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Resources for making your research more rigorous

– *Sunita Patterson*

In the past few years, the NIH has significantly increased its emphasis on the “rigor and reproducibility” of the research it funds. Supporting this priority, the National Institute of Neurological Disorders and Stroke (NINDS) is leading a transagency effort to help teach principles of rigorous research.

NINDS kicked off the effort with an October 2018 workshop titled “A Visionary Resource for Instilling Fundamental Principles of Rigorous Neuroscience Research” ([videos](#) and [written report](#) available). The goal was to “identify key elements necessary for teaching fundamental principles of rigorous research and for building an educational resource that could be widely implemented.”

Arising from the workshop was an initiative to create a free online educational platform. Thus far, the organizers have compiled a [helpful table of resources](#) related to rigorous research. It includes books, articles, videos, guidelines, courses, and digital resources.

The resources in this table can help improve both the conducting and the reporting of rigorous research. As editors in the Research Medical Library, we often see peer reviewers asking for more information about how groups were defined, what controls were used, how materials were authenticated, and how interventions were performed. But we've never seen a reviewer comment that a study was done with too much attention to such details.

On the [same web page](#) as the table of resources, the NINDS is recruiting enthusiastic "Rigor Champions" throughout the biomedical community. Anyone—from student to researcher to institutional leader to journal editor—is invited to engage in intra- and inter-institutional efforts to share resources and promote best practices.

For more information about rigor and reproducibility, see our previous *The Write Stuff* article, [Guidelines for reporting your research methods to improve reproducibility and rigor](#) (Autumn 2019).

Best practices for presenting with Zoom

– Laurissa Gann and Mark Picus

Last year, we were suddenly forced to become experts on educational technology and on teaching and learning online. Many products are available to help us connect, teach, and learn while we are not able to do these things in real space, but it is likely that we will continue using these platforms after we return to a more normal working situation. With this in mind, we, at the Research Medical Library, humbly present our best practices for being a savvy Zoom presenter and Zoom participant.

Prepare yourself

The first thing you must do as a good presenter, whether online or in a live classroom, is prepare yourself.

- Reduce distractions in your physical space by removing anyone or anything that may distract you. Consider moving your cell phone to another room and unplugging the land line (if you still have one). If there are other people or pets in your home, have a plan in place for mitigating interruptions.
- Remove visual clutter from your background. A messy closet or unfolded laundry behind you may distract your attendees. Even a neat shelf with mementos or books can be distracting. (Consider replacing that copy of *Fifty Shades of Grey* with *War and Peace*.)
- Make sure your materials are readily available. Consider creating one folder on your desktop for all your presentation-related materials so you aren't fumbling around during the session.

- Practice your presentation ahead of time, preferably numerous times. Seamless transfers between a PowerPoint slide, other documents, and your own talking head can help the attendees focus on your message, rather than on your lack of tech skills.

Prepare your virtual space

Presenting in a virtual environment requires a bit of juggling and a good amount of tech fluency. However, you do not have to be a tech wizard to present online. There are many things you can do to prepare your virtual space so that you present your best self to an audience.

- Have a Zoom buddy who can take care of the technical details that arise before and during your presentation. Online, the potential problems that audience members might have—difficulty logging in, problems with the audio, inability to see a shared screen (we could go on and on)—are numerous, and the presenter cannot solve them all. A Zoom buddy can work through these issues while you continue your presentation.
- Check your Zoom settings. Make sure that you have enabled all the features that you will need during the course of your presentation such as [file sharing](#), [nonverbal feedback](#), [sound notifications](#), [waiting rooms](#), and [allowing participants to join before the host](#).
- Adjust your webcam so that you appear present and engaged. Remember that if you are looking at your webcam, the audience will perceive that you are looking at them. Face your camera at all times. If you find your eye wandering to your own video, try pinning the video of a specific attendee top and center and looking at that attendee's video; each individual will perceive that you are looking at them.

Prepare your attendees

Getting your space ready and getting yourself ready for an online presentation are not your only preparatory tasks. You also need to get your audience ready by setting expectations for how they will communicate with the hosts or panelists. The more your audience knows what to expect, the more successful your presentation will be.

- Have a strategy for managing audience questions. Live questions from an online audience can easily get out of hand; however, you can let your audience know that questions should be entered in the Q&A format (Zoom webinars), through a raised hand, or in the chat box. You may want to assign a Zoom buddy to monitor the chat while you are presenting. This can be a colleague, or you might ask for a volunteer from the audience.
- The chat feature is wonderful in Zoom, but it can also lead to side conversations and well-intentioned but distracting comments. With Zoom you can allow attendees to chat privately with one another, publicly with the entire room, or just with the host. Consider blocking the ability of attendees to send messages to the whole room. These often add very little to the presentation and can be intrusive. As mentioned above, consider using the Q&A client if you have access to Zoom webinars.

- Remind attendees about their sound controls (i.e., Mute/Unmute). Online discussions in which more than a few people are participating at once are very difficult to control and should be avoided if possible.
- Set expectations for camera use. Cameras can be valuable tools for small seminars or classroom presentations, but they can also be distracting in a large meeting or session. Additionally, webcams take up bandwidth and slow the speed of the meeting room.
- Finally, consider requiring registration so that attendees can receive relevant materials ahead of the class or meeting. Providing materials ahead of time not only will help attendees be prepared but also is a convenience for those who may want to print the documents and for those who may use assistive technologies to read the materials.

Research articles: Establishing authorship and author order

– Kate Krause

The average original research paper has five authors, and this number is steadily growing. Many large collaborative research projects now list several hundred authors. Who is considered an author and in what order should authors be listed?

Several publishers and international entities have established guidelines on who should be listed as an author and who should be listed as a contributor. Many journals, such as *JAMA*, now follow the authorship recommendations established by the [International Committee of Medical Journal Editors](#) (ICMJE). To be listed as an author, the ICMJE requires contributors to:

- Make substantial contributions to the conception or design of the work or to the acquisition, analysis, or interpretation of data for the work.
- Draft the work or revise it critically for important intellectual content.
- Give final approval of the version to be published.
- Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Contributors who do not meet all four criteria should be listed in the Acknowledgments or Contributions section of the article.

Since authors can contribute in widely different ways, several journals, such as *Nature*, now require all authors to sign author contribution statements specifying their roles in the publication. These roles are listed in the article and specify who obtained funding, performed the experiments, analyzed the data, and more. This ensures that readers understand how each author contributed to the article they're reading.

The order in which authors are listed can also help readers understand the authors' roles. Different fields and countries have slightly different conventions, but in biomedical literature, the first author is usually the person who has contributed the most to the work, and the last author is the principal investigator. In between, the other authors are listed in the order of importance of their contribution, from most to least important. Agreeing on this order can sometimes be difficult. Clear communication about authorship is the key to preserving collegial relationships and preventing authors from becoming dismayed or angry if their places in the list of authors are changed without their knowledge. (See "[MD Anderson's Ombuds Office: helping researchers avoid and resolve authorship conflicts](#)," in the Summer 2009 issue of *The Write Stuff*.)

It's essential that groups who write articles together agree about author order as early as possible at the beginning of the project. The agreement should include not only each author's place in the list but also the work that each has agreed to perform. It's a good idea to record this authorship agreement in writing so that faded memories don't make for bad relationships. (See "[How to manage conflicts with your co-authors](#)" in the Autumn 2014 issue of *The Write Stuff*.)

The list of authors can also change during the writing process. Authors may be added or removed or may contribute more or less than they originally agreed to. When this happens, research groups should review the original authorship agreement, revise it as necessary, and make certain everyone involved is aware of the changes.

Establishing authorship and author order can be more complicated than anticipated, so don't wait until after the manuscript has been written. No one wants to delay a submission because of disagreements about who should be included as an author or how author names should be ordered.

Unusual terms used in scientific writing and publishing: Megajournal

– Bryan Tutt

The dawn of the 21st century saw tremendous changes in scientific publishing as many journals moved to online formats and the open access model was introduced (1). These changes brought about the rise of the *megajournal*, which is loosely defined as an online, open access journal with a broad subject scope and editorial standards that focus on the robustness of the science rather than the importance of the findings (2).

In addition to having a broad range of subject matter, megajournals tend to have high manuscript acceptance rates. These traits enable them to publish more articles than journals that narrow their scope by specialty or by the potential impact of the research. For example, [PLOS ONE](#), which launched in 2006 and is considered the first megajournal, accepts between 45% and 50% of articles submitted each year. According to [Journal Citation Reports](#), *PLOS ONE* published

10,942 research articles in 2019. By comparison, *Journal of Clinical Oncology*, a more specialized journal, accepts between 10% and 15% of submitted articles each year and published 271 research articles in 2019. As one would expect, the megajournal's larger number of publications and less selective editorial approach yields a low journal impact factor (3, 4): In 2019, *PLOS ONE*'s impact factor was 2.740, whereas the *Journal of Clinical Oncology*'s was 32.956.

The decision whether to publish in megajournals, such as *PLOS ONE* or *Scientific Reports*, depends on several factors, including the nature of one's research and one's target audience. Information about the process of selecting a journal is available from MD Anderson's [Research Medical Library](#).

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Editing services

The scientific editors in the Research Medical Library help MD Anderson faculty and trainees get published and get funded. We provide a wide range of editorial, educational, and publishing services, free of charge, to the MD Anderson community, including

- editing grant proposals and research articles;
- providing one-on-one consultations with authors at any stage of the writing process;
- teaching workshops and giving lectures on writing research articles and grant proposals;
- teaching scientific English for non-native speakers;
- providing writing advice and support, including [online writing advice](#).

For more information about our editing services and how to use them, please visit [Our Editing Services](#), or contact us at RML-Editing@mdanderson.org

Upcoming events for authors

Please see the [Research Medical Library Classes & Events Calendar](#) website for more information on our educational courses.

Writing and Publishing Scientific Articles (WAPSA). WAPSA is a structured, practical, in-depth writing-education program for postdoctoral fellows and clinical trainees at MD Anderson taught by editors in the Research Medical Library. This workshop, currently being offered via Zoom online, provides an excellent opportunity for advancing participants' skills in writing and publishing research articles while developing their in-progress manuscripts under the guidance of scientific editors.

The following upcoming online sessions begin at 2:00 pm.

February 2, 2021: [Abstract and Title](#)

February 4, 2021: [Cohesion and Clarity](#)

Registration is required through the Research Medical Library. Details: John McCool (jhmccool@mdanderson.org).

K99/R00 Workshop. The Research Medical Library is now offering an online course on writing an NIH K99/R00 grant proposal. Over the course of six 1-hour modules, scientific editors will provide practical advice on writing the Candidate Section, Specific Aims, and Research Strategy of a K99/R00 application.

[Registration](#) is required and is limited to 75 participants. To streamline and simplify the registration process, the six separate modules of this session are set up as a series; registration for one module will register you for all six. You can attend any or all modules. The course will be repeated every few months, and those who attend all six modules will be awarded a certificate of completion.

The following upcoming online sessions begin at 1:00 pm:

February 15, 2021: Candidate Section, Part 1

February 22, 2021: Candidate Section, Part 2

March 1, 2021: Candidate Section, Part 3

March 8, 2021: Specific Aims

March 15, 2021: Research Strategy, Part 1: Significance & Innovation

March 22, 2021: Research Strategy, Part 2: Approach

Registration is required through the Research Medical Library. Details: John McCool (jhmccool@mdanderson.org).

Webinars Presented by the Research Medical Library. The Research Medical Library continues to host a series of webinars on various topics. Webinars previously presented and recorded are available [here](#). Links to upcoming webinars will be posted as they become available on the [Research Medical Library](#) website.

Online Courses in Scientific English for Non-Native Speakers of English. The Research Medical Library offers two online courses for non-native speakers of English on the Study@MDAnderson platform. Both courses are **self-study** and **self-paced**, but students have access to an instructor (Dr. Mark Picus) for support and questions. For more information and to register, please click [here](#).

EndNote: Basics. EndNote is a software tool that helps to store and manage your citations when writing a paper. Attend this class to learn the basics of EndNote such as how to:

- Add references to EndNote
- Organize references in groups
- Insert and delete citations in Word

Upcoming online session:

[February 11, 2021, 10:00 am](#)

INTEREST Program. The INTEREST program is a series of mock study sections that leverage the expertise of experienced MD Anderson faculty in writing fundable research proposals. It involves a rigorous review of extramural grant proposals to improve, critique, and offer experience in the grant review process, from the applicant's and the reviewer's points of view. For more information, contact INTEREST@mdanderson.org.

Important upcoming dates:

April 19, 2021 – Deadline to submit your (1) [INTEREST Intent Form](#) and (2) PDF copy of your grant abstract to INTEREST@mdanderson.org

May 1, 2021 – Full application submission deadline. Please submit a single PDF that includes the proposal: abstract, aims, significance, innovation, research strategies, references, biosketch of PI and other key personnel (the standard NIH format except the budget pages).

May 14, 2021 – Online INTEREST Review Meeting. The INTEREST study section will meet on May 14, 2021, to review the grants.

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