotoxicity*, placement before the main verb *protected* may be preferred. That is,

selection of the sentence position for the adverb *completely* may be more a function of intended emphasis of the verb rather than modification of the most specific syntactic unit. Another perspective is to consider the verb *protected* plus the following prepositional phrase as the syntactic unit for adverb modification.

Revision 2 emphasises the modifier *completely* by its position at the end of the sentence, and by comma-segregation. In contrast, *completely* would be illogical as a front-of-sentence modifier, possibly because *completely*, a degree adverb, must be in close proximity to its modified unit *protected against glutamate-induced cytotoxicity*.

Example 2: Four possible adverb positions
All large-scale testing methods were capable of simulating <u>*successfully*</u> *the earthquake response.*
Revision 1
All large-scale testing methods were **success-fully** *capable of simulating the earthquake response.*
Revision 2
All large-scale testing methods were capable of **successfully** *simulating the earthquake response.*
Revision 3
All large-scale testing methods were capable of simulating the earthquake response, **successfully***.*

Notes

This Example exemplifies that the adverb usually precedes (Revision 2) rather than follows the modified syntactic unit *simulating*, thereby splitting the preposition-verb phrase analogously to splitting the infinitive phrase. Although *stimulating* is a gerund (i.e., a present participle functioning as a nominal object of the preposition *of*), adverbial modification is appropriate because the verb-like structure classifies the gerund *simulating* as a verbal.

The Example also exemplifies that adverb placement before the linking verb *were* as in *successfully were capable* is an unconventional pattern but placement before the adjective *capable* is possible (Revision 1). It thus appears that if the main verb is a linking verb, then instead of adverb placement before the main verb placement before the most specific syntactic unit is preferred.

In Revision 3, an end-of-sentence placement of the adverb is logical, whereas adverb placement at the front of the sentence would be illogical – probably because of the distance from the modified unit *stimulating* and the movement

limitations of an adverb of manner. Again, the end-of-sentence position and comma-caused segregation emphasise the adverb.

Example 3: Six possible adverb positions
A variety of techniques <u>*recently*</u> *have been developed in this new discipline.*
Revision 1
A variety of techniques have **recently** *been developed in this new discipline.*
Revision 2
A variety of techniques have been **recently** *developed in this new discipline.*
Revision 3
A variety of techniques have been developed **recently** *in this new discipline.*
Revision 4
A variety of techniques have been developed in this new discipline, **recently***.*
Revision 5
Recently*, a variety of techniques have been developed in this new discipline.*

Notes

This example shows that auxiliary verbs (*have, been*) before the main verb (*developed*) complicate adverb placement. However, the adverb can simply be placed before the main verb as shown in Revision 2. The meaning expressed seems to be the same as that in the Example and Revision 1. One reason for the lack of any overt difference may be the flexibility of the adverb of time *recently*. This flexibility for modification is evident by placement of *recently* at the end of the sentence (Revision 4) and at the beginning of the sentence (Revision 5). Placement at the front-of-sentence or end-of-sentence position may depend on the requirements of paragraphing, that is, how the sentence relates to continuous sentences. In Revision 3, placement after *developed* is also possible.

Summary

It would be a simple process if an adverb were placed before the most specific syntactic unit. However, selection is also based on emphasis, e.g., before the main verb of a predicate. Furthermore, the range of placement possibilities increases depending on the type of adverb: manner, negation, degree, time.

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The black ta

My first EMWA conference in spring 2016 seemed to have just finished, and I was already on my way to Brussels, the heart of Europe, for my second conference.

The first day started with getting a badge with a black lanyard, which to me symbolises a rising career in medical writing and makes me feel at home. It was pleasing to see familiar faces from my first conference and to get to know new members – those who, with excitement and uncertainty, wear their bright new green tags. I could hear and feel the excitement and anticipation. Entering the workshops, we all settled down, allowing our workshop leaders to change the paradigms I built during my years in academia.

After learning many key lessons during the first day, I finished with an inspiring lecture by Dr Robert Colebunders and an introduction to Belgian beer, chocolate, and history by Rita Wellens. For first-time attendees, it might have seemed surreal to be talking to so many highly experienced professionals at the networking reception, but that quickly subsided once we realised that everyone was in the same place, talking the same language, and for the same

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reason: we are passionate about medical writing. For me, however, it was still unreal to be discussing with Phil Leventhal and Beatrix Dörr the possibility of participating in the editorial board of *Medical Writing* or, eventually, becoming a member of EMWA's executive committee only a few months after having become a volunteer of the Social Media Team.

I started my second day with the early morning session "Show IT, share IT, rise and shine" during which, as a member of the Social Media Team, I was invited to share my Twitter, Facebook, and LinkedIn experience as applied to medical writing. Even though I was exhausted after a day full of workshops, training, and networking, in the afternoon, I attended the Freelance Business Forum, where Marco Torregrossa inspired us with his overview on freelancing in Europe. The following discussions were enriching not only for new but also for experienced freelancers.

Before the Freelance Business Forum was even finished, we were all inspired to take advantage of the evening's social activities. The "Chocolate and beer tour" led not only to new friendships but also to new ideas. Experienced and prospective medical writers were chatting and sharing their experiences, producing an endless world of possibilities. As for myself, perhaps catalysed by beer, Jackie Johnson and I came up with an idea for a new workshop, which quickly became part of the upcoming Internship Forum.

After the delicious Belgian beer, waking up the

following day was not so easy. While many attendees enjoyed the easy morning yoga session with Slavka Baronikova, I was still fighting with my pillow and my morning coffee. Soon, it was time for my last workshop of the conference. A surprisingly full room received Julia Donnelly. Time flew while we tried to develop our first publication plan. To my surprise, after the conference was finished, many attendees were still actively networking and already putting into action some fresh ideas. I could feel that no one was looking forward to leaving the conference.

From my experience, attending EMWA conferences offers an endless world of possibilities. Now that the autumn conference is over, I am already excited for the next one and looking forward to seeing familiar faces and making new friends.

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Medical Communications

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Editorial

Dear all,

Well here's a sentence I never thought I'd write:

In this issue we learn how the Argentine Tango can make us better writers.

Really! When our contributor, Susanne Geercken, told me that this was the topic she'd chosen, I was both intrigued and astounded – how on earth do those two worlds collide? I knew from the Dublin conference that medical writers liked to dance, but we don't usually incorporate it into our professional life.

However, I knew we were in very safe hands, and if anyone could merge these two disciplines, it would be Susanne. Susanne has worked as a medical translator, writer and workshop leader since the early 1990s. Her two areas of passion are languages (she is a trained translator for English and Spanish and also speaks French and Portuguese) and dancing. She has been a ballroom dancer for more than 20 years and an enthusiastic *Tango Argentino* dancer since 2012. Therefore, I eagerly awaited the email alert, and was certainly not disappointed.

I am delighted to be able to present Susanne's excellent article to you – if you are at all like me, you will find it inspiring, you will learn something from it, and if it doesn't make you both smile and want to jump into your dancing shoes, I'll eat my hat!

After this issue, I expect to see much more dancing at the EMWA conferences! The gauntlet is thrown…

Bestest,

Lisa

What Argentine Tango can tell us about writing

Over the past 4 years, I have become a passionate dancer of Argentine Tango. Where exactly the dance was born remains the subject of some controversy (claims have even been made that it had its roots in Finland),[1] but most people would agree that the capital of Argentine Tango is Buenos Aires. Therefore, last year in November I did what every true tango *aficionado* does: I travelled to Buenos Aires in search of the "authentic" tango experience. Surprisingly I returned home with inspiration not only for my dancing but also for my writing. Why? Because Argentine Tango is all about communication and it can help us remember some important principles of good communication:

Present your subject matter with passion and dedication

When I first started listening to tango music, I actually thought it was pretty boring – every piece more or less sounded the same to me. Gradually, however, I understood that tango is like good wine — you have to acquire the taste for it. It is fascinating how your perception is refined after some time, once you have learned to listen more closely: there's tangos where the driving factor is a dominant beat; there's lyrical pieces that remind you of Italian opera; there's uplifting *valses* and there's the jazzy, sometimes even discordant "Tango Nuevo". Tango dancing is about letting the music touch your heart and interpreting it with your body and your feet, improvising as you go. *"La música te lleva"* – Let the music guide you. As one of our tango teachers puts it: "This is what I want: if I see you dance behind a sound-proof window pane I want to 'hear' the piece you are interpreting by watching you move."

I think this is also the secret of good writing: we should get across the essence of what we write about so convincingly that the reader will understand even "behind a sound-proof window pane". This requires intimate knowledge of our subject matter, passion and dedication.

Focus on your audience

If the purpose of dancing tango is to communicate about the music, how does the couple do this? After all, they can't use words. Like in most couple dances, there are two roles in Argentine Tango: a leader and a follower.[2] On the basis of their common repertoire, the leader will "suggest" a movement and the follower will "respond". The leader has to have a clear idea of the next moves he wants to initiate. His task is to communicate these ideas to his partner by offering her clear signals. Since there are only few fixed sequences of steps in tango, there is always room for interpretation and improvisation (this is actually what makes the dance so intriguing). Therefore, the leader has to remain very flexible, ready to adjust his next moves to his partner's – sometimes unexpected – response. To ensure enjoyable communication in this setting, it is very important where the partners put their main attention: if the leader is very focused on his own dance and interpretation of the music, he may lose connection with her, making her feel uncomfortable and "left behind". If, in contrast, the leader centres his attention on his partner, making sure she has time and room to respond with her own interpretation of the music, they will enter into a beautiful non-verbal dialogue.

An author's role is similar to that of the leader in the couple: having firm ideas and sending out clear messages is not enough – to ensure successful and enjoyable communication you also have to stay sensitive to the needs of your readers if you don't want to risk losing them.

Respect conventions

There are many conventions and subtle rules in

tango, particularly in the public dances, the *milongas*. In order to be part of the tango community, you have to know about these rules. It is part of the tango culture to change dance partners. To an outsider, it seems like magic how, in a large dance hall, a man and a woman sitting on opposite ends of the hall, get up as if they follow a silent command and meet on the dance floor. The secret is that the couples agree to dance by what is called *cabeceo* or nod. Basically you constantly scan the room with your eyes until you find a partner who holds eye contact longer than what would feel normal. If you don't want to dance with this partner, you look away. If you do wish to take up the offer, you nod and both partners approach the dance floor to dance. It is, of course, important to know about this convention because if you don't, you miss out on any opportunity to dance at all.

In writing, too, it will have consequences if we break conventions. Some months ago, I had to translate a medical complaint from a customer. As part of her complaint, she demanded a substantial compensation for harm incurred, threatening court action. She attached copies of relevant medical documentation. You would expect such an important claim to be sent in an official letter, maybe even by registered mail. Her complaint, however, was sent in the form of a poorly written email with some snapshots of hospital records and the last sentence saying: "sent from my android mobile telephone". Even though in the age of electronic devices, text messages have become widely accepted, in my eyes, this still constitutes a breach of convention that will take away some of the credibility of the writer's request, independently of the seriousness of the issue brought forward.

As writers, we should therefore make sure we know the conventions governing our domain of writing and respect them. Of note, this even applies for fields like advertising, where you consciously play with breaking conventions. Particular care is required when touching culturally sensitive issues like historical and political aspects, religion, national pride, feelings, or gender.

Be gentle with your audience
Traditionally, the music at the public dances is organized in sequences of three tango pieces followed by a pause. This is called a *tanda*. During the pause (called *cortina* or "curtain") the DJ will put brief interludes of contrasting music, such as Swing or Salsa, while all dancers leave the dance floor and new couples form. With the first tunes of the new round of tangos the dancers are back on the dancefloor, ready to join their next partner in the *abrazo*, the tango embrace. The tangos played in each *tanda* consist of similar pieces, often from the same orchestra so that the new partners in the couple can gently get to know each other and their common repertoire: the first tango is for "tasting", the second for "trying out" and the third for "enjoying".

What does this teach us about writing? Be gentle with your readers and consider that they do not know your subject as well as you do and may need time to adjust. Introduce your subject carefully. Make an effort to guide your audience through your text, using metalanguage like headings, topic sentences and introductory clauses to advise the reader what to expect next. Just imagine how nice it would be to make your reader feel like a tango partner wrapped in a gentle tango embrace!

Write with discipline
Tango is not only about communication within the couple but also about communication across the whole community on the dance floor. The *milongas* are commonly quite crowded, and to ensure enjoyable

dancing, the couples move along around the dancefloor in one or more neat circles in counter-clock direction (this is called *ronda*). Skillful dancing means that you can master the art of staying within your circle, never invading another couple's space and keeping an even distance between the couples. The aim is for all the dance couples to generate one single flow in line with the music so that their dance transcends the couple and creates a community on the dance floor.

As you may imagine, it not only requires great skill but also considerable discipline to keep moving elegantly as a couple but also stay within the line. The image of the *ronda* can remind us of the need to be disciplined in our writing, striving to create a stringent text without unmotivated digressions. In good writing, like in the *ronda*, there's no room for ego trips.

Conclusion
Writers and dancers share the same principles of passion, dedication, focus on other, discipline, and respect. I hope that I have awakened the tango spirit in you and enticed you to become a tango dancer at heart (or even in real life?) when you go about your next piece of writing. Feel embraced – *un abrazo*.

References

1. Aki Kaurismäki in Midsummer Night's Tango (2013). Documentary. A film by Viviane Blumenschein (very interesting documentary that I recommend to anyone interested in the subject)
2. The roles of "leader" and "follower" are not necessarily gender-specific in Tango. You will often find women dancing with women and men with men, sometimes even switching roles between or within the dances. For better flow, however, I will refer to the "leader" as "he" and the follower as "she" in this text.

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Profile

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An Interview with Michael Markie
an open science and open data advocate

Medical writers commonly are hired to write for traditional journals targeting the highest possible impact factor. However, as medical writers, we should be aware of alternative options. In September last year, I had the pleasure to meet Michael Markie during a session on "The Future of Medical Journals and Getting Published in the Digital Age", who gave an inspiring talk about Open Science publishing platforms.

Michael is the Publisher at F1000Research, and is an open science and open data advocate. Michael's main role is to work on devising and implementing innovative ways to improve the uptake of open science practices and improve reproducibility for the scientific community as a whole. He has also helped to launch the new funder based publishing platform Wellcome Open Research.

MEW: Michael, can you explain the main differences between a traditional journal and an Open Science publishing platform?
Michael Markie (MM): The main difference is that an open science publishing platform allows the authors to be in control of their papers. We enable authors to publish what they want and when they want; this ranges from traditional narrative-based articles to incremental findings, methods, protocols, datasets and negative/null results. Further, we are trying to avoid some shortcomings of journals, such as the time it takes

to get something published, and that papers are not necessarily conducive to reproducibility. I think now we are at a stage where there is a lot of questions being asked around how reproducible the work published in journals really is. The problem is that articles themselves don't have enough details for someone to reproduce or replicate a body of work. On F1000Research we mandate that the authors provide the underlying source data to enable reanalysis, replication attempts and data reuse. For example, if an author uses any software or a specific piece of equipment, we ask the author to provide all the parameters and all of the necessary details so someone can read the paper go into their lab, and replicate that experiment. So, I suppose that the main difference is that there is an opportunity to publish a wider variety of things and it is also more inclusive with authors getting to choose what they are going to publish and not necessarily an editor.

MEW: How can I select the "right" open platform?
(MM): You should choose one with a research area that covers your field. One thing to look out for is if you recognise some of the individuals or some of the work that is being published on the platform. Then, other things to consider are is it affordable, is it open access, and ask the question if your work will be visible to the research community from the platform. F1000Research for instance is one of the only,

maybe the only open science platform that is PubMed indexed.

MEW: Do you really publish everything?
(MM): In a sense we do. The first thing we do when we receive an article submission is we perform what we call a "pre-publication check". You can't just publish an article without going through this check. We check that the article meets our authorship criteria and if the paper is relevant to what we publish (so is it science or medical based). We check if the work is legible, we check if it is plagiarised or not, if it adheres to the correct standards of reporting and if it meets ethical guidelines. The work, or large parts of it, must not have been published previously or be currently under consideration or review elsewhere. These are all basically checks that the work has been done well. If all the criteria is met and the authors have made sure that they are adhering to these requirements, then we will publish the work.

MEW: How high is the percentage of rejected articles after the pre-check?
(MM): I would say around 20% get rejected.

MEW: What happens after the pre-publication check has been passed?
(MM): As well as the authors being in control of what they publish, they are also in control of their peer-review process. We ask the authors to select reviewers who they believe have the correct

expertise to review their paper. We obviously check for conflicts of interest, but we would never invite a reviewer without asking the author first, so the authors always know who will be invited to review their paper. When we have gone through the pre-publication check, we typeset the articles, create the HTML, XML and PDF and get everything ready for online publication; this takes on average around seven days. We then publish the paper which is clearly labelled as "awaiting peer review", and it is at this point when the peer-review process begins. Our editorial team invites all the reviewers that were selected by the author. The reviewers must make their names available and state their academic affiliation, and we also publish their peer review reports with the paper. The other thing the reviewers have to do, which is different compared to typical journals, is they give the paper a status. There are three statuses the referee can give a paper. "Approved", which is denoted with a green tick and means that the referee asked either for no changes to the manuscript or only a few small changes. The second status is "approved with reservations," that is denoted on the website with a green question mark and means the referee has asked for some significant larger changes to be made to improve the paper. And finally, there is a "not approved" status denoted with a red cross. Not approved is quite rare, but it is meant to notify if a piece of research really has very significant flaws and the work overall to be poor science.

To be sent to PubMed and be PubMed indexed an article needs to have two approved statuses, or two approved with reservations and one approved. The authors will always have the opportunity to revise their paper in a new version to satisfy the reviewers requests. The process is pretty much like revisions in closed peer review journals, but just in this instance it is all done openly and transparently. This enables the readers to see exactly how the paper came in (version 1), they can see all the comments, and then they can see the revised version 2. The idea is to try to make the process of publishing much more civil, by making the authors and reviewers have a constructive conversation about the work on how to improve the paper whilst enabling readers to see how the work developed from initial publication.

MEW: How do you see that open science platforms impacting the future of the articles?

(MM): The F1000Research platform doesn't have an impact factor and doesn't *want* an impact factor. The goal behind F1000Research is to try and move evaluation of a paper away from the journal level and emphasise the work completely on the article level. We are making a lot of efforts in trying to make it very clear to the reader how impactful an individual article is by letting people know how many downloads, views and citations it has. We also provide Altmetrics, which enables people to see how the paper is being talked in social media, policy documents and news outlets.

The future for open science platforms is to enable people to have a way to try and move away from publishing in traditional journals. The process is quicker and should help assessment to be made on the intrinsic value of the work rather than incorrectly judging it by the venue of its publication.

We are also working very closely with funding agencies that have an invested interest in trying to improve the way the research they fund is communicated. For example, we have just created a platform that uses the F1000Research publication model for the Wellcome Trust who are the biggest biomedical funder in the UK. They want to give their fundees a way to publish research which is quicker, more transparent and they want to make it easier for researchers to provide enough information to reproduce work.

An open science platform can help reduce the barrier to data sharing, facilitate the publication of null or negative results, which helps to avoid the bias towards positive findings in literature. The platforms can reduce the amount of research waste and to try to help reduce the bias of understanding in the literature. By taking away the delay of traditional journals, it will enable researchers to get their work out more quickly and therefore allow others to make discoveries quicker.

MEW: *Thank you for taking the time to share this important information with us. Open Science publishing platforms are obviously an important step towards transparency. Certainly, they will be a large step towards accuracy of meta-analysis as now all trial results, even confirmatory, inconclusive or negative ones can be published easily.*

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WRITE OR REVIEW CLINICAL STUDY REPORTS (CSRs)?

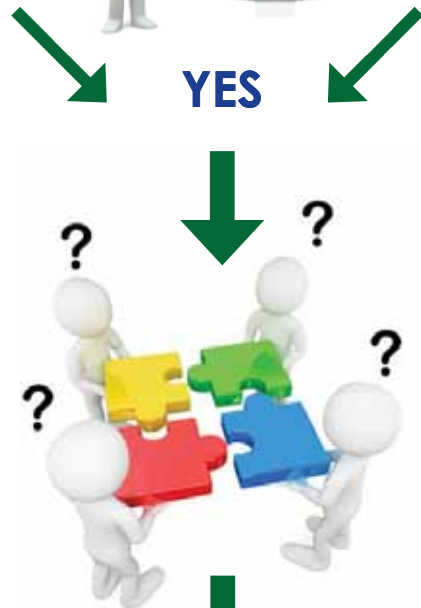**WRITE OR REVIEW STATISTICAL ANALYSIS PLANS (SAPs)?**

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Out on Our Own

SECTION EDITORS

Satyen Shenoy
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Editorial

Hope you all had a good start to 2017. There have been a few changes in the FBF since the last issue. After 12 months as Freelance Business Advocate, Julie Charlesworth decided to step down from the post and we would like to thank her for all her hard work during this time. Two new members – Paul Wafula and George Xinarianos – will be joining the team. Welcome, Paul and George, and thank you for volunteering.

This edition of the *OOOO* brings to you three diverse and informative articles –

As a part of its outreach for freelance members, EMWA looks to build associations with other organisations that promote the freelance cause. Last November, EMWA reached an agreement with the VGSD (*Verband der Gründer und Selbständigen Deutschland e.V.*), a Germany-based advocacy group for freelancers and entrepreneurs. In an interview with *OOOO*, Dr. Andreas Lutz, the CEO of VGSD, gives pointers on things to consider while freelancing in Germany and the various benefits that are afforded to freelancers and small-business owners through VGSD membership.

Effective brand-building and marketing for freelancers was one of the well-debated topics in the table discussions at the recent FBF in Brussels. In recent years, there has been a paradigm shift from traditional methods and currently online professional networking plays a large role in how businesses are managed and advertised. As daunting as it sounds to a time-constrained freelancer, the availability of numerous avenues and platforms such as LinkedIn has made the task of creating and maintaining an online presence relatively simple and easy. In her story, Jackie Johnson tells us how she successfully utilised LinkedIn en route to building her freelance medical writing business – JLJ Consultancy – while transitioning out of academia.

Stress is an undesired by-product of our busy lives and can have a huge and negative impact on our productivity and success. As freelancers, we perhaps feel the pressure somewhat more than our colleagues with stable jobs, in terms of generating a steady income, managing multiple clients, and developing and running our businesses. And while there is plenty of advice – medical, psychological, and holistic – on handling stress, there is no one sure-fire remedy; the best technique for stress management is the one that works for the individual. In his article, Tim Bradburn of IPSE discusses a strategy for handling pressure that is based on introspection. He suggests that employing a weekly self-administered Q&A exercise to identify and dissect stress-causing situations could help us optimise our resources and remain firmly focussed on the outcome.

I hope you find these articles instructive and an enjoyable read. I also request all to continue providing feedback and sending in your articles so that you can share your insights with your fellow freelancers. Last, but not least, my personal thanks to the contributors for their informative articles, and especially for working on these during the holiday season.

I hope to see you at the spring conference in Birmingham.

Satyen Shenoy

Freelancing in Germany: An interview with Dr. Andreas Lutz of the Verband der Gründer und Selbständigen Deutschland e.V. (VGSD)

As a part of its initiative in forging alliances with associations that promote freelancing at a national level in Europe, EMWA has recently tied up with the *Verband der Gründer und Selbständigen Deutschland e.V.* (VGSD) which is based in Germany. The main goal behind this is to offer the various benefits that come with a VGSD membership to EMWA members who are already in Germany or plan to do so in the future. Interested members can find further details on EMWA's website.

The VGSD (www.vgsd.de) is an advocacy group based in Germany with over 10,000 members and represents the business interests of entrepreneurs, self-employed, and small businesses (with less than 10 employees) at a national level. Besides political lobbying in Germany, and the EU (as a member of the EFIP – European Forum of Independent Professionals), VGSD also offers a host of benefits to its members such as weekly webinars with business experts, networking events in 10 cities in Germany, discounts and rebates on insurance and phone contracts, etc.

In this interview with Dr. Andreas Lutz (AL), the CEO of the VGSD, he offers pointers and advice on freelancing as a profession in Germany. Questions were formulated by – Carola Krause, Satyen Shenoy, and Paul Wafula – EMWA members and freelance medical writers based in Germany.

OOOO: At the recent EMWA conference, Marco Torregrossa of EFIP talked about the exponential growth of freelancing as a career in Europe. Is this trend replicated in Germany?

AL: There is a strong demand for freelancers and especially knowledge workers in Germany. At the same time the number of founders has sharply decreased in 2012 and has been at such a low level since then, that the total number of self-employed has been decreasing during the last five years (cp. http://www.vgsd.de/?p=12032). There is a growing gap between the demand for external experts and the ability to recruit them.

OOOO: Are there any government incentives offered in Germany to promote freelancing? For example, tax waivers, seed capital, etc.?

AL: The access to the most important programme "*Gründungszuschuss*" has been dramatically curtailed at the end of 2011. The number of founders supported fell from 134,000 in 2011 to 20,000 in 2012 (-85%). Consultation incentive programmes, support for seminars and the microcredit programme have been stopped or reduced as well. While founders have been very much encouraged and supported in

Dr. Andreas Lutz, CEO, VGSD

Germany during the first decade of this century, politicians have changed their focus completely and focus very much on regular employment. Legislative changes like these have been *the* reason for us to start the VGSD in 2012 and for its strong growth to now more than 2,000 paid members. We are in Berlin all the time to influence politicians to return to a more freelancer-friendly policy.

OOOO: Broadly, what must a person consider in terms of insurance, social contributions, etc., when deciding to become a self-employed/freelancer in Germany?

AL: I recommend using the help of an experienced set-up advisor (for a list of our members in this field: http://www.vgsd.de/branchenliste/?tl_q=&tl_pc=&tl_c=4&tl_s=p# list). The earlier, the better: With good advice at an early stage, there are good chances of getting the *"Gründungszuschuss"* (up to 19,000 Euros) and depending on which federal state you live in, you can be reimbursed 50 to 70 percent of consulting costs. Particularly if you come from another country and German isn't your mother tongue, it is essential to have somebody at your side who knows the pitfalls.

OOOO: Despite a large pool of medical writers being based in Germany, medical writing as a profession is not recognised as a distinct profession by organisations such as the *Industrie- und Handels-kammer* (IHK; Chamber of Industry and Commerce) or insurance agencies and is usually bunched with artistic writing or journalism. How can medical writers gain recognition as a profession in Germany? Is this possible through VGSD membership?

AL: Being bunched up with artistic writing and journalism has a big advantage for medical writers: they have access to *Künstlersozialkasse* (KSK; artists' social fund), which pays for half their social security expenses and gives them access to much lower rates compared to other self-employed.

If enough medical writers join VGSD we could work along with EMWA to strengthen recognition as a distinct profession without losing the advantages of the current status.

OOOO: Liability insurance, though desired by most freelance medical writers, isn't as readily available in Germany, especially since it is hard to describe medical writing as a profession to insurance companies. Does VGSD have tie-ups with insurance agents who can offer discounted liability insurance to freelance medical writers?

AL: As far as liability insurance is concerned, VGSD partners with exali.de, the leading online provider for liability insurance. They offer rebates for VGSD members as well as for founders.

OOOO: Along these lines, what about the statutory pension insurance scheme?

AL: As a member of the KSK, medical writers are obliged to pay into the statutory pension insurance scheme with half their contributions coming from the state and social security contributions of clients. This enables them to provide privately for old-age as well, which we recommend strongly. At VGSD we offer regular "expert telcos" on how to do that. Members can download and listen to the recordings of these along with more than 100 recordings on other topics relevant to freelancers.

OOOO: Does VGSD have annual meetings or encourage and offer support to local networking events for freelancers?

AL: VGSD has regional groups in Dortmund ("Ruhrgebiet"), Frankfurt, Hamburg, Hannover, Leipzig, Mannheim ("Rhein-Neckar"), Köln, München, Nürnberg and Stuttgart. Depending on the city we offer various networking and educational events. Most groups meet in the evening to discuss a topic, exchange best practice, listen to a lecture or often just for a glass of beer. But there are also very popular breakfast and lunch meetings.

OOOO: What would you say to our readers who might be interested in working as freelance medical writers in Germany?

AL: Germany has a thriving economy and welcomes workers from abroad. There is no lack of work and it is usually well paid, especially in the health industry. The founder support, tax and social security systems are complicated, but with good advice they offer advantages that might surprise you.

Germany has a thriving economy and welcomes workers from abroad. There is no lack of work and it is usually well paid, especially in the health industry.

Is LinkedIn the gatekeeper to a successful freelance medical writing career? Why PhDs should use social networking to leave the ivory tower

LinkedIn is the only major social media platform for which usage rates are higher among adults age 30-49 (30%) than among millennials (age 18–29, 22%).[1] Ironically, millennials are the driving force behind some of the most innovative companies, including LinkedIn.[2] Although millennials are often described as entitled and self-absorbed, they are also independent and entrepreneurial, holding fresh, innovative ideas for projects, companies, and life in general. Millennials have grown up around the technology boom, and it is no surprise that they can enthusiastically adapt to the changing world – and increasingly competitive job market. Many PhDs and postdocs – who are also aspiring medical writers – are millennials.[3] So why don't more of them use LinkedIn as a networking tool?[4] I can't speak for everyone, but here's my story.

Is LinkedIn an online resume?

Growing up among the "me-me-me" generation, I remember creating my LinkedIn profile in 2009. Being relatively late to the party compared to some of my friends (the company launched in 2003), I simply copied and pasted my lengthy, jargon-laden, academic information into the profile fields. Once I had filled out a few sections and uploaded a smiley photo of myself – with college friends and wine bottles strategically

LinkedIn is the only major social media platform for which usage rates are higher among adults age 30–49 (30%) than among millennials (age 18–29, 22%).

cropped out – I sat back and thought to myself, "Well done, Jackie! None of your academic colleagues use LinkedIn, so you are one step ahead of the game!"

At the time, I was about half way into my graduate studies, and I already knew that the academic world was not where I wanted to stay for my entire career. By simply signing up for LinkedIn, I naively thought that a big opportunity would arise, that recruiters would find me, and that companies would want me to come work for them (for no other reason than my academic credentials). I knew that LinkedIn was important, I just didn't know why.

Who should I add to my LinkedIn network?

Of course, nothing happened after I signed up. I added a few connections that I knew from my academic labs, some people from high school, and some family members. Seriously … I added my mom and dad. They were proud of my accomplishments, so I figured, "Hey, who not?" Basically, LinkedIn was nothing more than another way to waste time on the internet (when I should have been working on my thesis). I treated my new online profile like I treated my Facebook account: only accepting connections from people I knew, and then moving forward with a sense of privacy hysteria. *Why would someone I have never met want to connect with me?*

Were they trying to steal my data? I was left bewildered. *Do I use LinkedIn like Facebook? Or do I treat my profile like a business card, accepting invitations from anyone I would like to meet in the future?*

It wasn't until several years later, with a PhD degree (and zero job prospects) in hand, that I logged back into LinkedIn with fresh eyes. This time, I was still in academia, as a postdoc, and I was still waiting for my big break: the opportunity that would rescue me from academic purgatory, changing my life forever. As I hadn't had any luck so far, and no recruiters were contacting me, I decided to take matters into my own hands – to create my own luck.

Reach out to career mentors

In the midst of cyber-stalking companies that I admired, I managed to connect with a CEO of a local biotech company. A CEO! To my complete surprise, he messaged me back, and agreed to meet me for a coffee that week to discuss his company. I immediately Googled him, of course. I found that, as an MBA, he had helped many companies grow and remain profitable in the Netherlands biotech space, and he was a specialist in mergers and acquisitions. There was a lot of information about him online – I felt like I knew him before we met.

Have you Googled your name lately?

Later that day, I received a message in my inbox that this CEO was looking at my LinkedIn profile. I was flattered! But then I realised I shouldn't be; why wouldn't he do the exact same thing that I was doing? It is normal to look for additional information about someone you just met (on the internet!) before meeting up with them in person. With my academic blinders on, I thought that he would be impressed with my scientific background and publication record. Or at least I hoped. Then it hit me. He didn't have a science background at all...he held an MBA. *Would an MBA find my profile relevant?* Out of curiosity (and fear), I Googled my name. The first thing to come up was the LinkedIn profile, and so I tried to view it from the perspective of the CEO.

The most obvious difference between his profile and mine was that my profile was only partially filled out. *Would he think that I am too busy to get around to the social networking – and was that a good thing or a bad thing?* My profile listed every single thing from my academic CV.
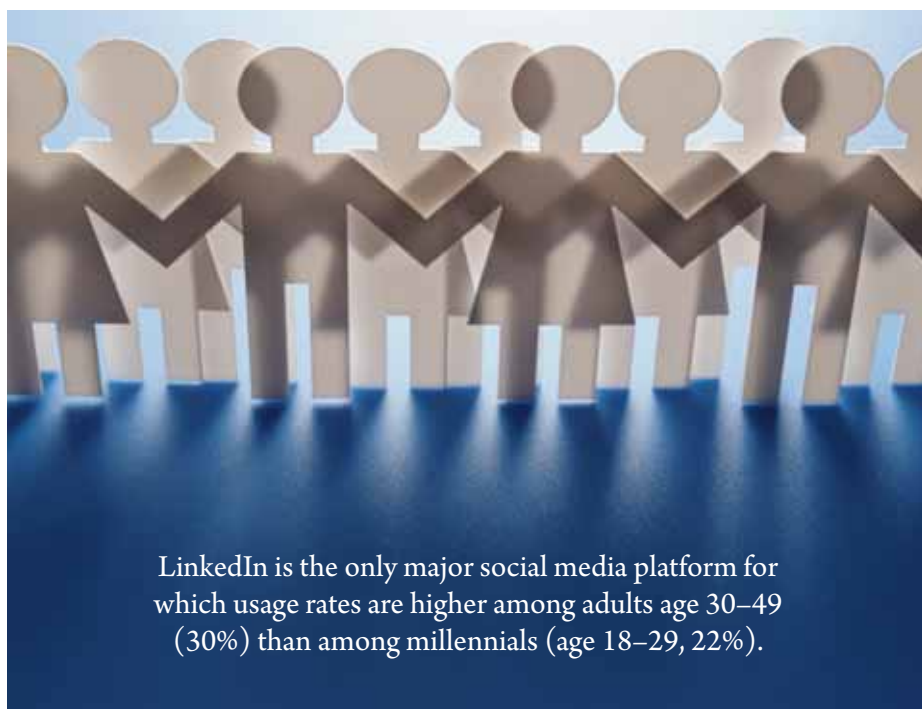
Would he think that I am accomplished, or that I lack business sense, creativity, and energy? I didn't have a single recommendation. *Would he think that no one enjoyed working with me?* I was only a member of cancer biology and PhD student groups. *Would he think that I was too entry level and therefore not an expert in the field?* My honours and award section was blank. *Would he think that I had accomplished nothing in my entire career, or would he think that my publications spoke for themselves?*

The importance of personal branding
I realised I knew absolutely nothing about marketing, branding, or networking. I had no idea how to be a professional outside of academia. I felt like a total imposter, and who was I trying to fool? My profile did not portray me as a professional. It did not sell my skills or differentiate me between the millions of other LinkedIn users or the thousands of other scientists trying to break out of the academic world. It certainly did not invite recruiters or other professionals to reach out to me with opportunities.

Needless to say, my coffee appointment with the CEO did not go as well as I had hoped. I was very much underprepared. I did not manage to gain a new client or a referral that day … but I did learn a valuable lesson about making a first impression.

Over the next few months, I made self-study a top priority. I read everything I could about building a personal brand and the secrets to networking. Given the conflicting information available on the web, I tried and tested several different strategies until I found what worked for me. I reached out to professionals with interesting career paths, and I invited them to share their stories with me. I wrote and then rewrote my LinkedIn profile until I believed what I had written about myself (this isn't easy for anyone!) Truth be told, the process of documenting my accomplishments and goals was a great exercise in soul searching. You need to think before you can write. It helped me figure out who I was professionally, and what unique value I offer clients and connections.

From postdoc to freelance medical writer
After several months, I realised that my LinkedIn profile was not my resume. *My resume represented my past accomplishments, but my LinkedIn profile represented my goals.* This was my virtual handshake for prospective clients. As soon as I optimised my profile, I started getting noticed in a big way. Companies starting reaching out to me with freelance writing jobs. I couldn't believe it: prospective clients had offered to pay me to

write! *They trusted me before we even met.* These early opportunities were a great way to cut my teeth in a new career and a new industry. I learned the basics of quoting projects, negotiating rates, managing client relationships, resolving conflicts, and developing detailed briefs *before* starting projects. All of this was done virtually.

Before I took LinkedIn seriously, I was a lonely academic who could not figure out how to make it in industry. As an introvert, I struggled to muster energy for live networking events, and I certainly couldn't build confidence and trust with people I had just met. After my LinkedIn makeover (and loads of practice), I had a better idea of what experiences from my past would interest prospective clients and contacts. As my online network grew, so did my confidence.

Over that year, I focused on growing my network in a big way, with relevant, high-quality contacts. The more I used the platform, the more I realised that I didn't have to keep sending resumes down online application black holes, I could send InMails to key opinion leaders and executives directly. Although not everyone responded, many did, and they remain valuable connections. Once I learned how to network effectively online, in-person networking events became easier to manage, too. I still collect business cards at networking events, but now I organize all my new contacts on LinkedIn, and even set reminders to follow-up every few weeks.

Take a leap of faith
By the end of 2015, I decided to walk away from all I ever knew professionally and leave the ivory tower of academia behind – for good. I founded my company, JLJ Consultancy, and formed close collaborations and partnerships with many clients in the pharmaceutical, biotech, and publishing industries for various medical writing projects. I also started coaching other PhDs on how to better manage their online presence and job search strategies – I love teaching other medical writers how to use LinkedIn to their advantage! As the demand increased, I started to subcontract projects, and manage a growing network of talented freelancers all over the globe.

In a little over one year, JLJ has grown to a group of 10 freelance writers specialising in virtually every disease state and a variety of med comms projects, scientific events, medical blogs, website copy, and more.

During my career transition journey, I learned a lot. When it comes to networking, it is a skill that anyone can learn; there is nothing to be afraid of, and there are tons of enthusiastic mentors who will help you get your footing in a new industry (and many are on LinkedIn). Most importantly: smart companies – the ones you want to work for – know their brand depends on valuable, unique, professional stories. And they do want to hire enthusiastic millennials to tell them. We've just got to get on their radar first – and LinkedIn is one very effective way to make that happen!

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Three questions to help you handle pressure

"I imagine it's very hard being a freelancer," says Pierre, a salaried employee. "I have some room to hide if I'm having a bad day, but a freelancer has nowhere to hide. You have to be on top of your game all the time."

Working for yourself can be incredibly rewarding, but it also comes with a certain amount of pressure.

Learning how to manage that pressure is an essential part of the freelance skillset. The more adept you become at it, the more passion and energy you feel for the work that you do.

Here is an exercise that can help you to do that:

''Here is an exercise that can help you to do that – every Monday morning, jot down some quick answers to the following three questions.''

1.   How much pressure am I under?
The strange thing is that when you're under a lot of pressure you don't always realise, because you're too busy reacting to whatever crisis comes your way.

In his book *Emotional Intelligence*, Daniel Goleman emphasises how important it is to be aware of how you are feeling.[1] This awareness alerts you to deal with the emotional build-up before it becomes a problem.

So, even though it sounds like an obvious question, it is worth asking yourself how much pressure you're under.

One way of doing this is to assign a score from 1-10, with 10 being the maximum. This helps you to take a step back and look at your current situation from a more objective viewpoint.

If your score is high, it acts as a reminder that you may need to be more proactive than usual in choosing techniques to release the pressure.

So what are some of the best techniques?

Antony Cockle (antonycockle.com) is an Executive Coach who helps high-performing professionals to manage stressful situations. He offers the following advice:

"If you're suffering from tiredness, procrastination, outbursts or sleep problems, they're a possible sign you may need to install a release valve. Not all release valves have the appropriate long-term effect. Many people use drugs, alcohol or tobacco as their release valve, which in the long term severely reduce their ability to deal with pressure.

"Instead we need to focus on tried and tested release valves, such as doing exercise, taking time out to watch a film or read a book, expressing concerns rather than bottling them up, taking short breaks or even a catnap in the day, and taking longer breaks such as a weekend away or a proper holiday.

"If the daily routine is too full of negative habits, or if there are no positive, nourishing habits, our batteries will eventually run low. A positive routine helps optimise performance."

There is a growing body of evidence showing that incorporating mindfulness and meditation into the daily routine can improve our ability to cope with pressure. There are many books and YouTube videos providing guidance on how to use this technique.

Vivian, who works in healthcare, says her work is so varied that no two days are the same, which makes it hard to plan. However, she tries to create a routine that provides a stable framework to deal with whatever life throws at her.

"I make time for 20 minutes of meditation and I always have breakfast; oats with raisins and pumpkin seeds and stewed apple with rice milk, every day! I'm aware of foods that build me up and those that deplete my energy. Usually I have something I can snack on mid-morning.

"This all provides me with a cornerstone, something to hang the day on. In a way it's good to surrender and react to what comes, as long as you get what matters done. It's kind of proactive and reactive. My framework is food, tea and chocolate! I have to have little treats – then I think I can do anything.

"I used to be too caught up in work and wasn't getting my personal needs met. It's important to have your personal needs met – the connections, the emotional relationships – you have to have those outside of work."

2.   What is within my control?
What are the issues concerning you this week? How many of them can you directly change or influence?

Epictetus, the Stoic philosopher born a slave in AD55, believed in focusing energy and attention on the things that fall within our immediate control.

"I can't think of a single reason why this isn't as relevant now as it was in the first century," says Antony Cockle. He adds:

"Any effort devoted to matters that are outside of our control is unproductive. For example, one of the clients I coach is passionate about her work and has a reputation for excellence, but she's often filled with dread and anxiety about failing. She begins to doubt her capabilities. Whether at home or work, everything she does has to be perfect. There is little time to relax and unwind, let go, or to just let things work themselves out. Of course, there's a personal cost – her happiness!

"She needs to give herself permission to fail. Permission to fail is not about

believing in failure. It's about detaching from the result instead of worrying about how well it will go or what could go wrong. It's best to focus on the things you need to do to complete the task to the best of your abilities – those are the things that are within your control.

"There is a specific point at which you need to let go. It isn't about discarding the necessary preparation. It's about scheduling a time to prepare, and a time to act. During the preparation time, you focus on the risks, so that you can plan for them. During the action time, you just act!"

This philosophy can also be seen in professional tennis. Players are coached to banish any thoughts of "I'm two points away from winning a grand-slam tournament" and replacing those thoughts with "bounce, hit". This doesn't mean that they haven't prepared meticulously for the championship. But once they're in it, they have to let go and just hit the ball.

Blaming others is another classic form of focusing on areas outside our control. When we blame someone or something for our situation, we are reducing our level of influence and therefore feeling under greater pressure. By taking responsibility and focusing on the things that we can influence, our enthusiasm and passion are more easily managed.

The psychologist Abraham Maslow also warned of the dangers of seeking control over others. It's impossible to control how other people think, and trying to do so creates resistance, friction and consequently more pressure. We can strive to inspire others with our ideas, but what they think of our ideas, or our work, is beyond our control. Maslow recommends being "independent of the good opinion of others." We should know when we have done a good job and not need to be told.

3. Why am I doing it?
Elon Musk is a man who understands pressure. He simultaneously runs three firms with a combined revenue of over 10 billion dollars: the electric car firm Tesla, the rocket company SpaceX and the energy company SolarCity.

Given the unpredictable nature of space flight, his rockets sometimes explode, incinerating over 100 million dollars, years of research and recently even a satellite that his rocket was launching for his client, Facebook.

He has been on the verge of bankruptcy several times and faces crisis after crisis. Yet he always seems to pull his firms back from the brink of disaster.

The intolerable levels of stress that Elon Musk endures would break most normal people.

So how is he still standing?

The answer may lie in his unshakeable sense of purpose. Musk has been quoted as saying that his overriding goal is to colonise Mars. This is what gets him out of bed every morning, come what may.

Someone who is aware of their purpose in life knows that difficult moments are part of the bigger picture. Purpose breeds tenacity and perseverance.

However, over time, our sense of purpose can become clouded by the day-to-day distractions of life. For that reason, it's important to take time out on a regular basis to revisit what we're about and where we're heading.

According to Shannon Kaiser,[2] best-selling author of *Adventures for your Soul*, the way to find a sense of purpose is to let go of the idea that there is only one purpose. Instead, remind yourself of the things that you love doing and make sure you are either doing those things, or taking action to move towards them.

References
1. Goleman, D. (2006). Emotional intelligence. Bantam.
2. Kaiser, S. Three unexpected ways to find your life purpose. [cited 2016 Oct 18]. Available from: http://www.huffingtonpost.com/shannon-kaiser/3-unexpected-ways-to-find_b_5176511.html

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Themes of forthcoming issues of **Medical Writing**

June 2017:
'Medical Devices'
This will include articles on the regulatory approval process for medical devices, preparing related documents, writing publications on clinical studies about medical devices, and other aspects of the medical device field relevant to medical writers.

The deadline for feature articles is March 13, 2017.

September 2017:
Observational studies
This will include articles on designing, analysing, and reporting observational studies.

The deadline for feature articles is June 12, 2017.

December 2017:
'Preclinical studies'
This will include articles on designing, analysing, and reporting preclinical studies.

The deadline for feature articles is September 11, 2017.

CONTACT US

If you have ideas for themes or would like to discuss any other issues, please write to **editor@emwa.org**.