Grant writing and editing

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Abstract

Grant writing and editing is a medical writing subspecialty of growing importance. This article describes the roles available for medical writers who specialise in grant proposals. It also offers seven grant-writing tips. Finally, the article provides links to information about key European funding agencies.

Are you a medical writer who likes leading-edge research and development? Do you have technical knowledge across multiple disciplines? If so, a role as a grant writer and editor may be for you. As the pressures on scientists increase worldwide, there is a need for medical writers skilled in the art of technical persuasion. Because medical writers typically pair with subject matter experts and other stakeholders, the medical writer must combine the arts of writing and editing to produce a competitive grant proposal in a deadline-focused environment. Therefore, I will use the term *grant writing* to describe both grant writing and editing in this article. The advice here is primarily aimed at medical writers who are new to grant writing, though the tips may also be useful to seasoned professionals.

The need for grant writers is increasing in Europe

Researchers in academia and industry increasingly rely on grant funding to move their work forward. One indication of an increasing need for grant writers in Europe comes from a recent interim evaluation of the Horizon 2020 project. This EU-funded innovation-centred project, which intends to deliver nearly €80 billion in funding between 2014 and 2020, is the largest EU research and innovation funding effort to date.[1] The programme covers a wide range of scientific and societal projects and is divided into three "pillars": Excellent Science, Industrial Leadership, and Societal Challenges. Between 2014 and 2016, 115,235 proposals were submitted with a success rate of 12.6%. Of the proposals rated "high quality", only a quarter were funded. Because delivering high quality science is not enough to reach the funding threshold in this competitive environment, there is an opportunity for skilled grant writers to add value by pairing with grant stakeholders.

There are also indications that organisations are seeking funding in new ways. In the Horizon 2020 report, 54% of the successful proposals were from newcomers who did not take part in the previous EU funding effort, known as

Framework Programme 7. Notably, 73% of these newcomers were private for-profit companies. Thus, there could be a large number of European organisations that are new to grant proposal writing and could benefit from partnerships with experienced grant writers.

The role of a grant writer

Where can you work?

As with many medical writing subspecialties, grant writers might work on a freelance or part-time basis or be on the full-time staff. A grant writer might partner with educational organisations, research organisations, non-profit companies, government offices, and for-profit companies. Some organisations will hire a medical writer with a bachelor's degree, but many will seek writers with advanced degrees in science or medicine. There is no accreditation specifically for grant writing, but many clients appreciate the following credentials, which show a commitment to medical writing and cover aspects of the grant-writing process:

- **Editor in the Life Sciences (ELS)** from the Board of Editors in the Life Sciences
- **Medical Writer Certified (MWC)** from the Medical Writing Certification Commission in collaboration with the American Medical Writers Association
- **Certified Medical Publication Professional (CMPP)** from the International Society for Medical Publication Professionals.

Why do they need a grant writer?

Many scientists are trained grant writers and love the process of describing their new ideas. However, some love the science but not the writing. Some struggle to communicate in English. Some have training in medicine or other professional specialties but are new to research. Some scientists are just too busy and need professional support. Furthermore, sometimes a large team will need someone to bridge gaps in communication and create a unified "voice" for the proposal. This is especially true for infrastructure proposals. Also, sometimes an administrator will be tasked with moving a proposal forward but will not have the time or expertise to make it happen. You can step in as a trained medical writer to fill these gaps and stimulate a productive research environment.

What will you do?

Grant writing is a broad topic and working with a small company can be very different from working on a multi-centre proposal within a large organisation. Also, each funder has a different set of requirements. That said, there are some overall themes in the job responsibilities. Key characteristics of an excellent grant writer include flexibility in collaboration, keen technical intuition, and exceptional time management skills.

The responsibilities of a grant writer often include the following:

- Edit and reorganise information provided by the scientific and medical specialists
  - Ensure that all aspects of the proposal conform to the funder's specifications
  - Consult on content strategy
- Write introductory sections and summaries
- Double-check the data for accuracy and consistency
- Prepare certain tables and figures.

The grant writer may also take on related roles, including the following:

- Identify new funding opportunities
- Educate stakeholders on funding criteria and best practices
- Manage milestones during grant development (especially for large grants with multiple stakeholders)
- Coordinate with administrative teams, including regulatory affairs, contract management, and finance
- Develop responses to reviewers
- Communicate with the funding agency.

A grant writer must also maintain strict ethical guidelines. For funding proposals, this includes presenting information fairly and accurately (not "overselling") and avoiding plagiarism. It is also best to avoid the controversial practice of reusing text directly from the manuscripts and grant proposals of the grant stakeholders.[2] The grant writer should also provide expertise but not take on the role of the technical expert, which is the responsibility of the grant stakeholders. In addition, it is important for grant writers to avoid

> *Reviewers want you to deliver the right information density in the clearest possible way. If you do this, you will have their attention.*

taking projects on commission, in which payment depends on the success of the proposal. Upfront payment ensures that the writer does not have financial incentives to overstep ethical boundaries. When high ethical standards are maintained, the medical writer can be a valuable and well-respected part of a research project.

Grant writing tips

A grant writer's main responsibility is crafting winning proposals. Although advice on grant writing can be found in multiple books and articles, much of the available advice is aimed at principal investigators rather than at medical writers.[3] To try to add a fresh perspective, I have tailored the advice here to medical writers in the biomedical domain. The common feature among these tips is that they are intended to help you craft a positive emotional experience for the reviewer, which can give you an edge when competing against other high-quality proposals.

1. Visualise the reader.

Most grant review tasks are unpaid and do not replace the primary work duties of the reviewers. So, as you imagine the reader, think of the highly intelligent scientist who is short-tempered at 11 pm rather than the highly intelligent scientist who is fresh and ready to tackle the day. That said, reviewers do not want you to omit information in the name of easy reading. They are technical experts, after all. Reviewers want you to deliver the right information density in the clearest possible way. If you do this, you will have their attention.

2. Use technical terminology.

Striking a balance between technical terminology and clear communication is essential for the art of grant writing. The common wisdom in medical writing is to avoid jargon. However, for grant proposals, it is essential to include the right field-specific terminology. Reviewers want to know that the research proposal is from a knowledgeable team. Furthermore, technical terms are often the most precise terms. If you are writing about an unfamiliar subfield, be sure to read key articles and educate yourself on the common terminology.

3. Use a formula for success.

It is tempting to write creatively to avoid boring the reader. However, this is almost always the wrong choice for competitive writing. If a

reviewer cannot easily find the information to compare multiple proposals, the score of your proposal will suffer. As such, it is helpful to follow a formula that guides the reader from the big picture to the details. Therefore, the introductory section of the proposal should answer the following questions, in order:

- What is the overall problem and what is the magnitude of this problem?
- What solutions have been tried and why did they fail?
- What new information/technology/strategy will be used to overcome these roadblocks?
- What are the team's credentials for working on this problem?
- What specific problem will be solved by this proposal?

4. Show, don't tell.

This technique from creative writing can also be applied to proposal writing. A grant proposal needs to accomplish many goals with a limited word count, and the medical writer is often asked to shorten long proposals. You can reduce the word count by showing the team's competence rather than asserting it. Examples include the following:

- Cite the methods used in prior work. This demonstrates that the proposed methods meet the standards of peer review and can also demonstrate the publication record of the team.
- Use workflow diagrams instead of text descriptions for complicated research designs or infrastructure programmes.
- Show the use of analytical methods (including statistics) in the preliminary data figures rather than describing the detailed analysis methods for each experiment.

5. Degrade gracefully.

This term is borrowed from computer network design. You have no control over how a reviewer interacts with the document. Ideally, the reader will start at the beginning and read all the way through. However, this ideal scenario does not happen often. Maybe they will get distracted and need to come back and find their place. Maybe they will skim the proposal first then read it more thoroughly. Maybe they will read the first page of all the grants, give the proposals a preliminary ranking, and then return to read the proposals individually. Maybe they will print the proposal on their black-and-white printer and read it on

the train. Maybe they will become intrigued by something you wrote and search the internet for more information. Will they accidentally miss a section? Will they be annoyed if they cannot find where they left off? Here are some simple ideas for helping the proposal deliver the maximum value even if the reader does not read it sequentially.

- **Use informative subheadings.** For instance, "Protein X is overexpressed in breast cancer cells" is more informative than "Results from breast cancer cells". These subheadings can help the reader quickly scan for the key points.
- **Use typography to highlight key phrases.** Highlighting figure callouts and a few key phrases can break up large blocks of text and orient the reader.
- **Be sure the figures stand alone.** Some reviewers prefer to evaluate the data before reading the text. Using figure titles, informative legends within charts, and clear statistical notation can help the reviewer understand the data at a glance.

6. Give the story a heartbeat.

It is easy for a grant proposal to be too technical or too emotional. Once again, it is important to find a middle ground. This is why, even though most traditional advice suggests giving your story a heart, I suggest giving the story a "heartbeat". Appeals to emotion are important because the reviewer needs to know why this project is going to make a broad impact. However, they should be limited and backed up with technical information. For instance, stating "Disease X causes the hospitalisation or death of 300,000 children each year in Europe" is much more convincing to a funding agency than stating "Disease X kills children" or describing the story of an individual child.

7. Consider the details.

Annoying the reader can doom even the most technically compelling grants. Therefore, it is essential for the proposal to look professional and be inviting to read. It is much better to let the document "breathe" by allowing space between lines and sections than to include every possible word. Here is a brief checklist to help you avoid pitfalls in document design:

- Is the proposal within the page limit/word limit?
- Are the fonts and font sizes acceptable?
- Are the margins correct?
- Are the heading styles consistent?
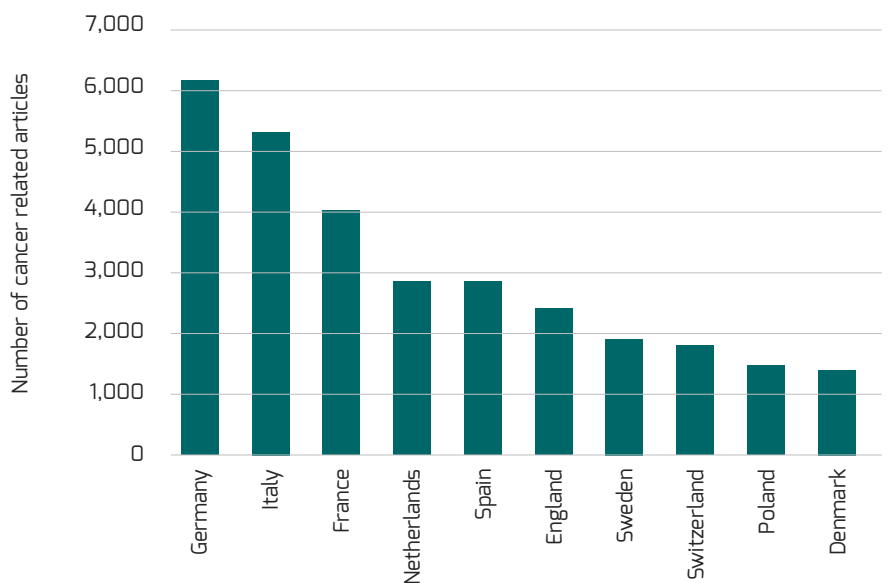
Figure 1. EU+associate countries with the largest number of cancer-related publications in the year 2017
This result is based on a bibliographic analysis of the Web of Science Core Collection (www.webofknowledge.com) Science Citation Index Expanded.

Table 1. Top funding organisations in EU+associate countries from a bibliographic analysis of cancer-related publications in the year 2017

Funding organisation	No of publications	URL
European Union	2098	https://europa.eu/youreurope/business/finance-funding/getting-funding/eu_funding-programmes/index_en.htm
German Research Foundation	1105	http://www.dfg.de/en/research_funding/index.html
Italian Association for Cancer Research	833	https://www.airc.it/english/what-we-do/how-we-support-research
Swedish Research Council	541	https://www.vr.se/english.html
Swedish Cancer Society	538	https://www.uicc.org/what-we-do/capacity-building/grants-and-fellowships
Cancer Research UK	446	https://www.cancerresearchuk.org/funding-for-researchers/our-funding-schemes
Carlos III Institute of Health (Spain)	353	http://www.eng.isciii.es/ISCIII/es/contenidos/fd-el-instituto/quienes-somos.shtml
Dutch Cancer Society	350	https://www.kwf.nl/english/Pages/Financing-research.aspx
Foundation for Science and Technology (Portugal)	336	https://www.fct.pt/apoios/
Swiss National Science Foundation	329	http://www.snf.ch/en/funding/Pages/default.aspx
Medical Research Council (UK)	258	https://mrc.ukri.org/funding/

- Are the figures legible at the current size?
- Are the figures legible for colour blind readers?
- Are the figures near the text that calls them?
- Have any editing marks and comments been removed?
- Are the references formatted correctly?

How do you find out more information?

To provide an overview of the major funding sources in Europe, I performed a bibliographic analysis using the Web of Science Core Collection (www.webofknowledge.com) Science Citation Index Expanded to find articles published in the year 2017 with the keyword "cancer". Cancer was chosen because it is an important global health problem and an active topic of research across Europe.[4] The article list was filtered to only include articles with at least one author from the 28 EU countries plus the 16 additional countries associated with Horizon 2020 (Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Georgia, Iceland, Israel, Macedonia, Moldova, Montenegro, Norway, Serbia, Switzerland, Tunisia, Turkey, and Ukraine). This set will be called the EU+associate countries. Figure 1 shows the 10 EU+associate countries with the largest number of publications in this filtered list of 28,944 articles. Of these articles, 20,099 contained information about funding sources. Table 1 shows the top funding agencies in EU+associate countries based on the number of publications, and it provides links to the agency funding websites. The EU was the primary funder, followed by national agencies.

Other funders included for-profit companies, non-EU+associate country agencies such as the US National Institutes of Health, and many small funding organisations. This bibliographic approach could also be useful for evaluating candidate funding agencies in specialised subfields.

Conflicts of interest

The author declares no conflicts of interest.

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Author information

Nancy Linford, PhD, MWC, has been a medical writer since 2014. Before that, she was an academic scientist writing grants to fund her own research. She has worked on over 100 funding proposals, helping clients achieve millions of US dollars in funding.