

# SCIENCE EDITOR



*A PUBLICATION OF THE COUNCIL OF SCIENCE EDITORS*

## IN THIS ISSUE:

THREE APPROACHES TO SUPPORT REPRODUCIBLE  
RESEARCH ENGAGING EARLY CAREER SCIENTISTS  
WITH HANDS-ON PEER REVIEW THE EDITOR'S ROLE  
IN AVOIDING GENDER BIAS



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# SCIENCE EDITOR

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On the cover: Detail from "Fractal Tree No. 4" by Dr Robert Fathauer, whose work can be found on his website <http://robertfathauer.com> and on Twitter "[@RobFathauerArt](https://twitter.com/RobFathauerArt)". "Fractal Tree No. 4" is a "digital artwork constructed by graphically iterating a photographic building block created from photographs of the lower branches of a sage bush. The spiral forms result from the repeated combination of shrinkage and rotation." © Robert Fathauer, reprinted with permission by the artist.



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# Stop, Collaborate, and Listen: Working Together to Enhance a Scientific System Under Pressure

**Jonathan Schultz**

*"No crisis... but no complacency."*

In late September 2019, the National Academies of Sciences, Engineering, and Medicine (NASEM) convened a workshop<sup>1</sup> in Washington DC "to discuss the current state of transparency in reporting pre-clinical biomedical research" entitled "Enhancing Scientific Reproducibility through Transparent Reporting." The workshop is part of a larger NASEM committee project exploring the role of "Reproducibility and Replicability in Science"<sup>2</sup> that generated an excellent report on ongoing efforts and recommendations to improve reproducibility, replicability, and overall confidence in science.

As I described in my October 2019 Newsletter,<sup>3</sup> the report defines reproducibility narrowly, in a way that is sometimes referred to as computational reproducibility: being able to take the same data, code, methods, and any other variables and produce the same interpretation and conclusions. Replicability is defined as being able to generate consistent results across studies using different data but trying to answer the same question; for example, a drug trial that shows effectiveness in one population should be just as effective in a similar population. In both cases, in order to reproduce or replicate the original study, independent researchers need comprehensive knowledge of all specific methodological details that produced the results, as well as access to data, codes, and experimental materials. This past decade has brought a renewed focus on how science is conducted, along with frequent high-profile retractions and instances of scientific fraud, leading to much discussion of a "Reproducibility Crisis" that is afflicting science.

Into this terrain, the NASEM committee has ventured and the quote that starts this article comes from Committee Chair, Harvey Fineberg, and summarizes the findings of the report: calling it a reproducibility "crisis" is a bit overblown, but that doesn't mean that we can be complacent either.

Who "we" is in this context is important and a key feature of this workshop. The National Academies is possibly unique in its ability to bring together all the stakeholders in the scientific research endeavor: journals/publishers, institutions, funders, and the researchers themselves. What follows are some of the key takeaways, at least in my opinion.

## Journals/Publishers

Journals and publishers have an essential role in helping to enforce appropriate and consistent transparency both in published research and in the review and publication process. Greater transparency can, in turn, expose problems, both unintentional and malicious, aid in reproduction/replication, and (hopefully) boost public trust in science. Some of the steps that were discussed that journals can take include the following:

- *Improve the Quality of Published Methods.* If reproducibility and replicability are essential to good science, then Methods sections have to be easy to follow and contain sufficient information to enable replication of the study without requiring weeks of back and forth with authors. Methods sections are like recipes, but if every recipe required that you consult three other cookbooks, order ingredients that take months to arrive, and personally contact Julia Child to clarify important details (good luck with that), no one would ever cook for themselves. While some journals have taken the extra step of independently reproducing research prior to publication (see, e.g., the American Journal of Political Science<sup>4</sup>), that is not feasible for many types of research; however, journals can insist that methods are as transparent as possible and include a technical review of manuscripts to ensure compliance. There are also an increasing number of repositories and services for protocols and source code that allow journals to increase transparency without increasing word count.

***The point of a checklist is not simply to check the boxes, but to communicate expectations to all involved.***

- *Use Checklists and Guidelines.* Reporting and methodological checklists, such as those promoted by the EQUATOR Network,<sup>5</sup> can be controversial: the thinking being that they provide a false sense of security and another administrative bureaucracy. While this can be true if the checklist is thought of as an end unto itself, when integrated into the review process as part of a larger framework and as a tool for establishing norms, it can be an effective component in improving

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transparency. The point of a checklist is not simply to check the boxes, but to communicate expectations to all involved. Checklists tell authors what elements need to be included in their articles, give editors and reviewers an outline for reviewing methods, and provide easy-to-understand quality checks for nonscientists, including editorial staff. It's for this reason that the authors of the new set of minimum standards<sup>6</sup> for research materials, data, analysis, and reporting (MDAR) explicitly refer to what they are developing as a framework, of which a checklist is simply one component.

- *Require Availability to Data and Materials.* In addition to knowing exactly how a study was conducted in order to reproduce or replicate it, researchers need access to the primary data and materials used in that study. While there are some legitimate reasons that data cannot be shared, many journals are moving to make data sharing the norm, with only a few explicitly stated exceptions allowed. For journals not ready to make public data availability a requirement, even requiring disclosure of data availability can change research practice. When authors must explicitly state in their article that they will not make their data available, as required by level 1 of the TOP Guidelines,<sup>7</sup> it may cause the journal to question why that is the case. For materials, journals can require or encourage authors to deposit their materials in repositories such as Addgene or The Jackson Laboratory<sup>8,9</sup> and use persistent standardized identifiers to ensure the correct materials are being used. As a bonus to authors, depositing materials saves authors from having to prepare them for anyone who comes asking.
- *Be Open to Transparency Innovations.* By transparency innovations, I mean as an example, new modes of peer review, such as incorporating preprint servers and registered reports, along with more open communication, such as transparent peer review. Preprint servers allow for more eyes on research before final publication, increasing the chance the errors or oversights are caught. Registered reports, wherein authors submit a research plan to a journal that is provisionally accepted prior to the completion of the study, help avoid publication bias toward positive results or selective reporting. Many of these innovations, like registered reports, refocus research on the scientific process, and not just the results.
- *Avoid Requesting Additional Underpowered Experiments.* Likewise, an item that was raised repeatedly is that editors and reviewers should avoid asking authors to add underpowered experiments to revisions, for example, to add "clinical relevance." As suggested by Dr Brian Nosek of the Center for Open Science, asking for additional experiments at revision may be a way to incorporate a

version of registered reports into the review process. When a journal invites revision of an article with additional experiments, authors submit their research plan for those new experiments and the manuscript is provisionally accepted based on the strength of that plan. The revised manuscript is then published with the new experiments regardless of their outcome, removing some pressure on authors.

- *Signal Trustworthiness.* Finally, as discussed in a recent PNAS article entitled Signaling the Trustworthiness of Science<sup>10</sup> by NASEM President Marcia McNutt and some of the attendees of this workshop, including Richard Sever and Veronique Kiermer, journals can do a better job of promoting how they are "safeguarding science's norms." Greater transparency and adherence to standards and guidelines are encouraged, along with newer forms of recognition, such as badges that indicate, for example, when authors make their data and materials openly available.

## A Community of Collaborators

I've outlined some steps that journals and publishers can take to enhance scientific reproducibility, but here's the rub: in many ways, journals are effectively the end of the process. Journals can enforce many of these guidelines on the back end, but if researchers aren't aware of them, and incentivized to adhere to them, there is only so much that can be done at this late stage of the research process. This is where the other stakeholders come in, particularly funders and institutions.

*Journals can enforce many of these guidelines on the back end, but if researchers aren't aware of them, and incentivized to adhere to them, there is only so much that can be done at this late stage of the research process.*

Funders play a key role, because they are there from the start of a research project and hold two of the biggest carrots: 1) money and 2) the potential for more money. The funders present at the workshop discussed ways they were working to promote transparency in their funded research and support researchers who devote time and effort to contributing to the scientific community through sharing of materials, data, and code. Funders were encouraged to incorporate data management, availability, and transparency plans into the grant process and establish enforcement mechanisms to ensure compliance, such as requiring evidence that those plans were followed when renewing grants. It was also suggested that checklists and reporting guidelines be introduced from the very beginning of a research project, preventing surprises

## CONTINUED

and saving time when research is submitted to journals later.

**Institutions** should then serve as both the facilitators and supporters of good research practices. The research librarians present discussed ways that institutions and librarians are connecting researchers with the appropriate training and resources that can help them succeed. Much of the needed infrastructure exists at institutions, nonprofits, and government agencies, and librarians can serve a vital role in helping researchers navigate this system and develop a workflow for reproducible research. Institutions must then ensure that their promotion process incentivizes good research practice and that tenure committees consider the quality of research articles, not just quantity. As Fineberg said, the charge to these committees should be “I know you can count, but can you read?”

The **researchers** present noted that the reward aspect is essential, as practicing good science takes time and effort, and in a competitive academic environment, they need to know that their investments will pay off. As Yarimar Carrasquillo, an early career researcher from the National Center for Complementary and Integrative Health at the NIH discussed, the time and resources needed to replicate studies and then turnaround and produce new rigorous and transparent research could be spent cranking out multiple flashy, yet flimsy, articles so they need to know that institutions and funders will reward the former and not the latter.

Bringing it back to publications, Carrasquillo further suggested that journals can significantly reduce the time spent on replication by publishing transparent research and comprehensive methods following the suggestions above. The problem isn't necessarily with a failure to replicate as that can lead to new discoveries and scientific insights. Instead, time wasted on replications that are drawn out due to poorly defined methods, errors, or unstated biases benefit no one, and hinder the advancement of science. Greater transparency is key to greater replicability, but as the workshop highlighted, it will take all of the stakeholders, journals/publishers, institutions, funders, and researchers, collaborating to build and support the necessary cultural changes<sup>11</sup> from research infrastructure through to journal policies.

When the meeting adjourned, the weather was nice, so I took the roundabout way to the Metro via the National Mall, and on a whim, I wandered into the (free) Smithsonian National Museum of American History.<sup>12</sup> As I strolled through the “Places of Invention” exhibition in the Science and Innovation wing, I was struck by how many of the skills highlighted as essential for groundbreaking inventions and innovations were

the same as those discussed at the workshop as being needed to foster reproducible and replicable science: collaboration, communication, adaptability, and more.

On the topic of replication, the cover of this issue a detail from “Fractal Tree No. 4” by Dr Robert Fathauer. Much of Dr Fathauer's work in this series, found on his website <http://robertfathauer.com> and on Twitter @RobFathauerArt, is created using mathematical processes to precisely replicate sections of branches until the images become more abstract and yet still very much of nature.

In this issue, Stavroula Kousta, Erika Pastrana, and Sowmya Swaminathan (who was instrumental in the development of the MDAR framework and organizing the NASEM workshop) provide “Three Approaches to Support Reproducible Research,” including implementing a checklist for transparent reporting in life science articles, supporting computational reproducibility through peer review of code, and publishing registered reports. Next, Emma Shumeyko outlines steps to create a Journal Review Club as part of “Engaging Early Career Scientists with Hands-On Peer Review”; Corley-Ann Parker shines some light on “The Editor's Role in Avoiding Gender Bias”; Pam Goldberg Smith gives “A Guinea Pig's Perspective” in cross-training at a portfolio of journals; and Becky Rivard and Jessica LaPointe tell us “How to Explain Your Role to Non-Editors” for Production and Copy Editing. The Fall 2019 issue wraps up with a book review of the new edition of the classic *The Copyeditor's Handbook* and a continuation of our collection of Meeting Reports from the 2019 CSE Annual Meeting. We hope that you will find these reports, and all of the articles published in *Science Editor*, helpful in your efforts to publish the best science possible.

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# Three Approaches to Support Reproducible Research

**Stavroula Kousta, Erika Pastrana, and Sowmya Swaminathan**

## Introduction

Ensuring the reliability of published research has become increasingly important to publishers, funders, institutions, and others over the past decade. This can mostly be attributed to increased recognition of the many factors that affect the quality and credibility of the research and publishing process. Some of the main challenges to publishing reproducible research are steeped in the research process itself, such as underpowered study design, while others are due to inadequate descriptions of methods and materials, the selective presentation of results, or even the deep-rooted practice and norms in assessing published research, which could result in publication bias.<sup>1</sup>

When surveyed, authors of *Nature*-branded journals identify three key constituents with the greatest potential to improve the reproducibility of published research: researchers, laboratory heads, and publishers.<sup>2</sup> So, what can publishers and editors do to ensure that research published in their journals can be reproduced by others? Here, we discuss three approaches we have taken at our journals. These approaches exemplify a range of ways in which publishers can add value to the peer review process and to the published article, and provide an essential publishing infrastructure to support reproducible and open research practice. Each approach seeks to address a specific constellation of issues, and may be better suited to some kinds of research than others. The approaches we discuss are:

1. Introducing a checklist for transparent reporting in life science articles,
2. Supporting computational reproducibility through peer review of code, and
3. Registered reports, an innovative article format aiming to reduce publication bias.

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Below we outline our experience with these initiatives and how the research community has responded.

## Checklists for Transparent Reporting in Life Sciences

In 2013, the *Nature*-branded journals announced a set of measures<sup>3</sup> intended to support publication of reproducible research. A central feature of this effort was to introduce a mandatory reporting checklist for all primary research life science papers published in *Nature*-branded journals. The reporting checklist summarized important aspects of experimental design, methodology, and analysis that are considered to underlie irreproducibility and increase bias in reporting research findings, particularly of preclinical animal research.<sup>4</sup> It also includes information on statistics, materials, data and code availability, and in-lab replicability. The checklist is made available to reviewers during the peer review process and author compliance is monitored by journal editors.

Inspired by the pioneering work of the EQUATOR<sup>5</sup> network in raising transparency and reporting standards<sup>6</sup> in clinical research, we hoped the checklist would raise the standard of reporting in published life science research articles in our journals. A second, more aspirational long-term goal was that the checklist may spur changes in researcher and laboratory practice.

## Impact of the checklist on reporting and researcher perceptions

Independent studies<sup>7,8</sup> show that the checklist has had an impact on transparency of reporting in both published articles and on laboratory practice. Assessment of life science articles from *Nature*-branded journals found a marked improvement in the reporting of randomization, blinding, exclusions, sample size calculation for in vivo research, and statistics with a far more modest impact on incorporation of these elements into experimental study design.<sup>7</sup>

Authors have also reported an impact of the checklist on statistics reporting: 83% of respondents in a survey of our authors felt that using the checklist had significantly improved the reporting of statistics within the published papers. The checklist was also found to help increase data deposition and improve description of reagents (Fig. 1).<sup>2</sup>

Many first-time submitters to *Nature*-branded journals only consider using the checklist after submission of the first draft of their manuscript. But the checklist nevertheless appears to have made an impact on laboratory practice.

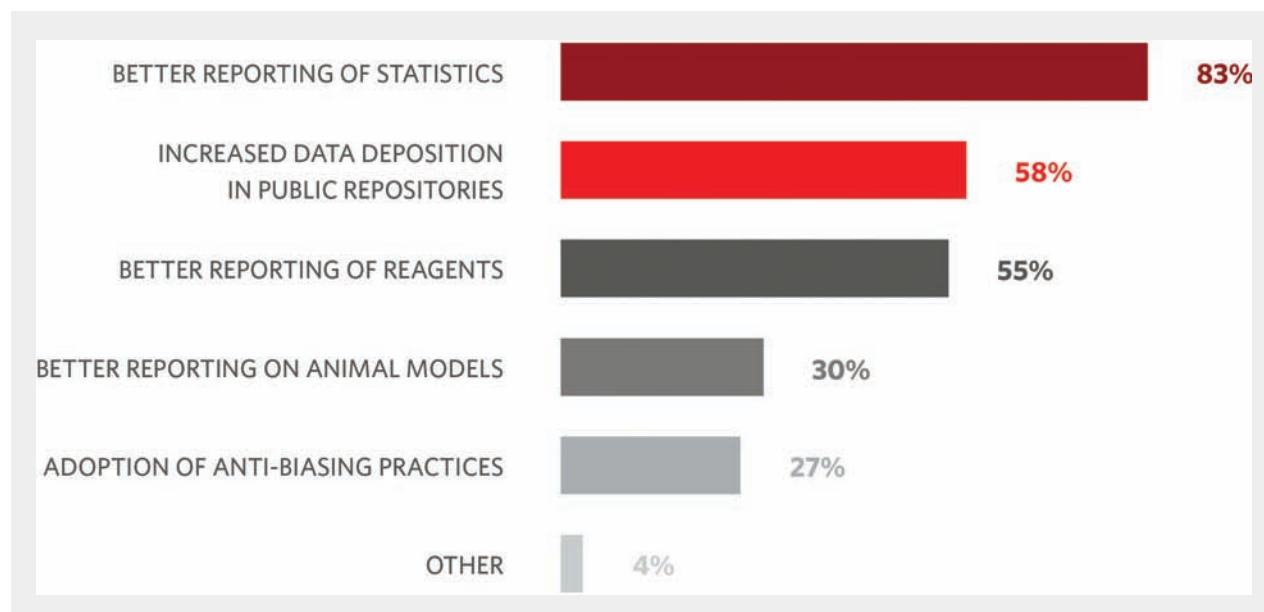


Figure 1. Perceived improvements in quality of reporting in research published in Nature-branded journals.<sup>2</sup>

Approximately a quarter of researchers we surveyed report using the checklist to a large extent beyond the journal publishing process, while 78% of respondents said they use the checklist in this way to a small extent.<sup>2</sup>

Completing a checklist undoubtedly costs researchers more time and effort. But in our experience, author feedback has been largely positive and authors acknowledge the benefits of transparency and a structured set of requirements in improving the manuscript.

Not all feedback from authors has been positive. Some tell us that while the checklist is right in intent, it is too generic to be useful across the broad swath of life science papers. We have begun making in-roads to complementing the basic checklist with the development of more detailed methods-specific requirements<sup>9</sup> and broader policies on data, code, materials, and protocol availability.

### Lessons learned and next steps

The life science reporting checklist has now become an essential operational tool, allowing us to present editorial policy requirements in a consolidated, accessible manner and easing the challenges of policy compliance for authors, reviewers, editors and others.

The success of the checklist approach in the life sciences was contingent on making the checklist mandatory together with a strong editorial commitment to monitoring compliance. Although assessing compliance can be a resource-intensive, and sometimes frustrating, process for authors and editors, it was absolutely necessary to realizing the benefits of the checklist.

*The success of the checklist approach in the life sciences was contingent on making the checklist mandatory together with a strong editorial commitment to monitoring compliance.*

As a next step in the development and implementation of reporting checklists, we are working with a cross-publisher group of journal editors and experts in transparency and reproducibility to define a “minimum standards” framework and checklist for reporting across four main areas: Materials, Design, Analysis, and Reporting (MDAR).<sup>10</sup> We believe publishers and other stakeholders agreeing on a minimum set of reporting standards and recommendations will help simplify the diverse range of policies and expectations for researchers. Broad uniformity will reinforce standards of reporting, raise awareness early in the life cycle of a study, and help move the field toward greater rigor and transparency in reporting.

### Supporting Computational Reproducibility Through Peer Review of Code

Beyond the findings they report, scientific papers are sources of data, code, methodological information, and protocols. In fact, this material forms the building blocks for all future scientific projects and discoveries that a paper may inspire and are essential for the reproducibility of the findings. Authors expect their article to be reviewed by peers; why should these other key elements also not meet the same quality assessments?



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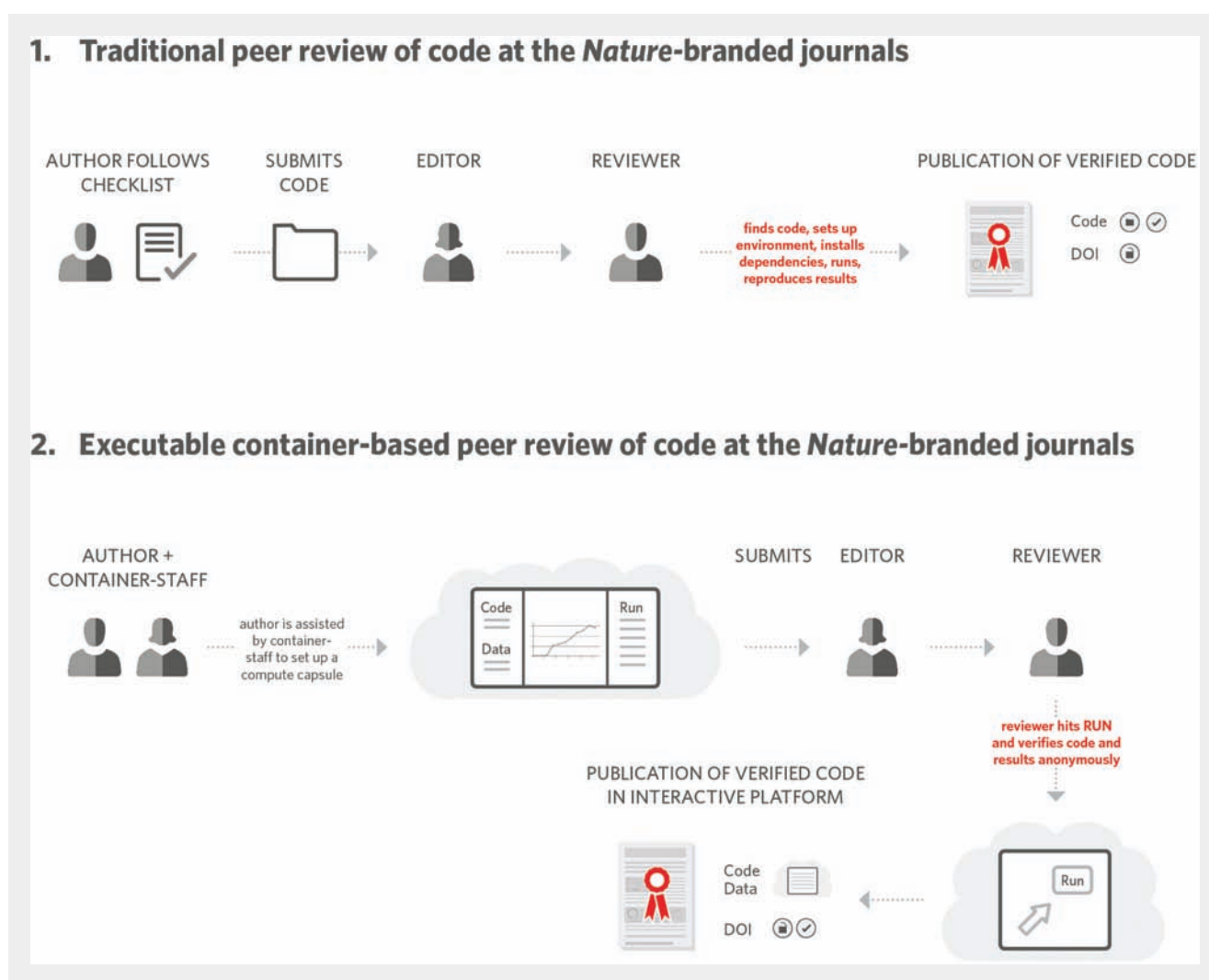
More than a decade ago, *Nature Methods* started to require authors of papers in which new code was central to the main paper, to submit the code (preferably as source code) so that the code could be checked by the reviewers. During code peer review, reviewers were asked to verify that the code was functional and “ran as advertised” and that the author’s analyses using the code were correct. Authors were also required to share code so that it could be readily used by the academic community. In those early days, the code was provided in the final paper in a folder that was part of the supplementary information or more recently, as a link to a GitHub<sup>11</sup> folder or similar.<sup>12</sup>

### Implementing code peer review

Over the years, several other *Nature*-branded journals have adopted the practice of peer reviewing code and this

experience has made it clear that peer reviewing code is cumbersome for all parties involved. In order to peer review code, authors have to compile it in a format that is accessible to others. Reviewers need to be able to download the code and data, and then set up their own suitable computational environment, often requiring them to install the many dependencies needed to make it all work, and use their own servers to run and validate the code. Even using services like GitHub,<sup>11</sup> Zenodo,<sup>13</sup> or Figshare<sup>14</sup> to check whether code works as advertised and whether it is properly documented and accessible is time-intensive and can challenge the anonymity of reviewers (Fig. 2).

In 2018, we formalized guidelines<sup>15</sup> to help authors, editors, and reviewers during code peer review. As part of the submission process, authors are asked to fill a “Software and Code submission checklist” that is used by the editors



**Figure 2.** “Traditional” versus “container-based” peer review of code at *Nature*-branded journals.

## CONTINUED

and reviewers to ensure all the necessary information and documentation to help a third party find, install, and run the code is provided. Ultimately, these documents have facilitated code peer review and the practice is being adopted at more of our journals as a result.<sup>16</sup>

### Container-based peer review

Over the last few years, a number of container-based platforms capable of bundling code, data, and computing environments into a single platform have entered the market. These interactive capsules, or notebooks, make it easier to navigate source code and data, and reproduce the results by enabling the rerun of analyses with a simple click of a button. These products allow code to be included in the published paper as an interactive, reproducible capsule.

We became interested in using these container solutions for submission and peer review of code. In August 2018, we launched a trial to test the use of Code Ocean's container based platform for peer review and publication of code at several *Nature*-branded journals.<sup>17</sup>

Working with Code Ocean, we developed workflows and functionality that enable authors to submit their code and data and compile it into a "compute capsule" which is then used by the editors during peer review. The compute capsule is accessed anonymously by the reviewers who can then run the code to reproduce the analysis and results without needing to install any software. Reviewers are provided ample time to run the code in the cloud for its verification. Upon publication, the capsule is given a DOI and provided as an open platform to all readers for verification, and use (Fig. 2).

### Lessons learned and next steps

Although container-based peer review is not a solution for every paper with custom code, particularly those that require very large datasets or extremely long running times, and there can be barriers to sharing complex code, feedback from our trial indicates containers improve the quality, documentation, and accessibility of software for both reviewers and users. These new tools also facilitate compliance with the journal's policies and practices, and ensure higher reproducibility of the research presented in the article. This also benefits reviewers and authors by improving the peer review experience and supporting the sharing of code that is reproducible as well as useful.

We are deeply invested in improving the quality of research reported in our papers, and that includes the elements associated with it. Encouraging code submission, peer review, and publication in open, interactive platforms is one of several important steps we will continue to take to ensure published research is more than a report of the findings.

## Registered Reports, an Innovative Article Format to Promote Methodological Rigor and Reduce Publication Bias

Positive or statistically significant findings are much more likely to be published than null or negative findings.<sup>18</sup> Such publication bias undermines the credibility of science and its ability to self-correct. In addition to publication bias, we know from studies in meta-science that the traditional peer review and publication model enables questionable research practices (e.g., p-hacking and hypothesizing after the results are known), which compromise the validity and trustworthiness of science. Further, the scientific record and process also suffers when journals and authors place outsized focus on novel results rather than methodological rigor.

Publication bias, questionable research practices, and an outsized emphasis on novel results have all contributed to substantial waste in research—which, according to one estimate, would be as high as 85% in the biomedical sciences.<sup>19</sup>

One approach to reducing waste in research while tackling questionable research practices and neutralizing publication bias is through an innovative article format called Registered Reports. With Registered Reports, decisions for acceptance are made before the data are collected or analyzed, shifting the emphasis from the results of research (which are beyond scientists' control) to the importance of the research question and the rigor of the methodology.

Registered Reports in their current form were introduced at the journal *Cortex* in 2013, although a precursor format was used in *The Lancet* from 1997 to 2015. Registered Reports are currently offered by approximately 200 journals<sup>20</sup> including *Nature Human Behaviour*, a *Nature*-branded journal. *Nature Human Behaviour* adopted the format at the journal's launch in 2017 and was the first highly-selective journal to offer the format.<sup>20</sup>

### How Registered Reports work

The key distinguishing feature of the Registered Report format is its two-stage peer review system (Fig. 3).

In the first stage, researchers put together their research protocol and write up their introduction, methods, and analysis plan (including any pilot data). This Stage 1 Registered Report is submitted for peer review and evaluated on the basis of the importance of the research question and the rigor of the methodology. If editors and reviewers are satisfied that the protocol meets the journal's criteria and is methodologically highly robust, the Stage 1 submission is accepted in principle for publication. The authors then collect their data, analyze them, and write up their Stage 2 Registered Report submission, which includes the accepted protocol plus the results and discussion. The full paper is peer

## CONTINUED



Figure 3. The Registered Report workflow.

reviewed again, but reviewers are only asked to comment on whether the authors adhered to their accepted protocol and if their conclusions are supported by the data. The novelty, conclusiveness, or direction of results is irrelevant for making a decision on publication. If the authors followed their protocol and their conclusions are sensible, the Stage 2 submission is accepted for publication.

Traditional peer review takes place after the research has been conducted—frequently in the form of a postmortem (what did the “patient” die of?). By contrast, the Registered Report peer review model is designed to ensure that research projects are as strong as they can possibly be before substantial resources are invested in data collection, hence preventing unnecessary waste. Because commitment to publish is made at a time when the results are not known, Registered Reports help neutralize publication bias—journals commit to publishing a piece of research regardless of the direction of the results. Finally, because at the time of Stage 2 submission authors are held to their accepted protocol and are required to clearly distinguish between registered analyses and exploratory analyses, questionable research practices are minimized. In fact, incentives for them have been essentially removed because research will be published regardless of the results.

### Impact and lessons learned

Registered Reports are not a panacea nor are they suitable for all types of research. Science advances through both discovery and (dis)confirmation. Discovery science involves exploring the full space of possibilities, learning from trial-and-error, and would therefore be crippled by limits to exploration. This means that Registered Reports are not well-suited for exploratory, discovery science. On the other hand, hypothesis-driven research, which aims to (dis)confirm existing theories and predictions, proceeds from a

pre-existing set of priors to determine whether hypotheses and predictions are confirmed by the data. For confirmatory research to be valid, it needs to be based on a prespecified and fixed set of hypotheses that is immune to arbitrary researcher degrees of freedom in analyses. Registered Reports are ideally suited for confirmatory research.

Since 2017, *Nature Human Behaviour* has accepted 11 Stage 1 Registered Reports and has published two Stage 2 submissions. All Stage 1 Registered Reports accepted by the journal and currently made publicly available by their authors can be found on figshare.<sup>21</sup> The published Stage 2 submissions, along with other related content on Registered Reports, can be found at <https://www.nature.com/collections/cjjiifhaff>.<sup>22</sup> The journal is committed to promoting the format and encouraging scientists to adopt it for their hypothesis-driven research. Our philosophy is that, if the question is important and the methods are robust and rigorous, the answer will be important, no matter what it is.

Registered Reports represent a radically different way of doing and publishing confirmatory research—and the adoption of the format isn’t without challenges. Authors need to invest more time in the development of their project upfront and to acquire stronger experimental design and statistical expertise (for instance, the fundamentals of *a priori* sample size specification). Editors and reviewers need to use different criteria than those used to evaluate “standard” submissions.<sup>23</sup> And all involved need to develop an entirely different approach to what matters in science. Although the learning curve for everybody involved is steep, it represents a worthwhile investment that has the potential to substantially increase scientific credibility.

### Conclusions

While journal editors and publishers must play their part in promoting transparency and reproducibility, meaningful,



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sustained impact that reinforces open research practices through mentoring, training, and the research process can only come from multiple stakeholders. Institutions and funders, in particular, will need to provide much needed support in training, mentoring, and infrastructure including resource and support for managing the underlying outputs of the research, data, code, materials, and protocols

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## Author contributions

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# Engaging Early Career Scientists with Hands-On Peer Review: A Journal Review Club

**Emma P Shumeyko**

High-quality peer review is the essential backbone of any reputable scholarly journal and an important skill for researchers to acquire, yet few institutions formally teach students how to perform peer review. In place of formal training, some established researchers work with early career scientists to teach peer review under direct supervision. For example, an established researcher who has agreed to review a new submission with a journal will engage a junior faculty member to collaborate on the review. The reviewer comments will be submitted under the established researcher's name along with a note to the editor about review contributions from the junior faculty member. However, this practice is not universal, even within different departments in the same institution, and may potentially be discouraged by journal policy.

At the journal level, most simply do not have sufficient resources to take on the task. While there are some notable exceptions such as the American Chemical Society's ACS Reviewer Lab,<sup>1</sup> online modules and general guidelines can only get a new reviewer so far, especially in niche and specialty fields.

With these challenges in mind, as the Managing Editor at the American Society for Clinical Pharmacology and Therapeutics, I established an interactive journal review club with the goal of providing hands-on peer-review experience and immediate feedback to participants. I decided to test the first session in person at our Society's upcoming annual meeting. After getting approval from the Society's senior leadership, I approached the Deputy Editor-in-Chief of our online-only, Open Access journal to ask if she would be interested in working on this project as the session facilitator. A one hour session was added to the meeting schedule and we developed the session agenda. Participants would be asked to review the first version of a submitted manuscript (that was ultimately accepted and published) and come to the session with their comments. The main focus of the session was the interaction between the participant-reviewers and authors.

EMMA SHUMEYKO is currently the editorial systems manager at PNAS. This article was written while she was with the American Society for Clinical Pharmacology and Therapeutics.

Which comments would be helpful to the authors and why? What types of comments are unhelpful or unrealistic?

## Key People

A successful journal review club involves four distinct groups of people to ensure all perspectives of the journal's peer-review process are represented. While someone might be invited as a participant, remember that she may also have a comment or question from the author perspective as well and should be encouraged to share.

1. **Facilitator.** This volunteer should know the science being presented and understand the journal's peer-review process and policies. An editor or editorial board member would be a natural option.
2. **Participants.** Connecting to the intended audience is key. Look for existing relationships, such as members (for society journals), or previous authors or poor performing reviewers.
3. **Author(s).** Successful peer review depends on the communication between reviewers and authors. An author's perspective can be a valuable resource for those just starting with peer review.
4. **Editorial staff.** A dedicated person to run the logistics of the event. As a bonus, staff can also help answer questions on journal specific policies or workflows.

## How Does It Work?

The journal review club gives participants hands-on experience with peer review. About a week or two prior to joining the live session, each participant receives a simplified review form and the first version, including any supplemental materials, of a submitted manuscript. They are asked to review the manuscript and come to the session prepared to discuss found issues and provide a decision recommendation.

The live session starts with a brief overview of the day's agenda. Then, one or two participants are asked to provide a brief summary of the paper to ensure everyone is on the same page. Participants are then encouraged to offer their comments on the paper, particularly regarding the science presented. The facilitator's role at this point is to engage with participants and ask pointed questions to further the conversation. It's also important to ask for the

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decision recommendations from all participants before moving on.

Next, participants receive (1) the original blinded reviewer comments the manuscript received, (2) the revised manuscript with changes tracked/highlighted, and (3) the author's point-by-point response to the reviewer comments. The author(s) have the opportunity to address the comments from both the reviewers and club participants, highlighting what changes were made in the manuscript to address the comments or when there was disagreement and why.

Finally, the session ends with a discussion on peer review and how it helped strengthen the paper. Participants receive either a copy or link to the final, published version. This time is also a good opportunity to address questions participants (and authors!) have about the peer-review process from the editorial office. Some examples may include, how are editors/reviewers selected? Do I really need to pay attention to the guide to authors before I submit?

## Logistics

To find a paper suitable for the journal review club, run a report of recently accepted or published research articles. Narrow your results by looking at the review history for each paper to ensure the reviewer comments were high quality. Consider further refining your results by looking at the authorship. Perhaps an author who is a member of the society or editorial board would make a good choice because of the preexisting relationship with the journal. Consider different time zones if the session will be held virtually, and avoid asking authors who would be expected to participate in the middle of the night.

Once a paper is selected, reach out to the first and/or corresponding author to ask if they would be willing to participate, then find a date and time for the session that would work for the authors, facilitator, and staff. After the session is scheduled, open registration to prospective participants. To ensure all participants are comfortable and have a chance to contribute to the conversation, set a target number of seats for the session that is not too large or small and remember to account for attrition when setting a cutoff point. The session can be promoted a number of ways: advertise on social media or society/journal newsletters, create a marketing email through the third-party service used by your company, or send personal email messages to key people. Responses can easily be tracked with a spreadsheet. Consider creating a calendar appointment with the location or connection details so participants are less likely to forget.

Collect all materials needed for the session. Create a simplified review form in a word processor, including brief instructions and a confidentiality note, and download the first version materials from the peer-review system. Compile these into a single PDF and send the file to participants a week or two before the live session. The original blinded

reviewer comments the manuscript received, the revised manuscript with changes tracked/highlighted, and the author's point-by-point response to the reviewer comments also need to be pulled from the peer-review system and readied for the session. It is important to note that any confidential comments from the original reviewers should remain confidential! While it takes a small amount of manual work, all materials and messaging are completed outside the peer-review system to avoid confusion with live papers.

## Items to Consider

First, a great facilitator is essential to keep the discussion moving and on track. Sometimes participants can be shy when voicing their own comments and opinions, especially at the beginning, so the facilitator needs to be prepared with leading questions.

Second, find a manuscript that went through at least one round of revision and had some significant comments that needed to be addressed. If you choose a paper with minimal reviewer comments, be prepared to discuss how such papers should be handled.

Third, meet face to face, either in person or virtually via webcam, so it's easier to engage with participants. This session can be successful at annual meetings and via video conferencing.

Fourth, limit the number of participants allowed. 10–12 seems to be an ideal number. It's big enough that people don't feel too shy about sharing their own thoughts and is small enough to allow everyone to participate fully within the time limit of the session.

Fifth, create a relaxed, comfortable atmosphere. The journal review club should be an enjoyable experience for everyone that allows for a truly engaging session.

Sixth, expect the unexpected. As with any postpublication peer review, there is a chance a mistake in the final paper might be discovered and need to be corrected. (It happened to me once, and the authors were grateful for the discovery so the paper could be corrected!)

## Conclusion

With a little time and effort, any journal can engage early career scientists and help promote quality peer-review skills within their field. Engaged participants who come prepared with thoughtful comments and questions can be added to the reviewer pool, additionally strengthening their connection to the journal. This session can be easily adapted across disciplines and editorial offices of differing resources. Do not be afraid to try different approaches to the session; make it your own!

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# The Editor's Role in Avoiding Gender Bias

## Corley-Ann Parker

In an old riddle about a doctor and a car crash, a man and his son get in a car accident and are rushed to the hospital in critical condition. The boy requires surgery and is immediately sent to the operating room. However, the surgeon looks at the boy and shouts, "I can't operate on him, he's my son!" How could this be? If you can't think of the answer, don't be discouraged. All but one respondent in a 2017 BBC video<sup>1</sup> on gender bias missed the correct answer: that the surgeon is the boy's mother. The responses ranged from "Perhaps the boy was adopted" to "It must be the father's ghost!"

This video does more than provide some interesting content; it highlights the prevalence of gender bias in society. Despite advances in recent decades, substantial gender bias remains in science and medicine. Science editors can help combat such bias by avoiding biased language in their publications and by helping ensure appropriate gender balances in their workplaces and publications.

## A Good Start

The intention to avoid gender bias in editing is present but efforts could be improved. For example, many style manuals including the newest editions of the *Chicago Style Manual* and *AMA Manual of Style* have statements and recommendations about avoiding gender-biased language.<sup>2,3</sup> The Council of Science Editors' style guide, *Scientific Style and Format*,<sup>4</sup> currently includes statements and recommendations about avoiding gender-biased language like making sure not to automatically use the male referent and only mentioning gender differences when relevant. These statements in style guidelines that editors often refer to increase awareness of gender biases and can help open dialogue on the subject.

Addressing gender biases, however, goes beyond making formal statements. Nicole Neuman, the editor for *Trends in Biomedical Sciences*, stated in a piece in *Cell Crosstalk*<sup>5</sup> that recent studies "suggest there are layers of bias not yet peeled away." The focus has shifted from explicit gender biases, like biased language, that can be consciously self-corrected towards implicit, persistent biases like unequal authorship opportunities for women.

CORLEY-ANN PARKER is a graduate student in the Science and Technology Journalism program at Texas A&M University.

## Increasing the Representation

A major step to combatting implicit gender biases involves a significant shift in representation on all levels. Those in charge of hiring editors and selecting reviewers should look at current gender distributions in their workplace and make sure they are achieving equal representation. In January 2017, *Science* published an editorial titled "Looking Inward at Gender Issues"<sup>6</sup> that acknowledge the gender imbalance at their publication. Their inward evaluation revealed that women held only 17% of the senior author positions and 25% of the Junior author positions in their published papers. Editor-in-chief Jeremy Berg published an update to this analysis in 2019<sup>7</sup> showing a slight increase in female authors, especially in the life sciences. In this update, Berg states that "with these data and tools in place, we are now well positioned for further analyses and actions that address gender disparities." Taking an inward look at the gender distributions both in whom publications are hiring or from whom publications are accepting articles can help bring up any previously unknown gender biases in publications. By looking at the data, editors-in-chief can do their part to monitor and address any implicit gender biases present at their publication.

Another significant source of implicit gender bias beyond the scope of formal journals that editors can address is the lack of diverse sources in news media and similar publications. Heather Catchpole,<sup>8</sup> head of content at Refraction Media, an Australian publishing service, has noticed a lack of diversity in sources and those people whom many authors consider experts. According to Catchpole, "featuring predominantly white male sources means fewer role models are female, from wider cultural backgrounds, or differently abled people." Catchpole stated that Refraction Media's publications promote diversity by "actively seeking out interviews, images, and stories from women in STEM and promoting inclusivity that broadly reflects the population demographics of the audiences we're communicating to." As editors, noticing a lack of diverse sources and recommending female sources to journalists can help address this implicit gender bias. As Catchpole puts it, "as science communicators, we need to rethink what we mean when we seek an expert opinion."

This shift in thinking also means women in STEM should be available as experts. Emily Kumler<sup>9</sup> had experienced problems with this when working on stories about technology. "I was trying to always include a few female sources, and I was routinely told by female experts that there was a more

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qualified male source I should really talk to," she said, "and no man ever deferred an interview request, let alone suggested there was a more knowledgeable female expert I'd be better off talking to." There has been a movement in science for women to own their expertise, and this should be reflected in the sources and experts that are selected.

## Maintaining Momentum

Editors have often been considered the gatekeepers of information, and a major responsibility across all levels is to empower and maintain accountability. Science and technology fields are actively becoming more diverse, and these fields no longer belong only to white men in white lab coats. Science editors, on every level, can play their part to help ensure that science communication can effectively reflect this shift in diversity.

## Acknowledgments

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### Gender and Sex

From the *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*, 8th ed. Chapter 7, Section 7.5.1.

When both men and women are the subject of the text, make this clear by referring to both; do not assume that a male referent is adequate.

His analysis ignored the economic problems of ordinary men and women.

not His analysis ignored the economic problems of the man in the street.

Scientific discoveries in the last century have advanced the knowledge of humankind.

Scientific discoveries in the last century have advanced the knowledge of all men and women.

"Gender" was long applied mainly in reference to the grammatical categories of masculine, feminine, and neuter. In recent years its use has been extended to refer to the social, economic, and historical categories man and woman, which are based mainly, though not entirely, on the sex of individuals, with "sex" referring to the biological categories.

For more from the CSE Scientific Style and Format Manual, go to <https://www.scientificstyleandformat.org/>

# Diversity of Minds in Cross-Training Editorial Staff: A Guinea Pig's Perspective

## Pam Goldberg Smith

Cross-training can be viewed as a scary concept, with implementation often causing hesitation. Either an employee is comfortable in their job tasks and unlikely to volunteer to take on increasing duties—"clock in and out" as the saying goes—or the employer overburdens workers to avoid hiring additional, necessary staff. However, with the right people, the right attitude, and the right approach, this need not be the case.

Take my experience in cross-training with the editorial offices of the American Heart Association, for instance. As Editorial Assistant at *Circulation Research*, I regularly handled processing new manuscript submissions, sending decision letters to authors, and was trained on contacting potential reviewers. Though originally siloed, expanding portfolios necessitated cross-training between a few of the journals in the AHA. Promotions, vacations, and newly open positions also left work piling up. All hands were needed to keep the wheels turning and, over the course of a year, I was given the opportunity to begin assisting *Stroke*, *Circulation: Quality and Outcomes*, *Circulation: Heart Failure*, *Circulation: Cardiovascular Imaging*, and *Circulation: Cardiovascular Interventions*. More than familiar with the shared web platform through my position at *Circulation Research*, I could easily assist from my home office during these lags.

*I had to find a balance between bringing my experience to the table and being open to learning from what was there.*

There's an idea that the scientific journals are similar enough, especially within an organization; if you've worked on one, you've practically done them all. Yet it became clear that each journal possesses its own signature, derived from its editorial team, a daily ebb and flow to maintain a long-established harmony. To disregard this entirely would do no more than to throw a wrench in a system already in need. I had to find a balance between bringing my experience to the table and being open to learning from what was there.

Happily, my colleagues prepared notes. Half preferred using bullets while others numbered their instructions.

Some featured screenshots as visual aids, and included tables of the editors' institutions to highlight conflicts of interest. Reviewing the notes, making additions and edits along the way for my own clarity, I wondered at how the journals' basic processes differed. How was communication and troubleshooting handled? Who took the lead, and who acted as the safety net?

## **Stroke: Crucial Attention to Detail**

When I first met the Managing Editor of *Stroke*, Rebecca Seastrong, I didn't realize that I was meeting my future role model in the queen of attention-to-detail. As I began cross-training under *Stroke*, she apologized when emailing her "messy" notes typed up at the last-minute. Never mind that they were a detailed instructions of operations organized in a clean, visually appealing manner.

Well-aware that such focus appears cumbersome to those who work best on the fly, at its core, this quality showcases the care involved in one's work. Everything is reviewed with a fine-tooth comb to ensure the best possible outcome.

"Are there any notes that will affect the letter?" Rebecca asked. "Does the decision match the editor comments or, if there are reviews, do the reviewers' comments seem to uphold the recommendation? If there are reviews, do they need to be rated? All these questions and staff has not even opened a draft letter yet!"

In essence, what some may dismiss as minute details are, in fact, pertinent to form a strong foundation upon which to build success, no matter the industry. For myself, I always welcome the chance to work with such an individual.

## **Circulation: Essential Teamwork**

When colleagues work really well together, over time they might appear interchangeable. I couldn't count the number of times I've been called by another coworker's name, or vice versa. "It's great to have someone you can relate to and collaborate with on a professional and casual level," Sara O'Brien said of her coworker, Molly Klemarczyk, both Assistant Managing Editors of *Circulation*. "We can be each other's sounding boards," Molly added. Such "work besties" are a prime example of a solid, complementary team.

Perhaps it's because *Circulation* receives approximately 5,000 manuscript submissions annually that the staff interacts



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with a multitude of personalities on a daily basis. Sara and Molly excel in this. They know which editors often request an additional reviewer to make a decision on a paper. Or who is normally on top of things, but maybe just forgot to mention they were on a tropical vacation with spotty internet service (oh to be burdened with such a quandary). They are familiar with who needs gentle, frequent reminders to turn in their reviews, and who needs a firm kick.

***The ability to interact seamlessly with others and drawing on one's experience with different personalities is invaluable.***

It would be difficult to teach such communication instincts, not to mention colleague amiability, in a traditional setting. The ability to interact seamlessly with others and drawing on one's experience with different personalities is invaluable. Over time, practice becomes habit. What comes natural to some can be learned by others, and then incorporated into other aspects of the work environment.

### Cross-Training in Practice

Ultimately, when you're spinning a number of plates in the air and everything is going well, it seems silly to hand a plate off to someone else. What do you have to benefit if a plate crashes to the ground in the process? Great leadership involves knowing which plate can be handed off, and specifically to whom. The entirety of a company, or even a department, cannot rest in the hands of one person at all times and be considered successful.

It is, then, an honor to be given a measure of trust to ease the burden of great workloads. Even when brought on for only a week to cover a vacation, working with Christine Beaty, Managing Editor of both *Circulation: Quality and Outcomes* and *Circulation: Heart Failure*, I was already well suited to hit the ground running. Christine, who also cross-trained under *Stroke*, commented on the benefits of such practice. "It's like an insurance policy...if my editorial assistant has an emergency or otherwise has to take paid time off, I can delegate some of his tasks so that I don't get deluged, and it takes some weight off my shoulders."

As I cross-trained under the various journals, I wondered what important work these individuals focused on when freed of excess tasks, namely those intermittent lags or temporary projects where it didn't make sense to hire additional staff. How putting in the work of cross-training affords an organization adaptability when it is needed. "No one can predict when those kinds of stressful situations are going to collide," Molly said. "Being as short-staffed as we were, we had even less time to spend training someone from the ground up." On training experienced journal employees, Rebecca noted that it "is certainly less challenging and time consuming than training a new employee...one of the great advantages of experienced staff is that they will be more likely to flag potential errors and question actions that seem incorrect." She further credited learning new functions within the shared web platform, and changes made to *Stroke's* workflow, based on her cross-training experiences.

### The Take-Home

Back at *Circulation Research*, there has been a shift in my thinking. Not so much a competitive comparison between journals, but an appreciation of what is done differently, as well as valuing both the flexibility and reliability of my direct colleagues. This fresh perspective goes forward asking the never-ending question: What can be improved upon? "The experience of cross-training makes me (at times uncomfortably!) aware that some workflows are not as efficient as they could be, and I'm always interested in ways to improve." Christine said.

Each business, and each department, must approach this question in its own way. However, cross-training explores the many different routes from point A to point B to find the best possible way of maintaining momentum without necessarily giving up the original commute. If a traffic jam were to occur, as they often do, another road is available to provide an alternative to stopping completely.

It is a small investment for an organization to create opportunities for its employees to learn something new. Encouraging a diversity of minds strengthens each individual's knowledge, allowing a business to grow stronger and remain relevant, if we momentarily abandon the rut-in-the-road and embark on a different path.

#### Call for Submissions

"What do you do?" *Science Editor* is looking to build a series of articles around this question, each describing your role to non-editor colleagues and those outside of scientific publishing. If you would like to contribute to this series, please email us at [scienceeditor@councilscienceeditors.org](mailto:scienceeditor@councilscienceeditors.org)

# How to Explain Your Role to Non-Editors: Production and Copyediting

**Becky Rivard and Jessica LaPointe**

## "What do you do?"

We've all been asked this at one point or another. It is a question that often comes up at social gatherings. For editors, it is not always easy to explain what we do and why. Here at CSE, we are lucky to be surrounded by fellow scholarly editors who "get it." But to someone who works in a different field, the world of editing can be a mystery. We hope that this series of articles can serve as a basis on how to describe your role to non-editor colleagues. First up: production and copyediting.

## What Is Scholarly Publishing?

One place to start is by describing scholarly publishing. You can explain that the basis of scholarly publishing is peer review, wherein experts in a given field review an author's work to determine whether it is an appropriate fit for their journal. Ideally, during peer review the editors provide helpful comments to assist authors in refining their writing and preparing it for publication. This process can result in several rounds of revisions, each of which may introduce new material to the paper while increasing the possibility for errors and inconsistencies. Describing the basics of scholarly publishing can provide a transition to describing your role as an editor since one of the key areas editors provide value is in resolving these errors and inconsistencies once the final round of revisions is complete and the paper has been accepted for publication.

## Production Editing

It is a good idea to draft a one- to three-sentence elevator speech describing what you do. For production editors, this could be that you serve as a project manager or administrative professional who shepherds manuscripts from acceptance to publication—including overseeing copyediting, working with authors, and keeping things on schedule. Another way to summarize your role is that of serving as a liaison among

authors, copyeditors, typesetters, printers, graphic designers, and marketing professionals. To others, "production" and "editor" can mean many different things.

As production editors, we often are asked questions about our job. It is not uncommon to be asked what the value of using a publisher is when self-publishing online or posting to a preprint server are now options. You can mention the value of peer-reviewed works, which is very different from self-publishing. Inquiring minds may also bring up digital publishing, thinking this means that the production editor role is not needed. To address this, you can say that there are many steps to be completed to create an ebook, PDF, or HTML article, including checking metadata, creating linked cross-references, testing hyperlinks, and then posting the publication online. Because the world of publishing is changing, so is the role of the production editor. Bringing up digital trends is a way to open up the discussion and make it relatable to people in other fields.

## Copyediting

Copy editors, too, are often met with a blank stare upon explaining what they do. We often are asked, "Can't you just use spell check?" and "But how can you edit if you are not a subject-matter expert?" To address some of these frequently asked questions, you can start by describing the background of a typical copy editor, or even how you ended up as one yourself. You can explain that copy editors often come from publishing backgrounds, with educations in English language and literature or related humanities or social sciences.

Non-editors may not know that to competently edit medical, chemistry, physics, and other scientific publications, copy editors rely on style guides like the *Chicago Manual of Style*, the *Publication Manual of the American Psychological Association* (APA style), and CSE's own *Scientific Style and Format*, and that publishers also have their own in-house style guides. These style guides allow copy editors to ensure their publications are formatted correctly for their specific disciplines. Explaining what a style guide is and how copy editors use it can be a good way to explain copyediting.

## Specific Examples

If you would like to give specific examples of your work, you can explain that oftentimes during peer review the reviewers will suggest new references the author should cite, and they

BECKY RIVARD is an Associate Production Editor at the American Mathematical Society. JESSICA LAPOINTE is the Managing Copy Editor at the American Meteorological Society.

## CONTINUED

may suggest sections that can be cut or moved within the paper to improve readability and organizational flow. These changes sometimes mean references are no longer cited in the text or in-text citations no longer have matching references in the bibliography. This is where copy editors step in to confirm which references the author wishes to cite and where, and which citations need a new reference to be added to the reference list. Making sure credit is correctly given where it is due is part of a copy editor's purview.

When paragraphs and sections are moved or altered during peer review, it is not uncommon to find sentences that have been accidentally cut off in the middle and now make no sense. It is the copy editor's job to help authors refine their writing for final publication, while retaining their unique way of expression—their authorial “voice.” A copy editor also acts on behalf of readers to make sure the text is comprehensible and confusing wording is clarified. Particularly when English is not an author's first language, there can be syntax or grammar errors that can inhibit comprehension and readability. Copy editors are charged with writing direct, simple, and clear queries to the authors so they may edit the text as needed to improve clarity.

For production editors, it might be helpful to give some examples of tasks that you handle on a daily basis, such as monitoring schedules, assessing figure quality, preparing and sending proofs to authors (then collecting and incorporating the author's corrections), gathering signed forms, and in some cases working with marketing to make sure everything is in place to publish and promote the publication. You can mention non-routine topics that you and your team receive training in, such as impact factors

and other metrics, working with ESL authors, learning new software to track your manuscripts, or deciphering copyright laws and permissions.

## Defending Your Work

Some editors may find themselves having to defend their work, especially to non-editors who may not understand the value of production or copyediting. In this case, it is best to focus on what a copy editor can provide: not only correct grammar and punctuation, but also consistency, professional tone, and factually correct information. A well-written document or publication can demonstrate meticulousness and commitment to detail. Conversely, publications with punctuation, spelling, or grammar errors can give the impression of sloppiness, or worse, incompetence, even if the content is of high quality. At its best, copyediting is invisible: only noticed when it is absent, and otherwise undetectable. Likewise, the work of a production editor is sometimes hidden until there is a problem that needs to be resolved—a quickly approaching deadline (or one that has already passed), a missing copyright form, or a graphic that needs permission to be printed.

## In Summary

It is always interesting to learn about what other people “do,” and we encourage scholarly editors to think about your role and how you would explain it to someone who has no background in publishing. It can be a good opportunity to let others know about the importance of peer review and copyediting, and how publishing trends affect your role in ways that are not so different from other career fields.

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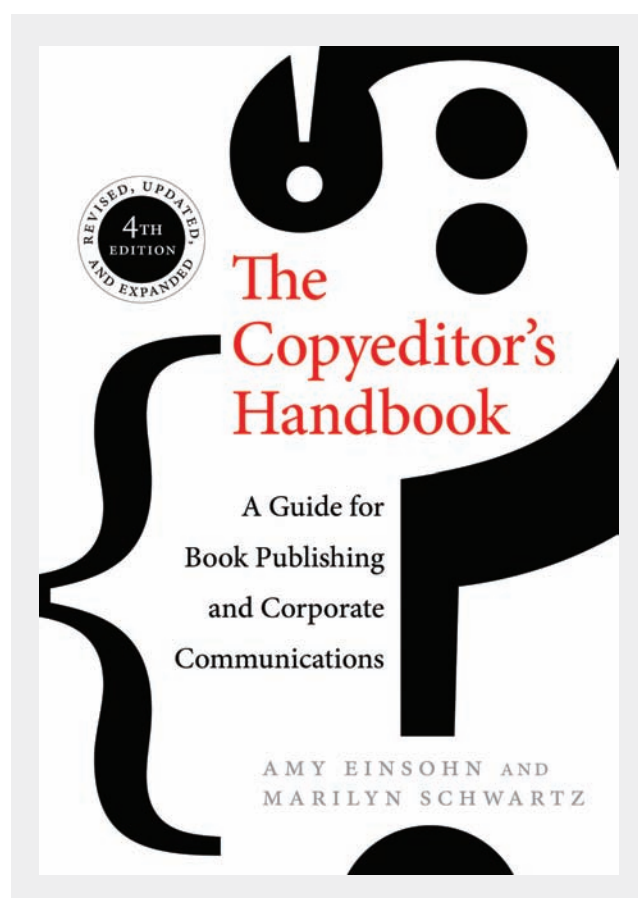
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# Book Reviews: *The Copyeditor's Handbook* and *The Copyeditor's Workbook*

**Barbara Gastel and Courtney Adams**

*The Copyeditor's Handbook: A Guide for Book Publishing and Corporate Communications*, 4th ed. Amy Einsohn and Marilyn Schwartz. Oakland, CA: University of California Press; 2019. 568 pages. ISBN 978-0-520-28672-6.



BARBARA GASTEL teaches science editing and related subjects at Texas A&M University; and COURTNEY ADAMS is a graduate student in science and technology journalism at Texas A&M University.

*The Copyeditor's Workbook: Exercises and Tips for Honing Your Editorial Judgment*. Erika Büky, Marilyn Schwartz, and Amy Einsohn. Oakland, CA: University of California Press; 2019. 384 pages. ISBN 978-0-520-29435-6.

Although the basic content of copyediting has long remained much the same, the process has changed greatly over the past 2 decades, as editing has become almost entirely electronic. *The Copyeditor's Handbook*, which first appeared in 2000 and has long been a valuable resource for science editors, has evolved accordingly. In particular, the recently published fourth edition offers more instruction on electronic aspects of editing while retaining previous editions' extensive guidance in editing for mechanics and publication style. In addition, whereas the first 3 editions incorporated exercises, the fourth has a companion workbook instead.

The new edition and accompanying workbook also have additional authors. Amy Einsohn, a longtime editor and editing teacher, was the sole author of the first 3 editions, the most recent of which appeared in 2011. After Einsohn died in 2014, Marilyn Schwartz, who was Einsohn's editor at the University of California Press, proceeded with updates, drawing in part on notes Einsohn bequeathed. Erika Büky, an editor who had worked at the Press, joined her in preparing the workbook, which contains many new exercises as well as those already in the handbook. Thus, Schwartz now is co-author of the handbook (which still consists mainly of Einsohn's content). Büky and Schwartz are first and second authors of the workbook, with Einsohn third.

Although one can't judge a book by its cover, a radical change in cover design between editions of a book may well signal a major internal revamping. The 3 Einsohn-only editions all had similar covers<sup>1</sup> featuring images of self-adhesive notes, a mainstay of copyeditors in the more recent decades of the pre-electronic era. These 3 editions also had identical lengths because the updates had to fit into the original pages, which served as camera-ready copy. The new handbook and workbook have a more contemporary cover design. The interior also has been redesigned, allowing more new content.

Like the earlier editions, the fourth has 3 parts—"The ABCs of Copyediting," "Editorial Style," and "Language Editing"—encompassing a total of 15 chapters. Although

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the book has been updated and expanded, these chapters still contain Einsohn's excellent guidance on topics ranging from querying authors, to correcting punctuation and spelling, to dealing with tricky matters of subject-verb agreement. Rigorous without being rigid, the instruction is thorough, thoughtful, and readable and contains many helpful examples. As before, the book also includes a checklist of editorial preferences (with which to record style choices for given projects) and glossaries of copyediting and grammar terms.

The book has been substantially revised, though, to suit what is now predominantly a digital environment. Whereas earlier editions provided brief advice for working on screen (and the 2000 edition spoke of copying files from the author's or publisher's disk!), the current edition says more in this regard. Early in the book, readers receive guidance on editing in Microsoft Word, and in a later section, they can brush up on current use of cyberjargon. The selected bibliography now includes a part on tools for on-screen editing, as well as being otherwise updated and expanded. And many of the workbook exercises are to be completed on-screen, using files available on the Internet. Nevertheless, the elements of off-screen editing have not disappeared from the handbook; readers can still find the traditional copyediting marks and advice for marking changes on hard copy.

In this digital world, copyeditors have increasingly become an online community, or set of online communities. Accordingly, the current edition of the handbook lists websites, discussion boards, email discussion lists, and blogs useful to copyeditors. It also warns against venturing beyond copyediting to do excessive content checking, a temptation now that Internet resources are so available. And the book now includes a section devoted to citing digital sources. Who knew there would come a day when we would cite tweets?

Other new sections include ones on professionalism and ethics, transmittal letters, language corpora, compliance with plain language guidelines, accessibility to users with disabilities, editing material for global readerships, and editing work by authors for whom English is not a native language. The book also has been updated to reflect new editions of major style manuals. In addition, with freelance copyediting and telecommuting becoming more common, advice for freelance copyeditors or others working remotely is now incorporated.

Whereas the third edition of the handbook contained 15 exercises, the now-separate workbook has nearly 50 exercises, including at least 2 per chapter of the

handbook. Those with some science-related content include Exercises 2-3 ("Editorial Markup of PDF Files"), 7-2 ("Numbers and Numerals in a Technical Text"), 9-1 ("Medical Abbreviations and Symbols"), 13-2 ("Markup of Instructional Text: A First-Aid Guide"), and 15-1 ("Editing for Bias-Free Writing"). Many of the other exercises, including those on editing tables and graphs, also can aid in developing skills useful in copyediting in science. And if you'd like practice in editing a recipe, there's an exercise for that, too! Frosted chocolate logs, anyone?

In keeping with precedent established with the original 15 exercises, the workbook has detailed answer keys, with thorough explanations and substantial commentary; the exercises and keys emphasize editorial reasoning rather than rote adherence to rules. In part because informative introductions precede the exercises, much of the workbook can be used without the handbook, especially by those with a background in copyediting. Some of the exercises could serve as models for exercises more oriented to science and its conventions. Indeed, perhaps the time has come for *Scientific Style and Format*, the Council of Science Editors manual, to provide online exercises regarding its use, as the *AMA Manual of Style* has done.

Although not specifically on science editing, *The Copyeditor's Handbook*, 4th edition, and *The Copyeditors Workbook* have much to offer those involved with copyediting in the sciences. They can serve as resources for those training new staff members in editorial offices, teaching courses in editing, or studying on their own. Basic enough for a novice, they also are robust enough to provide experienced copyeditors with new information, advice, perspectives, and resources. And the authors' enthusiasm for copyediting seems contagious. Fellow copyediting nerds, you're likely to relish these works!

In reviewing the first edition of *The Copyeditor's Handbook*, now-retired editor Walter Pagel wrote in *Science Editor*: "With this handbook, Amy Einsohn has done a big favor to beginning copyeditors and their supervisors. Experienced copyeditors will also be glad she has written this handbook." He also commended "Einsohn's friendly tone, her open-minded assessments of how to evaluate and repair language difficulties, and her descriptions of the challenge of copyediting." Schwartz and Büky have splendidly carried on Einsohn's legacy, retaining the valuable core of her work while extending this resource and bringing it into the digital age. We recommend these volumes.

## References and Links

1. <https://www.ucpress.edu/blog/32015/copyediting-challenge/>

# Science Editor Symposium: Reproducibility & Reporting Guidelines

## MODERATOR:

**Jonathan Schultz**

Editor  
Science Editor  
Director  
Journal Operations  
American Heart Association  
Baltimore, Maryland

## SPEAKERS:

**Sarah Brooks**

Interim Associate Editor  
American Journal of Political  
Science  
Professor  
The Ohio State University  
Columbus, Ohio

**Sowmya Swaminathan,  
PhD**

Head of Editorial Policy  
Nature Research  
Berkeley, California

**Hashi Wijayatilake**

Managing Editor  
PLOS Biology

## REPORTER:

**Dana Compton**

Editorial Director  
American Society of Civil  
Engineers  
Reston, Virginia

The topic of this year's *Science Editor Symposium* at the Council of Science Editors (CSE) Annual Meeting was "Reproducibility & Reporting Guidelines." Speakers in this session described new initiatives their journals and organizations are taking to help ensure the research they publish is rigorous, accessible, and reproducible.

As described in a feature article in this issue of *Science Editor*, Dr Sowmya Swaminathan gave an excellent summary of the Nature Research journals' experience with reproducibility initiatives such as checklists for transparent reporting, peer review of code, and registered reports. If you haven't yet read the article Dr Swaminathan authored with her colleagues, "Three approaches to support reproducible research," I highly encourage you to do so.

We learned during the session at the CSE meeting, as one would expect, that different journals are taking different approaches to these issues. Perhaps the most stringent and thorough policy is the *American Journal of Political Science* (AJPS) Verification Policy, described to the audience by Dr Sarah Brooks, AJPS Editor. AJPS is a high-impact journal, ranked at the top of the list of 50 highest-impact political science journals.

Efforts toward replicability and verification became a focus in political science in 1995, with Gary King's publication titled "Replication, Replication."<sup>1</sup> AJPS' efforts have progressed steadily since that time as well. In 1995, AJPS editors first began to request that authors make data publicly available. In 2012, the editors implemented a requirement for authors to

upload their datasets to *AJPS Dataverse*. And most recently, in 2016, the editors established guidelines for replication, requiring external verification as a condition of publication.

Under its current policy, no study will be published in AJPS before verification by an independent third party.<sup>2</sup> For quantitative analysis, AJPS relies on the Odum Institute for Research in Social Science,<sup>3</sup> at the University of North Carolina, Chapel Hill. For qualitative analyses, the process is conducted by the Qualitative Data Repository<sup>4</sup> at Syracuse University. When verification has been achieved, the replication dataset is awarded open science badges for "open materials" or "open data," and the accepted paper can move forward to publication.

Dr Brooks acknowledged that AJPS' stringent policy does come with both costs and benefits. On the one hand, the policy puts a great demand on the authors for a high level of documentation; they often need multiple re-submissions for replication. When asked about replication failure, Dr Brooks indicated that the Odum Institute will typically continue to work back and forth with the authors to resolve any issues until replication can be achieved. This process inevitably adds time to the publication process. The average resulting delay in publication is 50–65 days. Some of this time is understandably due to author response time. Demands on editorial office staff are also increased.

*It's essential to ensure data quality before worrying too much about replicability. As the saying goes, "garbage in, garbage out."*

On the other hand, Dr Brooks said, the AJPS policy is good for science, especially political science. It establishes a high bar for analytical rigor and produces datasets for replication as well as teaching purposes. For AJPS, these benefits outweigh the inherent costs.

Dr Brooks also outlined some of the challenges AJPS has faced since implementing its policy, including limitations of computational reproducibility and terminological confusion. She warned that replication should not be allowed to distract from other serious data issues. It's essential to ensure data quality before worrying too much about replicability. As the saying goes, "garbage in, garbage out."



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**Counter Publication Bias**

*PLOS Biology* is taking a multi-pronged approach to promoting reproducibility and reporting, described to the audience by Dr Hashi Wijayatilake, Managing Editor. Like *AJPS*, *PLOS Biology* is a highly selective journal. Its efforts are aimed at countering publication bias and promoting open research practices and an open publication process.

Dr Wijayatilake summarized two methods by which *PLOS Biology* hopes to counter publication bias. The first is its Complementary Research Policy.<sup>5</sup> Under this policy, the Editors commit that “scooped” manuscripts will still be considered for publication if such manuscripts confirm, replicate, extend, or are complementary to a recently published study (within the last 6 months). The manuscripts must not be derivative, but rather independent studies relying on their own data. At the heart of this policy is the notion of “the importance of being second,” as described in an editorial by the Journal’s staff editors.<sup>6</sup> The value of these manuscripts is organic replication, which may be even better than a post-hoc replication study.

Another effort to counter publication bias is *PLOS Biology*’s upcoming launch of Registered Reports in collaboration with the CHDI Foundation<sup>7</sup> (a not-for-profit organization that focuses on Huntington’s disease research and drug development). Study proposals are assessed for experimental design, ethical approval plan, data sharing plan, etc. If the registered report passes peer review, *PLOS Biology* commits to publish it, regardless of the study outcome. This takes pressure away from achieving a particular outcome, as pressure to publish can be toxic and lead to lax replicability.

**Open Research Practices**

Dr Wijayatilake discussed a number of policies at *PLOS Biology* in support of open research. These include a data policy that requires authors to make all data underlying their findings fully available without restriction at the time of publication; a materials sharing policy by which the journal strongly encourages deposition of materials in repositories; strong encouragement for authors to use Research Resource Identifiers (RRIDs) for citing and uniquely identifying research resources; and a partnership with protocols.io to enable

authors to share protocols and methodological details which are then directly linked from the Methods section of their articles.

**Open Publication Process**

In support of open publication, *PLOS Biology* is an official partner with bioRxiv, which enables automatic preprint posting of submitted research articles for authors who opt in during the PLOS submission process. Conversely, authors posting preprints to bioRxiv may choose to concurrently submit to the PLOS journals through a transfer service. The PLOS journals have also launched published peer review.<sup>8</sup> In this model, authors may choose at acceptance whether to publish the peer review history for their paper. Reviewers may choose whether to reveal their identities.

*Despite some of the drawbacks such as extra work for authors and delays to the publication timeline, these publishers have not observed harm to their journals as a result.*

By the end of this session, attendees had heard about a broad array of initiatives undertaken by three selective, high-impact journal publishers. The efforts presented by Dr Swaminathan, Dr Brooks, and Dr Wijayatilake ranged in complexity and stringency, but all are aimed at ensuring their journals are publishing the most rigorous research possible. Despite some of the drawbacks such as extra work for authors and delays to the publication timeline, these publishers have not observed harm to their journals as a result. They have concluded that the positive impact to the science outweighs the associated costs.

**References and Links**

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# Diversity and Inclusion from Research to Post-Publication

## MODERATOR:

### Brit Stamey

Copyediting Services Coordinator  
J&J Editorial  
Cary, North Carolina

## SPEAKERS:

### Erika Valenti

SVP  
Emerald Publishing  
United Kingdom

### Harrison Inefuku

Scholarly Publishing Services  
Librarian  
Iowa State University  
Ames, Iowa

### Racquel Jemison

Student Experiences Portfolio  
Manager  
American Chemical Society  
Washington, DC

### Kamela Heyward-Rotimi

Executive Director/Founder  
Knowledge Exchange Research  
Group

### Deborah Poff

Chair  
Committee on Publication Ethics  
United Kingdom

### Nancy Roberts

CEO  
Umbrella Analytics  
United Kingdom

### Siân Harris

Communications Specialist  
INASP  
United Kingdom

### Racquel Jemison

Student Experiences Portfolio  
Manager  
American Chemical Society  
Washington, DC

## REPORTER:

### Heather DiAngelis

Manager, Journals Production  
American Society of Civil  
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Reston, Virginia

"It's not just inclusion; we all need to be a part of the design of the platform."—Kamela Heyward-Rotimi

In a two-part session titled "Diversity and Inclusion from Research to Post-Publication," speakers discussed diversity problems inherent to academic publishing. The panelists provided a wealth of perspectives, including topics ranging from high school students considering science degrees through researchers' access to published material. The sessions highlighted case studies, methods, and goals for increasing diversity across the entire scholarly record.

Erika Valenti kicked off Part 1 with an overview of STRIDE, Emerald Publishing's LGBTQ and social justice awareness initiative that concentrates on gender, diversity, stereotypes, unconscious bias training, and inclusion. At its core, Emerald Publishing, and STRIDE in particular, focuses on upholding safe spaces, which is seen as a never-ending project. STRIDE adheres to several pillars, including sharing and disseminating content related to LGBTQ and social justice research and scholarship, and expanding their good works plan into the local community.

Next, Harrison Inefuku from Iowa State University discussed efforts to examine which voices are excluded from scholarly records. In the face of a large majority of white authors and contributors in the academic realm, he wants to ensure that underrepresented voices of faculty at Iowa State University are heard. To this end, the Iowa State University Digital Press provides a platform for diverse voices.

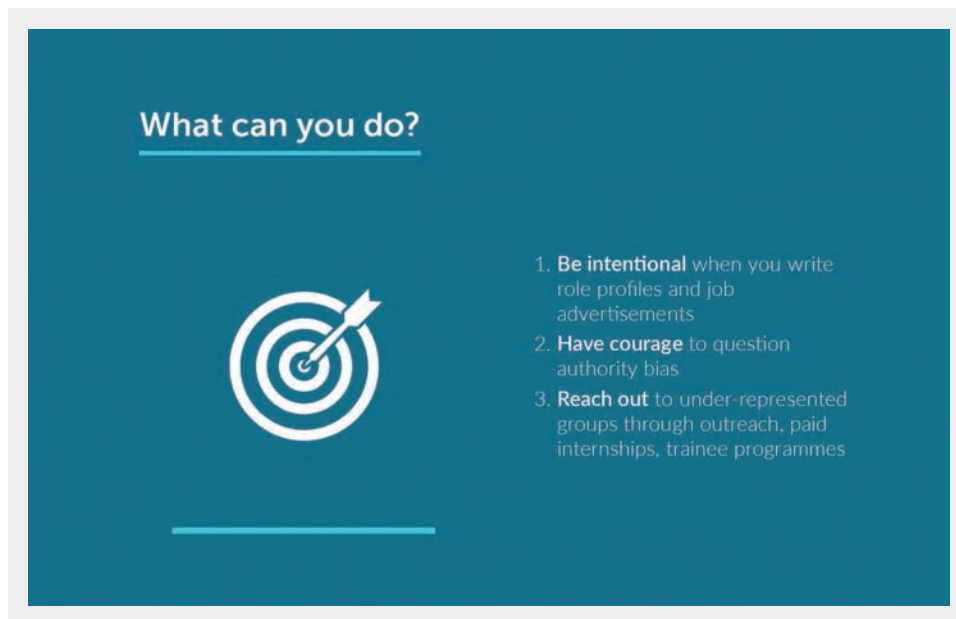
Racquel Jemison from the American Chemical Society (ACS) then discussed initiatives for filling up the pipeline of science careers—and, by extension, future authors—with underrepresented voices. To achieve this goal, three programs in the Education Division of ACS (Project SEED, the ACS Scholars Program, and the ACS Bridge Project) focus on encouraging high school students to be excited about chemistry, funding college student education and expanding professional networks, and creating more opportunities to attend graduate school. All three programs focus on students from low-income and/or historically underrepresented minority groups.

Next, Kamela Heyward-Rotimi, founder of the Knowledge Exchange Research Group (KERG), emphasized that collaborative knowledge production is the future of equitable publishing and stressed the importance of including West African scholarship in global platforms. As described by Heyward-Rotimi, KERG is "an international research group that explores solutions to the growing crisis of African-descended communities' and racialized groups' inequitable access to digital information and knowledge production." One of KERG's programs that aims to shrink the digital divide and increase the equitable exchange of academic knowledge is the West African E-Library Collaborative, which is a pilot project exploring improved e-library access, publishing, and digital archives for scholars at West African Universities.

The final panelist in Part 1 was Deborah Poff from the Committee on Publication Ethics (COPE), who examined efforts to resolve sources of bias in publishing. She covered three case studies of publications that faced severe backlash after exploring bias. These case studies prompted interesting questions about whether the standards of expertise for authors, peer reviewers, and editors are changing, and whether some subjects are off limits for authors because the subject matter is not a part of their lived experience.

In Part 2, Nancy Roberts from Umbrella Analytics discussed problems with diversity in academic publishing in the United Kingdom, stressing that an abundance of

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publishing employees are highly educated, poorly paid, and overwhelmingly white. As Roberts stated, "Academia is not representative of society at large." She encouraged those in academia to consider how many employment roles truly require a degree, how often authority bias sways organizational decisions, and how intentional academics are about ensuring published science is unbiased.

Next, Siân Harris from INASP presented on the importance of equity in global scholarship—as authors, editors, reviewers, and publishers. She stated that, "It's not enough to simply have access to the research other people have done." Furthermore, Open Access can be a disadvantage when publishers charge high paper-processing charges, and research funding can be shaped by global north research interests. She also noted how discussions about global publishing often ignore the many good journals that are published in the global south. To improve global diversity in journals, Harris recommended thinking about geographical diversity in

authors and reviewer bases, and expanding the diversity included within them by not defaulting to more convenient pools of candidates.

Racquel Jemison followed up by examining how diversity and inclusion needs to be both a top-down and bottom-up approach. By attending minority advocacy conferences, such as the Society for Advancement of Chicanos and Native Americans in Science (SACNAS), staff members dedicated to improving diversity and inclusion initiatives can get a sense of how science and culture combine while also meeting potential authors, editors, and employees.

The final speaker of Part 2 was Deborah Poff, who presented on the ways English has become the lingua franca of scholarship. The process of ranking universities around the world has escalated the criteria for being a researcher, while countless non-English-language journals are not added to many citation indexing services, creating a disadvantage for researchers whose first language is not English. Due to the dominance of the English language in scholarly publishing, many English-as-a-second-language writers experience a higher rejection rate, which might cause them to pay out of pocket for English editors or turn to predatory publishers.

During a brief question-and-answer period, an audience member asked whether there was an achievable end goal for diversity and inclusion. Racquel Jemison stated that diversity and inclusion is "a moving target, and it's something that needs to be considered as a process, and not as a box to be checked." In response, Nancy Roberts remarked that, "The metrics don't matter; what matters is the implications of those metrics."

# Short Course for Manuscript Editors

## FACULTY:

### Elizabeth Blake

Director of Business Development  
Inera Inc.  
Belmont, Massachusetts

### Stacy Christiansen

Managing Editor  
JAMA  
Chicago, Illinois

### Annette Flanagan

Executive Managing Editor  
JAMA and the JAMA Network  
Chicago, Illinois

### Tom Lang

Principal  
Tom Lang Communications and  
Training International  
Kirkland, Washington

### Peter J Olson

Senior Copyediting Coordinator  
Sheridan Journal Services  
Waterbury, Vermont

## REPORTER:

### Marjorie Jean-Baptiste

National Registry of Emergency  
Medical Technicians  
Columbus, Ohio

Let's be clear; there was nothing short about the Short course for Manuscript Editors. The five-session, seven-hour course was taught by five faculty members who collectively have decades of industry-related experience. Even still, Peter Olson, the Course Coordinator, stated, "we learn from you," as he encouraged a group of approximately fifteen attendees to share our experiences and to ask questions throughout the course. The objective of this report is to provide a brief, personal account of the course and, essentially, what I learned from them.

Elizabeth Blake's session, "Microsoft Word Tips for Manuscript Editors," offered numerous ways anyone who writes or edits can use Microsoft Word more effectively. From document formatting and keyboard shortcuts to how to incorporate custom dictionaries and customize the Word ribbon, the material was all-encompassing. Sure, while many of the tips and tricks of Microsoft Word can be found "buried in the bottom drawer of a file cabinet," as Blake said, once you find them, you'll wonder how you ever accomplished anything without them.

Never taken a statistics course? Have no worry. Basic mathematical mistakes, incomplete or missing data, and incorrectly reported data, can all be caught with enough diligence and some simple strategies. "One of the ways to keep track of things is to create a flow chart of the sample selection process," Tom Lang suggested during his session on "Statistical Errors Even YOU Can Find." Such a chart allows you to account for all patients in a study, indicates the research design, and provides the group sizes that provide denominators for calculations

such as percentages and ratios. He concluded his session by explaining that the effective communication of research results depends on the accuracy of the results and how the information is framed. He also cautioned against confusing the results with the conclusion; instead, the results should be detailed in the results section, and the implications of the results should be discussed within the body of the conclusion.

Based on several different studies, a high rate of errors is found among citations and reference lists, as noted in the session "Editing References." Fortunately, there is software that can help with reference and citation management and, subsequently, can help to decrease the number of errors in a manuscript. As Stacy Christiansen noted, "manuscript editors are the gatekeepers of quality, accuracy, and consistency," and that includes ensuring that references are functional and, thus, discoverable for readers.

*Manuscript editors are the gatekeepers of quality, accuracy, and consistency.*

Peter Olson's session, "(Some) Best Practices of STM (Scientific, Technical, and Medical) Editing," was another session any copyeditor or manuscript editor could benefit from. A part of this session involved the attendees splitting up into roundtable discussion groups to bolster engagement during the class exercises. These consisted of extrapolations of previously written scientific articles to facilitate understanding of topics covering abbreviations, ambiguity, consistency, redundancy, and word usage. Olson stated, "You would never want to pluralize units of measure," during the discussion about abbreviations. Likewise, caution should be taken when writing and abbreviating certain nouns. For instance, computed tomography scans should be abbreviated as CT scans not CTs, and ultraviolet rays should be abbreviated as UV rays not UVs. Seemingly minor mistakes such as these and others could pose serious implications if overlooked.

Annette Flanagan's session entitled "Ethical and Legal Issues in Scientific Editing" covered topics on authorship and authorship issues, conflicts of interest, copyright, publication licensing, permissions to publish identifiable information, protecting participants' rights in research, and how to handle corrections after a manuscript has been submitted. "As the number of authors are increasing so



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are authorship disputes,” Flanagan stated, and “if there are author problems, then there may also be problems with the integrity of the work.” A packet of materials was provided to attendees to support the session, and roundtable discussion groups were convened to offer additional guidance on how to address common ethical and legal

issues with group authorship, authorship concerns, and conflicts of interest.

Whether you’re a manuscript editor or copyeditor, or someone who simply enjoys writing or editing and learning from others, the CSE Short Course for Manuscript Editors is an interactive course packed with the right amount of useful information.

# Managing Conflict of Interest Disclosure—Where Are We Going?

## MODERATOR:

**Sofia Dorsano**

World Allergy Organization  
Milwaukee, Wisconsin

## SPEAKERS:

**Sabina Alam**

Taylor and Francis Group  
Abingdon, United Kingdom

**Patrick Hannon**

New England Journal of Medicine  
Boston, Massachusetts

**Dina Michels**

American Society of Clinical  
Oncology  
Alexandria, Virginia

## REPORTER:

**Andrea Kunz**

Society for Immunotherapy of  
Cancer  
Milwaukee, Wisconsin

Addressing the growing concern about competing interest transparency among authors, reviewers, and editors is a resource challenge for journals. The CSE 2019 Annual Meeting session “Managing Conflict of Interest Disclosure—Where Are We Going?” identified common challenges in conflict disclosures and provided a platform for attendees to consider opportunities for harmonizing the process.

The session began with Dina Michels identifying how challenging it can be for authors to disclose all applicable financial relationships. Noting that a lack of disclosure standards can make an author’s or editor’s task more difficult, time-consuming, and open to errors, she emphasized the importance of developing a common disclosure framework that standardizes categories, definitions, questions, and timeframes. It was also stressed that, as an issue that extends beyond journal-related activity, development of best disclosure practices is a shared responsibility. She stated that having a clear, transferable framework across platforms can make the process easier for all involved.

It was noted that the Centers for Medicare and Medicaid Services (CMS) Open Payments program,<sup>1</sup> which was developed in order to promote greater transparency of financial relationships between health care providers and applicable conflicting companies, has become a common source for finding information about payments to US physicians. When comparing information self-disclosed by an author to a journal to information reported by companies in Open Payments, Michels pointed out that there are often discrepancies that may be explained in part because some journals specify author disclosure of relationships that are

“relevant” to the manuscript rather than general disclosure of the author’s relationships.

Sabina Alam echoed and expanded upon the challenges of conflict of interest declarations. Challenges addressed included confusion caused by terminology (i.e., conflict of interest versus competing interest), overlooking nonfinancial/personal conflicts, differing stated policies from one journal to another, determining what data is stored and for how long, and identifying how editors and reviewers view author declarations. Alam noted that staff, the editor-in-chief, and other editors should be engaged in the process of understanding and upholding conflict of interest declarations and resolution practices in order to ensure they are clearly followed.

Alam noted that an available resource to help ensure the greatest continuity across journals can be found through the conflict of interest guidance of the International Committee of Medical Journal Editors (ICMJE).<sup>2</sup> ICMJE offers a six-part disclosure form with instructions for electronic completion and storage that supplies reviewers with information about any interests of an author that could potentially influence how the work is received by the reviewer and public. She shared that providing ICMJE definitions within the system rather than referring authors to a separate site increases the likelihood that authors will read and understand what they are declaring. Given that personal and career changes can occur for authors during the time that a manuscript is going through the peer review process, she also indicated that conflicts of interest provided at submission should be confirmed at the revision or acceptance stage to ensure they are still accurate and complete before publishing.

To close the session, Patrick Hannon provided an overview and demo of the Association of American Medical Colleges (AAMC) disclosure platform, Convey Global Disclosure System (Convey).<sup>3</sup> Convey was developed to act as a central repository for individuals to enter and maintain their financial interest records.<sup>4</sup> It is free for individual researchers and carries an annual fee for participating organizations.

AAMC and ICMJE are closely following the pilots of Convey that are currently underway with *Annals of Internal Medicine* (AIM) and *New England Journal of Medicine*

## CONTINUED



From left to right: Speakers Dina Michels, Sabina Alam, and Patrick Hannon with moderator Sofia Dorsano.

(*NEJM*). Hannon demonstrated the four stages for submitting a disclosure to *NEJM* through Convey:

1. Reviewing journal policies and instructions,
2. Entering interests,
3. Responding to additional questions (often customized by journals), and
4. Reviewing and submitting the disclosure information.

Participating organizations can tailor conflict requests depending on their specific needs. Convey then recognizes which types of conflicts are required for each participating organization and saves authors the step of having to do so themselves. This allows authors to submit to multiple sources with differing disclosure criteria much faster and using consistent terminology and declaration formats. Journals also have the ability to pull the disclosure information they receive as PDF or XML files, providing journals with options on how they display and report financial conflicts. On the horizon, Hannon

noted that Convey is looking into the development of a form that could be free for authors to use and submit to nonparticipating organizations, as well. Additionally, there are some early discussions underway on integration possibilities with existing review platforms.

After some audience discussion after speaker presentations, a primary takeaway shared by speakers and attendees alike was that journals should work together to create a strong combined voice that advocates for the implementation of a standardized, integrated disclosure collection system that will aide in moving science forward more effectively and efficiently.

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# Patient Engagement in Scholarly Publishing

## MODERATOR:

### Christine Casey

Serials Editor  
*Morbidity and Mortality Weekly Report*  
Centers for Disease Control and Prevention  
Norcross, Georgia

## SPEAKERS:

### Kevin Fowler

Patient Voice Editor  
*Clinical Journal of the American Society of Nephrology*  
Chicago, Illinois

### Shari Leventhal

Managing Editor  
*Clinical Journal of the American Society of Nephrology*  
Derwood, Maryland

### Bill Silberg

Director of Communications  
Patient-Centered Outcomes Research Institute (PCORI)  
Washington, DC

### Christine Laine

Editor-in-Chief  
*Annals of Internal Medicine*  
Senior Vice President  
American College of Physicians  
Philadelphia, Pennsylvania

## REPORTER:

### Laura Gerik

Assistant Managing Editor  
*Methodist DeBakey Cardiovascular Journal*  
Houston, Texas

In keeping with the 2019 CSE Annual Meeting theme of inclusivity, the session on “Patient Engagement in Scholarly Publishing” focused on including the patient at all levels of scholarly publishing—from reviewing research proposals to writing to conducting peer review and repurposing and disseminating journal content.

“We’re trying to change the disconnect between the way the investigator looks at the research versus the person with the disease and the end result,” said Kevin Fowler, editor of the *Clinical Journal of the American Society of Nephrology’s* (CJASN) Patient Voice section. Fowler kicked off the session describing how CJASN “elevates the patient voice” by recruiting patients with kidney disease to write commentaries related to CJASN research articles, thereby allowing patients to add their perspectives to scholarly dialogue about the issues that affect them the most. Patient contributors—whom patient voice editors, including Fowler, select to be representative of the population of patients with kidney disease—contextualize medical research with their real-world experiences. “Maybe we need to redefine exercise,” commented one patient-author, pointing out that common definitions of “mild, moderate, and rigorous” exercise seemed unrealistic and demoralizing for patients exhausted by chronic kidney disease.<sup>1</sup>

Leadership is key to successfully incorporating patients into scholarly publishing. “If your leadership doesn’t align with the journal’s goal, don’t even try something like this,” Fowler

cautioned. He attributed the success of CJASN’s Patient Voice to journal and patient leaders who co-developed the program as a sustainable model that aligns with the overall mission of the American Society of Nephrology.

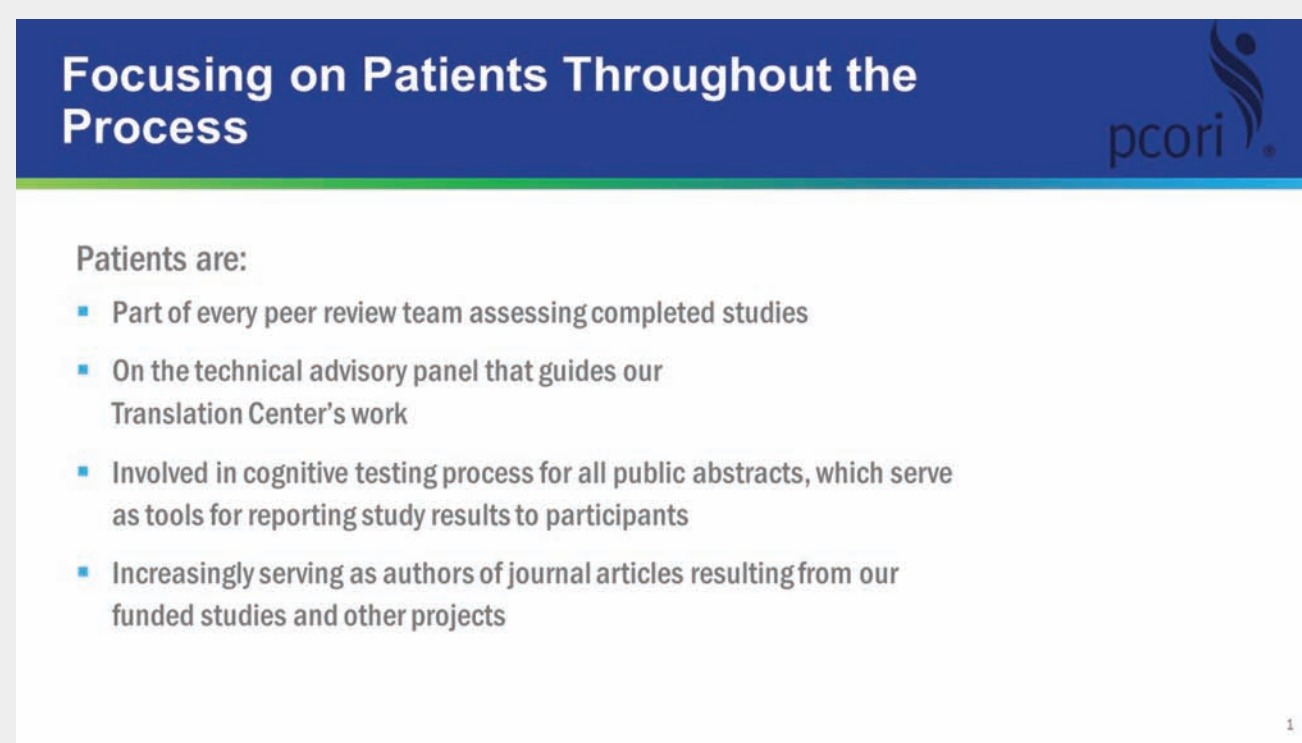
Shari Leventhal, CJASN managing editor, described the editorial process for Patient Voice articles. The journal adopts a similar approach to invited scholarly articles to maintain the same level of editorial oversight and ensure high-quality contributions to the scholarly literature. CJASN editors identify original research suitable for patient commentary and send formal invitations to potential editorialists through their peer-review system. At this point, Leventhal and Fowler may take a more hands-on approach to offer encouragement and guidance to patient-authors who aren’t accustomed to writing; however, their role is mostly supportive, whether it be answering questions or helping with submission, ensuring that the words and ideas are the author’s own. After submission, the manuscript goes through an internal peer review. Finally, both the Patient Voice and original research article are published as open access. “We wanted any patient who reads the Patient Voice article to have access to the original research,” said Leventhal.

The Patient-Centered Outcomes Research Institute (PCORI) was established by Congress in 2010 as a publicly funded, private nonprofit organization supporting comparative clinical effectiveness research designed to help patients, clinicians, and policy-makers make informed healthcare decisions. All PCORI-funded studies require meaningful patient input at every stage, from topic selection through design, peer review, results, and dissemination (Fig. 1).

“From very early on, we wanted to make sure that patients and other stakeholders were weighing in on the applicability of the research,” said Bill Silberg, Communication Director for PCORI. “Was this research that was potentially going to make a difference for patients in the real world?”

PCORI is legally required to include patients in review of research funding applications and in peer review of completed studies. The results of that research are shared as widely—and inclusively—as possible. All PCORI-funded research is reported on the organization’s website in the form of 500-word summaries for professionals and patients (the latter written at an eighth-grade reading level and cognitively tested for understandability). To widen the audience for critical research, PCORI also covers open access fees for selected articles and works with journals to make original





## Focusing on Patients Throughout the Process

pcori

**Patients are:**

- Part of every peer review team assessing completed studies
- On the technical advisory panel that guides our Translation Center's work
- Involved in cognitive testing process for all public abstracts, which serve as tools for reporting study results to participants
- Increasingly serving as authors of journal articles resulting from our funded studies and other projects

1

**Figure 1.** Focusing on patients throughout the process. ©2019, Patient-Centered Outcomes Research Institute. All rights reserved. Used with permission. Learn more at [www.pcori.org](http://www.pcori.org).

research articles linked to PCORI summaries available to readers at no cost.

The *Annals of Internal Medicine* also takes an inclusive approach to patient engagement, including patients as readers, authors, and reviewers, explained editor-in-chief and former CSE President Christine Laine. Recognizing that the *Annals* is not a go-to source for most patients, Laine and her team reach out to patients-as-readers through several channels. First, they have a proactive media strategy: "The media is the way most of the public gets their information, so we put a lot of effort into helping them get the story right," Laine said. The *Annals* prepares tip sheets for journalists, video news releases, and news packages about guidelines. The front-end effort often pays off, with media coverage amplifying key *Annals* articles to reach hundreds of thousands of people. Next, the *Annals'* "In the Clinic" features "practical, pragmatic reviews of common clinical conditions" and includes an information page written for patients that patients can access online or in handouts from their physician. Finally, the *Annals* editors write summaries that translate clinical guidelines and selected original research articles into clear language specifically for

patients. The summaries use a standardized question-and-answer format that sometimes attracts more online traffic than the corresponding scientific abstracts.

As with *CJASN*, the *Annals* does occasionally publish material that includes patient authors. When patients contribute to research articles and clinical guidelines, they must follow standard practices and policies, including disclosing conflicts of interest and honoraria, Laine explained. Patients can also contribute by writing "On Being a Patient" essays about the patient experience.

Lastly, the *Annals* is participating in a pilot study with several journals using patients as reviewers. These patient-reviewers work closely with professional reviewer mentors. However, Laine believes that patient input could be more useful when planning the research design than when reviewing publications. "The earlier we can involve the patient's voice, the better," she said.

## References and Links

1. Jefferson NM. A patient's view on exercise and ESKD. *CJASN* 2019;14(2):171.

# Streamlining the Process— What's Worked

## MODERATOR:

### **Michele Springer**

Principal Medical Editor  
Caudex  
New York, New York

## SPEAKERS:

### **Michael Lederman**

Editor-in-Chief  
*Pathogens and Immunity*  
Case Western Reserve University  
Cleveland, Ohio

### **Brit Stamey**

Copyediting Services Coordinator  
J&J Editorial, LLC  
Cary, North Carolina

## **Dawit Tegbaru**

Managing Editor  
American Society for Radiation  
Oncology  
Arlington, Virginia

## REPORTER:

### **Daniel Nadolny**

American Cancer Society  
Atlanta, Georgia

Dr Michael Lederman's presentation focused on the various ways in which his relatively new journal streamlined their submissions process, with the stated goal of "making life easier" for contributing scientists. He began by recounting the vast number of biomedical journals currently in operation, and the enormous breadth of content in which clinical and scientific interests can be researched. In Dr Lederman's view, authors are the engines driving scientific research (and represent the true "constituency" of any publication) but are poorly served by difficult journal policies and practices. He identified several of the problems they face: onerous and unclear submission processes, slow pace of review, lengthy time to publication, fees, lack of access to content, and "overall anxiety of academic life."

Dr Lederman described how he and his colleagues addressed these issues in their field by starting a journal. He approached his dean with the idea, obtained funding, and worked to identify a qualified and dependable group of editors along with a strong managing editor. He outlined policies and procedures (utilizing ideas in place by established, successful journals and some novel approaches unique to this journal) and persuaded noted researchers in his field to serve as associate editors. Finally, his team built a website—and the journal *Pathogens and Immunity* was born.

His presentation went on to explain the relative simplicity and adaptability of *Pathogens and Immunity*. Its policies include a rapid, straightforward submission process (less than 5 minutes online) which includes the ability to submit manuscripts in any format. Authors can provide

previously received reviews (and their responses/revisions as warranted). The journal's reviewers are paid for timely reviews. Manuscripts are published online immediately upon approval of the accepted final copyedited manuscript by editors and authors. There are no fees, all content is open access, and the journal is indexed on Google Scholar, PubMed, and PMC. The journal, which launched in 2016, has published 8 issues, 42 reports, and maintains a time-to-first decision of about 20 days. Its self-calculated impact factor is 3.02.

Dr Lederman concluded by encouraging editors to consider adopting "scientist-friendly" policies, and to consider what Plan S will mean for their journals. He said that scientists have the leverage to shape scientific publishing for the better, and he encourages them to send research to journals that simplify their lives.

Brit Stamey discussed best practices implemented by J&J Editorial during instances of system transitions (peer review systems, production trackers, etc.) and related personnel onboarding. She noted that the first course of action should be to determine all applicable timelines, identifying key players, setting expectations, and staying aware of marketing considerations. She stated that every step in the transition process is an opportunity for a journal to reexamine its processes. Be sure to identify the goal of the transition, and to keep it in mind throughout the process. She recommended doing a SWOT analysis (strengths, opportunities, weaknesses, threats) prior to undertaking any major transition.

Ask yourself the following: What is the date of the official transition? Create a timeline backwards from that date, which may include site transition dates, system/issue dates, marketing, etc. Ask for status updates from key players before major deadlines. Establish who the decision makers are, and who generally should be looped in. For journals, what editors need to be involved? For societies, who needs to be involved? Who can be counted on for quick responses? Decide how much say each party should have. Keep in mind how much time you have, your goals, the most important issues you want to rectify.

Brit states that communication is everything during transitions. She recommends scheduling regular calls, creating live and shared tracking sheets (Google Sheets, Dropbox, Trello, etc.) to monitor progress, and the creation (or refinement) of policy documents.

Set and temper your expectations during and after system transitions: no system is perfect, and no transition

## CONTINUED

goes perfectly. Arrange for appropriate staff support during and after the transition, until it is completed and you are on the new system. You should determine when manuscripts can be submitted in the new system, when you will stop accepting them in the old system, when you will cease allowing revised submissions, etc. Work with your production team to create a plan for processing manuscripts accepted in both the old and new systems. This is also a chance to go over your workflow, your letter templates, your submission questions, etc. Be prepared for this process to take a while—many months or even 1–2 years.

Brit briefly touched on revising style guides by saying less is often more. Use a base style like AMA (American Medical Association Manual of Style) or Chicago (Chicago Manual of Style), and only note deviations from that base style. Collect questions you get from relevant parties, etc. With this (and all transitions), determine how you will use your marketing resources to announce these changes to relevant parties, authors, groups, partners, etc.

Brit also mentioned that when setting expectations for onboarding new staff, start by determining realistic goals and sharing them with the employee to better understand how success can be established. Work to foster team mentalities, even in small or remote groups. Get people to feel involved and supported. Encourage them to ask questions.

Dawit Tegbaru spoke about his journal's new conflict of interest (COI) verification system, starting with some background on disclosures. The Federal Sunshine Act requires disclosure of payments given to physicians from drug or medical device companies, and these disclosures are stored on Open Payments.<sup>1</sup> Most journals require that authors must disclose any financial or personal relationships that could bias their work. In 2018, the *New York Times* published several reports about prominent physicians who didn't disclose their conflicts in medical journals.

Dawit then talked specifically about his journal's experience, and asked whether a system in which corresponding authors gather COI forms, time elapses, disclosures change, etc., is the most efficient and transparent method of dealing with author COIs. At the American Society for Radiation Oncology (ASTRO), Dawit's team undertook a process audit, and came up with a new verification method: asking all listed authors to confirm their authorship, asking if the disclosures reported on their manuscript's title page

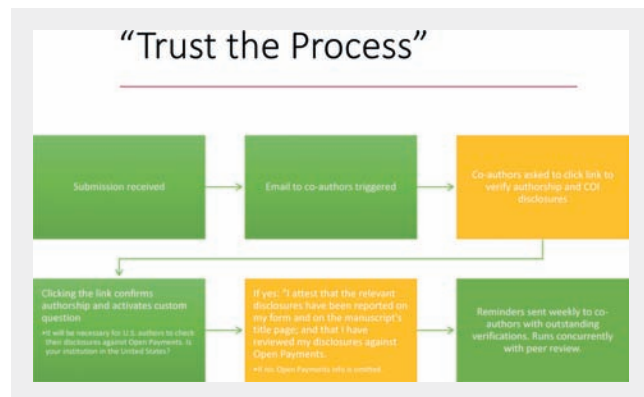


Figure 1. ASTRO's process for confirming authorship.

match what they submitted in their International Committee of Medical Journal Editors (ICMJE) COI form, and confirming that their disclosures were reviewed against Open Payments (Fig. 1).

He noted that while some journals are hesitant to add more requirements for authors, ASTRO opted to be more progressive for this sensitive and important issue. For the ASTRO journals, all coauthors are asked to click a link verifying their authorship and disclosures. Automated reminder emails go out once a week, but the review process is not delayed.

Implementation was then tracked: The journals counted how many requests and reminders they sent, and then calculated the percentage of completed verifications. They were able to obtain an 85% completion rate over the first four months after implementation. They also monitored verification issues (such as links not working, incorrect email address, wrong option selected, login/registration issues, etc.) Dawit states that they have a great completion rate, and relatively few queries about it. In implementing this process, they've even observed authors wishing to revise their author contribution statement.

He concluded by asserting that their journals have implemented a simple, scalable, cost-friendly process that raises awareness about disclosures, increases overall transparency, and creates more opportunity to communicate with contributing authors.

## References and Links

1. <https://openpaymentsdata.cms.gov/>

# Funding Mandates: Looking at Plan S and Beyond

## MODERATOR:

**Carolyn de Court**

Senior Managing Editor  
J&J Editorial  
Cary, North Carolina

## SPEAKERS:

**Angela Cochran**

Managing Director and Publisher  
American Society of Civil  
Engineers  
Reston, Virginia

## David Weinreich

Director of Public Affairs  
STM

## REPORTER:

**Chris Reid**

Executive Publisher  
Oxford University Press  
New York, New York

Angela Cochran began the session with an overview of Plan S, outlining the coalition's birth from frustrations with the slow move to Open Access (OA) publishing, and then moved on to describe Plan S's value statement and who currently makes up the coalition. Here she shared the more recent news that Sweden has pulled out of implementing Plan S, as might United Kingdom Research Innovation, stressing some concerns about the plan and its implementation. She also highlighted the work the coalition is doing with other funders and the current lack of traction it is getting. Cochran indicated that it is unclear exactly how many papers Plan S will cover, but the best estimate is around 3% of the market.<sup>1</sup> From this, she highlighted that the countries with the largest research outputs have not joined the coalition (e.g., US, China, Germany).

Cochran then outlined the key principles of the plan and that currently 85% of journals are not compliant with these principles, including many Gold OA titles. The key points from the implementation guide to compliance were highlighted, including the following:

- OA journals should be in the Directory of Open Access Journals
- Option for a Creative Commons license (CC-BY)
- Full text XML should be in the JATS DTD
- Transparent pricing
- Automatic APC waivers for low income countries and discounts for middle income countries
- Archiving
- No mirror journals
- Moving towards a "transformative" agreement

She also highlighted the key roles of repositories and that only PubMed Central PMC currently meets the criteria.

(Amendment: A few weeks after this presentation, new guidance was issued from cOAlition S that makes most of the restrictive requirements a mere recommendation.)

Cochran then spoke about the practical side for journals. This included review content for Plan S-funded works and whether journals can wait for a final, clear, outline of next steps. She also highlighted the reasons not to panic, including the 700+ pieces of feedback received by Plan S; that officials are presenting mixed messages on implementation; that funders are concerned that little consultation has been done with stakeholders; and that a number of major funders are very lukewarm about the plan. Her key advice was to wait for further feedback from the coalition, but in the meantime to look at OA options for the future and keep the conversation moving with all journal stakeholders.

David Weinreich then followed by emphasizing the message not to panic about Plan S. He indicated that STM and many other publishers support the goals and principles behind Plan S, but there are many questions about implementation. He compared it to a Rorschach test from which everyone's own views are reflected. He noted there are lots of terms like "transformational agreements" but conflicting information about what these actually are and what will happen in reality when these ideas are incorporated into funder agreements. He emphasized that the ideas being discussed around Plan S reflect the current direction of movement, and that publishers are already responding with innovations. He suggested that publishers would be wise to respond to the pressures for OA in the communities each publisher supports, rather than to simply focus on what anyone says or thinks Plan S specifically requires.

*Her key advice was to wait for further feedback from the coalition, but in the meantime to look at OA options for the future and keep the conversation moving with all journal stakeholders.*

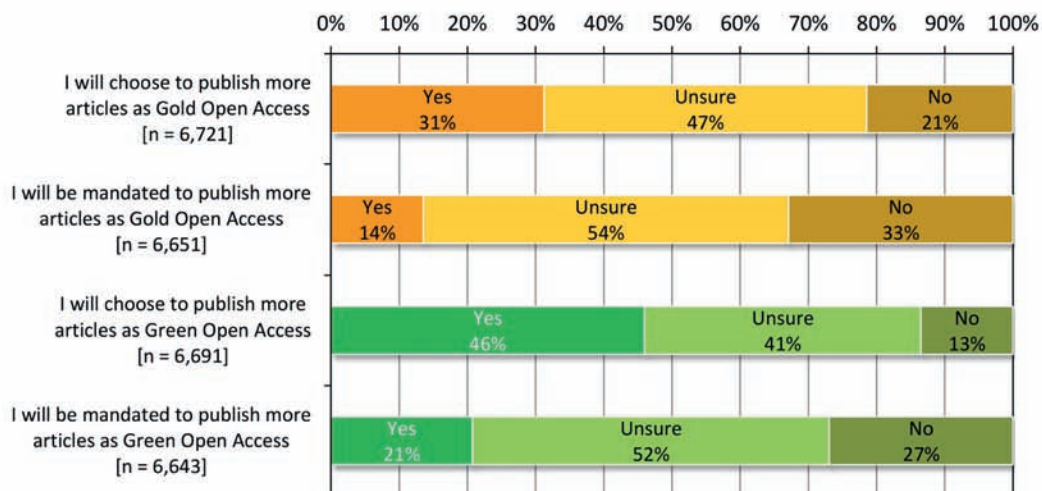
Weinreich then highlighted researchers themselves, showing an increase in the number who select OA and sharing a report that 31% will choose Gold OA.<sup>2</sup> However, OA isn't a driving priority for researchers. Pressure is coming more from an institutional and funding level with most now having OA policies, with a strong focus on Green OA rather than Gold OA.

Weinreich then moved on to give the reminder that publishers don't have to do anything, but if they want



CONTINUED

## Researchers: Future intentions regarding OA publication



From 2014 Taylor & Francis open access survey  
<https://www.tandfonline.com/openaccess/opensurvey>



articles from funded researchers they will need to respond to their authors' needs. He then explained what publishers are doing, showing that OA is growing, and that about 10% of articles are now published under Gold OA. He emphasized that publishers fully support OA but only when done in the right way, for example making things easier for authors/funders and consistent with high quality, integrity, and preservation.

Weinreich then highlighted the new options like mirror journals, read and publish, publish and read, and other potential transformative agreements, such as the forthcoming study from Information Power (funded by Wellcome and UKRI in partnership with the Association of Learned and Professional Society Publishers) looking into options, which is due in summer 2019.

Weinreich concluded by discussing new approaches for publishers and looking at where publishers offer value for authors, such as through support for compliance, new

evaluation and recognition options, and metrics which go beyond the Impact Factor. The key will be to keep research and researchers in the center of all that publishers do.

Following the two talks, the most discussed question was around timing. Cochran commented that the current "deadline is blown" and that Plan S was blindsided by the amount of feedback it received. It was pointed out that this delay benefits the big commercial publishers rather than society publishers. She predicted a step back and a delay to 2021, also influenced by the change in leadership at cOAlition S. Weinreich spoke to this too, highlighting that federal agencies move slowly but that publishers should not wait for funders to make up their minds.

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2. <https://www.tandfonline.com/openaccess/opensurvey>

# Options for Proof Review

**MODERATOR:**
**Leslie A. Walker**

Assistant Director, Global  
Production Operations for ACS  
Publications  
American Chemical Society  
Columbus, Ohio

American Chemical Society  
Columbus, Ohio

**Camille Clowery**

Production Manager  
Rockefeller University Press  
New York, New York

**SPEAKERS:**
**Mary O'Hara**

Assistant Director, Global  
Production Operations for ACS  
Publications

**REPORTER:**
**Vicky Congdon**

Senior Copyediting Coordinator  
Sheridan Journal Services  
Waterbury, Vermont

"Proof review is one of the key components of the publication process, ensuring the accuracy essential to a successful author experience. Two publishing professionals well versed in the proofing process provided insights into how publishers can best serve an author's needs at this stage of production. They described how, thanks to advances in technology, their publishing institutions are making the review process more productive, accurate, and efficient via improvements in workflows, use of automated tools, and best practices.

A former technical editor herself, Mary O'Hara currently manages a staff of editors as a vital part of the American Chemical Society's (ACS) publishing work. She also draws on her background as a business analyst to contribute to process improvement at ACS. O'Hara summarized the critical importance of the proof review process and its benefits to both author and publisher. Review of the proof is typically the final touch point for authors, allowing them to ensure their research is being conveyed as intended. It is also one of the final points of author-publisher engagement, providing publishers with another opportunity to build a positive relationship and ensure customer satisfaction. From the production standpoint, a publisher's goals are efficiency, high quality, and quick turnaround. "The use of technology," O'Hara noted, "allows publishers to employ efficiencies and provide an experience that authors will enjoy."

*From the production standpoint, a publisher's goals are efficiency, high quality, and quick turnaround.*

In the last 10 to 15 years, technological innovations in the proof review process have offered the potential to significantly reduce time between acceptance and online publication. After decades of a paper-based system, the introduction of the PDF in tandem with automated

composition systems has opened the door to digitally based workflows, offering greatly improved efficiency and accuracy.

ACS currently offers authors multiple approaches for reviewing proofs, including proofing in a Word template and annotating a PDF. Increasingly, however, ACS authors are migrating toward use of ACS's Direct Correct online proof review system, which allows the author to make corrections within the XML file via a browser-based tool. Many authors find the interface more intuitive, as it is similar to the track changes and querying features of Word, giving authors more control over the process. This approach also optimizes production efficiency and accuracy because it eliminates the transcription of corrections between multiple versions of files.

Looking ahead, O'Hara predicts two trends in particular will further refine the proof review process: 1) increased adoption of online authoring and editing tools and 2) the use of artificial intelligence by both authors and publishers. "The technology is here, and it is being improved and enhanced all the time," she noted. "As authorship changes and technology becomes more ingrained in the research, writing, and publication processes, the proof correction process will change with it, and we'll be able to continue to offer our authors a great experience while being very efficient in production," O'Hara concluded.

In addition to overseeing the production of Rockefeller University Press's (RUP) three journals, Camille Clowery plays a key role in vetting new tools, automations, and workflows as RUP continually refines its processes for efficiency and accuracy. In her overview of the RUP publication process, Clowery described how the current XML-based workflow has enabled use of an online proofing interface accessed via Sheridan's ArticleExpress. The staff uses this interface to make changes to the composed file, and the author can also access it for the proof review.

Previously, authors provided proof corrections via an annotated PDF, an inefficient method that could introduce errors. RUP still provides authors with the PDF option, but more than 80% of its authors now choose to use the online proofing interface, where only one person—the author—is making the edits, giving authors confidence their corrections will appear accurately. With staff no longer manually transferring the PDF annotations, the time from proof approval to online publication has been reduced by more than 40%. In RUP's surveys of author satisfaction, overall response has been very positive; 85% of authors indicate the online system is easy to use, a statistic that indicates to Clowery that RUP is "heading in the right direction."

## CONTINUED

**How can we improve the author experience?**

*"I do think that when the proofs are produced, the authors should be given a full list (e.g., and Marked-Changes document) of all changes made."*

*"Let the authors have a bit more time to check the page proofs, 48 h is not much."*

- Tracked changes of copy editing -?
- Authors rendering PDFs on the fly
- Continuous publication may ease proof deadlines
- Concise, simple instructions and interface
- Author's final experience should be fast and intuitive
- Over 80% of authors choose to use the HTML proofing system



"Authors are interacting directly with their content again while the publisher has control over the XML," noted Clowery. In this online proof environment, metadata such as ORCIDiDs or Crossref Funder Registry information are highly visible, "making it evident that we're providing a service by enriching authors' content, and ultimately, increasing the discoverability of the article," she explained.

Clowery recently solicited anecdotal feedback from two scientists on the author proofing process; she noted their biggest complaint (aside from the "sternly worded" proof emails) was the short turnaround time for review. "Scientists work on their papers for years, the editorial review may take weeks, even months, and then we ask them to drop everything and turn around their proof corrections in two to three days," she explained. While acknowledging the constraints of publishing deadlines, she would ideally prefer to provide authors with more time, recognizing that authors are highly motivated to turn their proofs around quickly. RUP's upcoming move to a continuous publication model may help to alleviate some of these deadline pressures.

Clowery offered this final thought: Authors are busy people, and the proof review process should be as user-friendly as possible. "It's important to remember that authors are our customers and we're providing a service to those customers," she noted. With the current proliferation of journals, authors have many choices, and she concluded, "I wouldn't underestimate the 'author experience' in choosing a journal."

Audience questions raised the issues of confidentiality and security related to the use of online editing interfaces (both panelists confirmed that security is taken very seriously), and the session concluded with a lively discussion on the pros and cons of providing an author with the opportunity to review the tracked editing changes. One audience member noted this approach can be a "double-edged sword," with authors sometimes undoing all of the editing; the moderator offered a global perspective, pointing out that it can also be a valuable learning process for non-native speakers seeking to improve their writing skills.

All full list of all of the presentations from the 2019 CSE Annual Meeting, including session descriptions and most presentation slides, can be found online at <https://www.councilscienceeditors.org/events/previous-annual-meetings>

There are about 34,550 active scholarly peer-reviewed journals, collectively publishing about 2.5 million articles a year.

(The STM Report, Fourth Edition)

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