The Write Stuff
Advice on writing grants and research articles from The Research Medical Library

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In this issue…

Next steps after grant rejection

– Amy Ninetto

Getting bad news about a grant application is discouraging, but for most funding opportunities, applicants whose original application is rejected have the option to prepare and submit a resubmission. In a recent All About Grants podcast and a session of the US National Institutes of Health (NIH) November 2021 Virtual Seminar on Program Funding and Grants Administration, NIH program officers offered helpful advice for preparing a resubmission. The program officers' advice can be summarized into 10 steps to take to help improve your chances of getting your resubmission funded. Although the advice here is from NIH, much of it also applies to dealing with grant rejections from other funders.

1. Take a few days after receiving your summary statement to calm your emotions. Don't take criticism personally. As Dr. Kristine Willis, Program Officer at the National Cancer Institute, remarked, "It's not that [the reviewers] don't like you… It's not that they don't like your science. They just didn't like this particular arrangement of words on the page."

2. Make a plan. Read the summary statement carefully and start making a plan for resubmission. Think about what you could do fairly quickly to address reviewers' concerns—for example, rewriting unclear sections, reviewing additional literature, conducting additional statistical analyses, or performing some straightforward lab work—and what might take longer.

3. Reach out to your program officer. The panelists stressed that investigators planning a resubmission should always contact their program officer. According to Dr. Jennifer Troyer, Program Officer at the National Human Genome Research Institute, program officers see thousands of applications and understand what drives reviewers' scores. In addition, they attend study section meetings, so they may be able to give you a more nuanced account of the perceived strengths and weaknesses of your original application than the summary statement does.

Don't cold call your program officer; instead, email them to set up a time to meet virtually or by telephone. If you can, email them specific questions or concerns or an outline of your plans for revisions so that they can prepare for your conversation.

4. Keep up with your field. Revised grants usually must be submitted within 37 months of the original application. Keep in mind that, as noted by Dr. Shawn Gaillard, Program Officer at the National Institute of General Medical Sciences, "science moves at warp speed." Especially if a lot of time has passed since your original submission, your resubmission should demonstrate that you have read recent literature and kept up with new technology in your field.

5. Respond thoroughly and professionally. Dr. Sige Zou from the NIH Office of Research Infrastructure Programs stressed that "your resubmission should be highly responsive." Resubmitted applications are reviewed by the same study section as the original application; they may not have the same primary reviewers, but those reviewers may still be members of the study section. Reviewers of resubmitted applications have access to the summary statement for the original submission and do consider whether the previous reviewers' concerns have been adequately addressed.

In the introduction page to your resubmission, summarize the reviewers' criticisms and then address them all politely and constructively. (See "Tips for writing Introduction sections for NIH resubmission grant applications," *The Write Stuff*, Summer 2017.) Dr. Zou advised that if you can't address a concern or disagree with it, the introduction should provide the reasons why—don't simply ignore such criticisms. (See "How to disagree with an NIH research grant proposal review," *The Write Stuff*, Winter 2019.) The introduction should also clearly indicate what has changed in the resubmitted proposal. The NIH no longer requires you to mark changes in the Research Strategy document.

6. Seek advice from mentors and colleagues who have been through the resubmission process and those who have served on study sections. People outside your field can often help you review your application for clarity. The INTEREST program at MD Anderson holds mock study sections in which MD Anderson faculty review and provide feedback on grant proposals. Editors

in the Research Medical Library can also help improve the readability and organization of your proposal.

7. Work with your strengths. "I'm always telling people…to not just focus on what was said that was negative, but also remember to focus on what was said that was positive and build off of the positives," said Dr. Troyer. Dr. Amanda Melillo, Program Officer at the National Institute of Dental and Craniofacial Research, recommended revising the weaknesses identified by reviewers while being careful not to change elements the reviewers liked. It's also important not to remove important details from the original to save space. Highlight your ongoing work by including new findings or new preliminary data.

8. Reread the Funding Opportunity Announcement (FOA). Revising a grant proposal can take some time. Many NIH FOAs expire after 3 years, so make sure that the FOA still applies at the time of your resubmission and hasn't changed. (See "NIH tip: Check your funding opportunity announcement 30 days before submitting your grant application," *The Write Stuff*, Spring 2019.) Most FOAs allow resubmissions, but a few do not, so also check to make sure the FOA to which you are applying does so.

9. Avoid common errors. The panelists mentioned several common errors that reduce your chances of receiving a fundable score, among them not contacting your program officer and failing to respond thoroughly to the reviewers' comments. Dr. Willis also advised investigators preparing a resubmission not to miss "the forest for the trees"—that is, not to focus on technical details to the extent that the bigger picture of the reviewers' critiques of the project is not addressed. Finally, the panelists discussed the importance of clear communication, including visual communication. The text should be clearly written, be well organized, and use—but not overuse—bold text to highlight important points and review criteria. Paragraphs should be fairly short and tightly focused. Figures and legends should be clear and readable, and the page layout should make good use of white space.

10. Don't give up. All of the panelists emphasized that, in most cases, it's a good idea to revise and resubmit an unfunded proposal—even if it wasn't discussed. "All of us have seen an application go from not discussed on the A0 [original submission] to scored in the fundable range on the A1 [resubmission]," noted Dr. Willis. NIH data show that resubmitted applications have higher success rates than initial submissions do. Unless the reviewers had major problems with several of the review criteria, in which case you may need to reconceptualize the entire study, try again. "The only way to not get funded is not to apply," remarked Dr. Gaillard.

Sources

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Resources on new NIH policy for data management and sharing

– Bryan Tutt

Since 2013, the US National Institutes of Health (NIH) and other federal agencies have required data management plans for all federally funded research (1). These plans must include provisions for the long-term storage and sharing of data. Over the years, it became clear that applicants for NIH grants needed more guidance on creating data management plans.

To provide specific instructions and to improve the reproducibility of NIH-funded research (2), NIH in 2020 announced a revised data sharing and management policy, which since has been revised on the basis of public feedback (3). The final policy (4) will go into effect for all grant proposals submitted to NIH with due dates of January 25, 2023, and later. The policy also goes into effect on this date for contract proposals and other funding agreements.

To help researchers familiarize themselves with these updates, NIH recently rolled out a website (5) that describes the new data sharing policy in detail and clarifies definitions of key terms such as scientific data, data management, data sharing, and metadata. This website provides information about how the new policy applies to various types of research (e.g., genomics studies, clinical trials) and an extensive list of NIH-supported scientific and genomic data repositories.

The website also provides details on how to write a data management and sharing plan for NIH grant proposals. In general, the data management and sharing plan can be up to 2 pages long and is part of the Budget Justification section of the grant proposal. The plan should include the following elements:

- **Data type**, which may include the modality (e.g., imaging, survey), amount (e.g., number of participants or animals), level of aggregation (e.g., individual, aggregated, summarized), and level of data processing; which data will be preserved and shared (and the rationale for this decision); and a list of metadata and associated documentation (e.g., study protocols, data collection instruments)
- **Related tools, software, and/or code**, particularly those needed to access the shared scientific data or to support replication
- **Standards** that will be applied (e.g., data formats, data dictionaries, data identifiers, definitions)
- **Data preservation, access, and associated timelines**, including the repository(ies) where data will be stored, how the data will be found (e.g., unique identifier, standard indexing tools), and when and for how long the data will be shared
- **Access, distribution, or reuse considerations**, such as informed consent, applicable federal/state/Tribal legal restrictions (e.g., privacy and confidentiality laws), and whether access to data from humans will be controlled
- **Oversight of data management and sharing** (e.g., how compliance will be managed and monitored)

Additional information related to data management, sharing, and storage is available through the Research Medical Library's Data Management site.

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What should you include as supplemental material?

– *Madison Semro*

Authors of biomedical articles often must divide content between the main text and supplemental material. Some may struggle with this decision, especially when it comes to tables and figures.

Supplemental material is content directly relevant to the conclusions of an article that cannot be included in the main content because of size and/or medium restrictions (1). In journals that publish online and in print, the main text is published online and in a print version, while supplemental material is usually published only online. Examples of supplemental material include audio files, video clips, detailed descriptions of methods, and large data tables.

According to the National Information Standards Organization (NISO), there are two categories of supplemental material: integral supplemental material, which is essential to understanding the conclusions of an article, and additional supplemental material, which is relevant expansions to an article that are not essential to understanding it (1). However, journals differ in how they apply these definitions, so you should consult your target journal's guidelines for supplemental material. For example:

- *Cancer* limits how many tables and figures authors can submit for publication with the main text, but the journal allows authors to submit additional tables and figures as "online-only supporting information," which is "not essential to the article but provides greater depth and background."

- JAMA Network journals accept supplementary material such as methods descriptions and additional figures that are "important to the understanding and interpretation of the report." However, specific allowances depend on the manuscript type. For example, for research letters, supplemental material for the methods but not the results may be submitted.
- *Cell* permits publication of materials that provide secondary support to the paper's main conclusions and cannot be otherwise included owing to file type or space restrictions. The materials should "create conceptual associations with the items in the main paper in order to give a complete picture." Published examples include control data, methods validations, media files, and code snippets.

Authors should also note that supplemental material typically receives less attention than material in the main text because of time and size restraints (2). Supplemental material is not always reviewed during the peer-review process, edited by the journal's editorial staff, or viewed by readers. According to a survey by the *BMJ*, only 27% of readers routinely read the entire supplemental material (3). Thus, NISO warns that "content that is a critical part of the evidence for the article's conclusions can be lost to future readers if it is indiscriminately grouped with other less crucial materials surrounding the article" (1).

Furthermore, different kinds of content are perceived differently when encountered in the supplemental material. In the *BMJ* survey, 60% reported finding supplemental figures and tables to be the most valuable type of supplemental material (3). In contrast, readers found raw data to be the least useful. Respondents, who also included authors and peer-reviewers, also indicated that some supplemental material, such as descriptions of a study's methods, became much more valuable if a reader was considering replicating the protocol.

In general, material that you find most vital to understanding your findings should be placed in the main text because that is where all readers will encounter the material. However, no universal approach exists for determining what material should be considered supplemental. It is up to your best judgment and, in many cases, the final call of the journal editor.

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Tips for collaborating with manuscript authors online

– Don Norwood

Working with other authors on a manuscript is a rewarding experience when your article is published. Getting to that point can be an arduous effort, though, particularly if you do not have a plan for file management and collaboration with your colleagues.

Performing any study in the lab or clinic requires a substantial amount of preparation. Once the study is complete, writing the report of your findings requires a lot of preparation as well. This consists of several practical steps described below that will help you and your fellow authors efficiently write and modify the manuscript. Also included are some options for managing projects that are more extensive than manuscripts.

The master copy
The lead author should keep the master copy of the manuscript. The lead author should also be the only one to make the final edits and changes to this copy before submission to the journal. Maintaining a master copy will allow the lead author to track and consider all proposed changes systematically during all stages of the writing process.

Workflow
Determine the order in which all authors read and comment on each draft of the manuscript. This will make the writing process efficient and organized and help the authors fit writing and editing into their other responsibilities.

Making changes
The authors should agree on how to submit comments, changes, and edits to the lead author. This frequently consists of using the Comments and Track Changes features in Microsoft Word. Under your Track Changes options, be sure to set the color for all markup items to “By author”. This will ensure that the lead author knows who made the changes to the draft.

In addition, the lead author can have each co-author send a list of suggested changes to each draft. The lead author can then make all the changes to the master copy, which is a lot of work but will keep the lead author from missing any changes.

Draft naming
Use a document naming system for all of the drafts of your manuscript. Any system that works for you should be okay, but one that includes the draft or version number as well as the author’s name or initials is optimal. For example, “studyreport_v1_DN” consists of the name of the manuscript followed by the version number and author’s initials. Although it will lengthen the document name even more, authors can also add the date they submit the draft to the lead author.

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Authors frequently use e-mail to distribute drafts of their papers to each other. Given the volume of your e-mail inbox, however, adding to it might be the last thing you want. A good alternative is to use an online file sharing system. The obvious choice at MD Anderson is OneDrive. In OneDrive, you can create a folder (with subfolders) that will serve as a repository for all of the drafts of your article. Another online file sharing system used at our institution is SharePoint, although it is better suited for larger writing projects such as SPORE grants and books.

Author meetings
Although they're not always feasible, author meetings can keep writing projects on track and make sure all of the authors maintain their focus. If you do have such meetings, designate someone to take notes on or minutes of the meetings and store them in your online file sharing system.

Project management
If organization and communication among your colleagues are high priorities, you can use a project management software application when writing your manuscript. These applications include Basecamp, Asana, and Trello. As with SharePoint, project management software probably works better with writing projects larger than manuscripts.

High-quality research findings can be wasted if they're not reported well. Having a plan for file management and collaboration among authors will go a long way toward making sure that you describe your study effectively.

Sources

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Unusual terms used in scientific writing and publishing: Overlay journal

– Sarah Bronson

Overlay journals are an open-access publishing model in which a journal selects articles that have been archived on public open-access repositories and links to these articles or mirrors them on its website, helping expand the articles' reach (1). While overlay journals do not themselves produce articles, most perform peer review before acceptance. This model has arisen in part as a response to inequitable costs and access in scholarly publishing (2). Because of the low overhead made possible by relying on existing repositories, several overlay journals have no article-processing charges (1, 2).

Only a small number of overlay journals are active, and the majority of articles in these journals are in computer and information sciences and physical sciences (1). Two examples of overlay journals focused on medical sciences are *eLife* and *JMIRx Med*. *eLife* considers only research articles that have been uploaded to a preprint server, and it uses peer review. It has been an open-access journal since 2013 and transferred to the overlay model in 2022. The publication fee for *eLife* is $3,000 but may be waived on a case-by-case basis.

JMIRx Med has no article-processing fees; costs are covered through a network of preprint servers, peer-review services, and journals, a model known as Plan P. *JMIRx Med* uses what its editor-in-chief calls an editorial prospecting platform, through which reviewers and editors find papers on preprint servers and extend offers of publication to the authors. Authors also may submit their preprints in a more traditional manner or be solicited to write reviews or commentaries. *JMIRx Med* is part of a series of overlay journals launched in 2019, JMIRx, which includes *JMIRx Bio* and *JMIRx Psy*; the three correspond to the preprint servers medRxiv, bioRxiv, and PsyArXiv, respectively.

Although their presence in biomedical publishing is currently limited, overlay journals are an innovation to watch.

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Important upcoming dates:

- **August 24, 2022** – Deadline to submit your (1) INTEREST Intent Form and (2) PDF copy of the Abstract of the grant to INTEREST@mdanderson.org
- **August 31, 2022** – Full application submission deadline. Please submit a single PDF that includes the proposal: abstract, aims, significance, innovation, research strategies, references, and biosketch of PI and other key personnel (the standard NIH format except the budget pages).
- **September 14, 2022** – INTEREST Review Meeting. The INTEREST study section will meet on May 14, 2022, to review grants.

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