

WINTER 2021 • VOLUME 44 • NUMBER 4

SCIENCE EDITOR



A PUBLICATION OF THE COUNCIL OF SCIENCE EDITORS

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Detail from 1802 caricature depicting concerns of the "Anti-Vaccine Society" to Edward Jenner's smallpox vaccine derived from cowpox. As Jenner prepares to vaccinate a young woman, mayhem ensues as several former patients demonstrate supposed effects of the vaccine with cows sprouting from various parts of their bodies. To date, no actual cow-human chimera have been discovered. Get vaccinated! [Artist: J. Gillray. Source: National Library of Medicine Digital Collections]

SCIENCE EDITOR

WINTER 2021
VOLUME 44 • NUMBER 4

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On the cover: Cathodoluminescence image of a diamond using a scanning electron microscope. Credit: Pavel.Somov, CC BY 4.0, via Wikimedia Common.



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Sophie Staniszewska and Richard Stephens: Democratizing Science Through Public Involvement

Janayne Carvalho do Amaral and Jonathan Schultz

As many work to make “open science” standard practice, an often overlooked area is whether the scientific research and publishing process is open to all stakeholders. In health and medical research, that means including patients and the public in the research that will significantly impact their lives. Bringing together academics and patients is the mission of the BMC journal, *Research Involvement and Engagement*,¹ as exemplified by their founding co-Editors-in-Chief, Sophie Staniszewska, a Professor of Health Research at the University of Warwick, and Richard Stephens, a patient advocate. Sophie and Richard recently spoke with *Science Editor* about the necessity of accessible, understandable research, the importance of community engagement, and the need to democratize research through public involvement.



Science Editor: What led to the creation of this journal?

Sophie Staniszewska: The origins of the journal were back in 2013–2014, where I was working with a group from the National Institute for Health Research (NIHR) INVOLVE and thinking a lot about evidence and knowledge and learning as important adjacent concepts. We realized that people were often undertaking projects and wanting to publish their involvement work, but journals didn’t always accept papers about involvement. There was a real gap in the market for researchers to publish this sort of work. That’s important because we want to build an evidence base for practice, and you need to be able to publish so people can refer to and cite work to use it.

Together with a group from INVOLVE, we submitted a proposal to BMC (now BMC Springer Nature) to launch a journal that addressed this gap. We launched in 2015, and as part of that process, we agreed that we needed a

co-Editor-in-Chief to represent patients. I rang Richard because he was top of my list. Luckily for me, after some thinking, he said yes.

Richard Stephens: I have a slightly different genesis to the whole journal. Sophie is right in how it happened, but the other side of the coin is the conversations that she and I and other people on the patient and public involvement circuit in the UK were having around NIHR meetings in Southampton. Sophie did all the groundwork and all the hard work, but nevertheless, there was this general feeling from patient advocates that we wanted somewhere to publish our stuff. We didn’t want it only to be in newsletters or blogs. We wanted the credibility that comes with a proper peer-reviewed academic journal, but we also wanted to be part of the peer review process. We hadn’t thought about editing it—I certainly hadn’t—but that was a logical outcome: a co-produced academic journal that would have the kudos for our work.

Science Editor: How do you define the role of the patients in contrast with the academics?

Richard: It was probably easier then than it is now. Then [at the start of the journal] there was a kind of simple definition because all of the academics were working in clinical or health services research or for academic institutions, and

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we patients, by and large, weren't; we might be working with them, but we weren't employed. We did not have contracts with universities. We were not employed in the health service. That then was the rough division. Of course, there are individuals who do cross those boundaries: a doctor can also be a patient and then they come to it with two hats on. But it was really the people who were involved as patient or public representatives in existing research projects. That was fairly easy to define. Are you involved in a research project? "Yes." What is your role? "I'm the patient representative." As opposed to: "I'm the statistician or I'm the chief investigator." Much of it was self-defining.

Sophie: The definitions are often hard to exactly pin down. One person can have more than one identity. If you're a patient, you might be seen as a service user of mental health services, you might be a caregiver, or you might also be a community representative who is very active in some areas. In research, we often don't spend enough time exploring that identity and what people bring until it manifests itself in their comments. I feel very comfortable with this fluid definition because it changes over time; as people pick up more experience and they do more things, they see themselves in different ways. As Richard says, sometimes we find that academics are also patients. There are some professors of mental health research who are also service users, and when they present and when they write, they bring those two elements together, which is very powerful. I think in a way, we need to enable people to find their own identity—if you like, if they probably know already—but to value that and to try and understand it and to appreciate what impact that has on what they contribute to research, because it's going to be different for different people, with different experiences.

Richard: We do have reviewers who appear on our lists both as academic reviewers and as patient public reviewers. There's a friend of mine who has published several papers, including in our journal, as a patient researcher. And as he asks, what is he now? Is he still a patient? Well, yes, he's still having treatment, but he's published more papers than some professional researchers.

Sophie: In the UK, we've also had a user-led research movement that has been very important in developing the involvement movement, and it was often mental health service users who were also academics leading pieces of research, but very much through that lens. That did give it a very different critique and a different approach. In a way, it's almost like an ecosystem where the more diversity we have, the stronger it is because there's the full range of perspectives that we're accessing. We try not to be too worried about absolutely specific definitions because we recognize they change and they're fluid.

Richard: It's also becoming even more blurred now because there is more patient and public involvement in basic science, in laboratory-generated research, and in genomics. That has stretched it because most of us, even 6 or 7 years ago, would never have thought of ourselves as scientists. Even if we thought of ourselves as clinical or qualitative researchers, scientists deal with science, but more and more of us patients are now doing that too.

Sophie: That takes us to a very interesting question of what is science, and what is knowledge, and what is evidence. These are contested as well. Science and its concepts can still be seen as social constructs: someone has decided a concept is important or developed it at some point and there is a dialogue to be had around who made those decisions and who decided it should look like that. That means in areas where you might not expect public involvement, it can still happen given the right context. For example, we've been working on a study looking at how the public are involved in mathematical and economic modeling. That's very common now with COVID, of course; however, when we started, it was a very hidden area but one where we were keen to explore the potential of involvement.

As you unravel it with your public contributors and you have conversations about it, you realize it is a social construct with lots of decisions about what variables go into a model, how they're construed, how valid they are, what they represent, and how they're combined in ways that create interpretations that someone else then puts into policy. From that, we've developed a framework to guide other modelers. Our approach to PPI in more complex areas is always to go off and explore what the possibilities are and to not shut it down too early and think that you can't include public involvement in a particular area. I would want it to apply to all journals; for me, public involvement is in many respects a paradigm shift: it's about democratizing research. It's about making research available for everyone and understandable for everyone and an opportunity to participate in that research. It's a bit of a cliché, but together we are better because we bring that broad well-rounded perspective to the topic of interest. If it is only academic researchers looking at it, they may miss some really important factors that will impact people's lives further down the road.

Richard: Sophie's right: this is about democratizing research, not only research studies, but the whole research environment, especially as we fund a lot of it—taxation or donation, it's our money. Involvement now includes getting involved with funding and priority decisions, whether it's for a research team or a national strategy. It involves sitting on things like data and safety monitoring committees for interventional studies. That's an area which has had very little involvement and certainly next to nothing published,

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but that is an open door and people are beginning to go through it. And it involves writing papers!

Sophie: The reason we're doing all this is because it's about the quality of the research. It's about asking the right questions. It's about measuring the right things in the right ways. It's about interpreting the results appropriately and understanding their full potential impact. It's about enhancing the conventional concept of validity in research with the idea of community validity, but it's also about choosing studies or topics that have relevance and potential impact on people's lives. Us academics could study all sorts of things, but whether they make a difference to someone's life is questionable. As Richard said, when you have a public paying for that research, there is an ethical and moral accountability to deliver research that makes a difference to people's lives.

The quality argument is that you can feel much more confident that you have undertaken your project in a way where you've considered all the relevant concepts, and that you've thought about the sorts of things your public contributors are thinking about. At the end of it, the study is a better study for it. It's higher quality in conventional research terms, but from the public perspective, it's more likely to go off and create some useful impact. Certainly, now we see that a lot of interest in patients wanting to implement the study results; to take the outcomes of a study, go to their local hospital and say, what about this? Why aren't you doing this? Or please do this for us. Then there's even more focus and interest for the research to be relevant.

If you go to your doctor and you want treatment, you want to make sure your discussion with your doctor about which treatment would be best is based on outcomes of relevance to you. Otherwise, your discussion could be missing the mark and giving you something that's not going to work—making sure things like outcomes are the right patient-important outcomes, measured in the right way and not just psychometrically driven instruments that work well psychometrically, but don't measure anything of importance. All these things come together and it's quite a complex picture of different motivations and different reasons, but with that sense of trying to make research better and to create more patient benefit and better health and better outcomes.

Richard: That does lead to another growth area in terms of patient involvement, which is in influencing regulators about their decisions, particularly around quality-of-life measures that they use, for example, to judge whether or not a drug is worth funding. Also clinical guidelines in the UK and in Europe, where big conglomerates like the European Society of Cardiology are producing guidelines for clinicians across Europe, and patients are getting involved in producing the

next iteration of those guidelines. For us, we usually get involved because someone we care about or ourselves has had a health problem; it might've been resolved, but that's usually, not always, but usually why we get involved. We have the phrase evidence-based medicine, and in the past, patients have been interested in the medicine and the researchers have produced the evidence, but now there's much more crossover.

Sophie: To pick up on that, one of the concepts I was involved in developing is patient-based evidence. In a way, some of this movement is about reconfiguring what we think of as evidence. We've been working with colleagues in Health Technology Assessment (HTA) around this concept of patient-based evidence. We published in a special issue² of the *International Journal of Technology Assessment in Health Care* this year looking at the patient and public involvement elements in HTA. We're arguing that we need a fundamental rethinking around what evidence should look like and who creates it and how it's cocreated as well. Again, those elements come into it because we want people to be creating studies that measure evidence of different sorts and making sure that it's relevant to the question and to the people involved. We're trying to push some of those boundaries as well.

Richard: It's about finding the better balance, particularly in illnesses like cancer, which is admittedly my background, but so many studies still focus on progression-free survival, where they're looking to prolong life often by months—not years, months. Increasingly, patients and patient families are saying, yeah, that's all very well if you can prolong the survival, and of course you can measure that, but what about the quality of life? What instruments are you using to measure that, and were they designed 30 years ago when your survival rates were much, much less than they are now? There are real hard conversations being had because we don't know what the answer is; what's now happening is that we patients are in the room asking that question. Why do you have to have one primary endpoint? Why can't you have two and patients can see the trade-off between, say, length of life and the quality of it?

Sophie: That also raises the point that we're not talking only about patient and public involvement in the content of research; we're talking about it in the context of methods and methodological development. The question of whether you are measuring quality of life in the right way for this group of patients is a bigger question. It's a question almost about whether you have the right methods to develop your instrument in ways that will address that question.

Quality of life measurement has been dominated by methods that are very good, and they test and develop instruments in really helpful ways. What we haven't seen in the

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same way is the embedding of public involvement at each stage of development of patient-reported outcomes. As a journal editor, I'm always looking out for papers that have done some methodological work that gives the rest of the community a sort of a leg up in terms of understanding the potential for something methodological. We've still got quite a long way to go as the funding for this sort of work is mostly nonexistent. It's really difficult to get funding for public involvement in methods development. We have funding opportunities for public involvement in content of research and NIHR is hugely supportive of that, as are other UK and international funders. We should be linking public involvement and research more strongly through methods and methodological work as well. On my wish list for the next decade would be that we've really addressed that and moved forward. It will help in the same way as I hope that our framework for public involvement in mathematical and economic modeling means the next person to ask the question of how we involve the public in those discussions will have somewhere to start. They might not use all the bits of our frameworks; it's not meant to be prescriptive, but they might take something from it that creates a conversation about a model and its appropriateness for a particular patient group that might change that outcome. As editors, we have a role to publish work, but also to look out for work that is pushing forward on thinking as well and creating dialogue and debate.

Richard: That in itself is a challenge because if something is around a methodological issue, that does limit the number of patient reviewers who can usefully review such a paper, because most of us are actually looking at outcomes. We do look at methods. It's often about how do you deliver a clinical trial, not how do you construct a valid quality of life instrument, let alone how do you persuade other people to adopt and validate a quality-of-life instrument? This is one area where patient desires may persuade researchers to change the way they do things, but then we've got to get patients and patient groups to catch up with that issue and the current methodologies, even though we were the ones who asked for it in the first place. It's a really interesting conundrum, and we do struggle. We need better conversations between academics and patients about methods to help us move forward.

Science Editor: This discussion about identity and involvement in the trials reminds me of the similar push around diversity and inclusion in clinical trials. *New England Journal of Medicine* recently had an editorial³ about ensuring that clinical trials include participants from the populations affected by the disease or treatment they are studying, because different populations are affected differently. I see how this ties into a broader sense of thinking about who is being studied and how they will be affected by the research being produced.

Sophie: Funders have a big focus on trying to enhance the diversity of participants in studies, but also within the public involvement arena. That's taking us into areas like community engagement as well, because to create those relationships with communities and create the diversity of involvement in research, you're then looking at very different ways of working in terms of not just one project where you're inviting public contributors, but also you're looking at longer term high-quality relationship development that is also about reciprocity and about addressing issues of concern to those communities. There's a bit of a transition, I think, starting in research and the way funders think about this. Probably in the future, they'll have to change some of the expected ways of working, because those long-term relationships aren't supported by single projects.

It's easier in centers when you've got a five-year-old funded center, then you can do more of that work; even then, it's high risk because at the end of the five years, you're effectively saying, that's it folks: We're finished, but the community may want to continue. It's challenging academics to think about how that will work, but also the communities will probably need more of a voice in this. At the moment, there is an effort to go out and connect with people, but less of a strategic focus on how we do that, which is something we will need to develop.

Science Editor: We'd like to switch now and discuss how the peer-review process works with patients and public reviewers. How have you found that they deal with the specialized language and particularities of a scientific article that can be unfamiliar to some patients?

Richard: We've had very few comments from patient reviewers saying a paper itself is too complicated to understand. I think there are two reasons. One is that by and large, all of our reviewers are experienced in working in research. That's how and why we've recruited them—because they've already been on papers, or they are from the European patient academy, or they are from lists of patients like the National Cancer Research Institute consumer forum in the UK or in other countries. These are by-and-large experienced patient advocates already working in research. The second reason is that we insist every paper comes with a plain language summary. We have a rule that if Sophie or I can't grasp the plain language summary, the paper itself goes back to the authors: "Rewrite the summary. Oh, and by the way, while you're rewriting the summary, you might want to rethink aspects of the paper."

We want our papers to be read by patients and the public. Many of them are readers, not reviewers, and the readers will struggle with 18 pages of academic language. I do, myself, and I've been doing this for 20 years and have a university degree. This is not easy stuff. So, the plain language summary

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makes it accessible to reviewers and readers alike. Often, some of our reviewers will tell us that the plain language summary doesn't actually match the paper. One of the good developments from that is increasing numbers of researchers, whilst they're still writing academic papers, and their plain language summaries and their abstracts are now identical. If abstracts are written in plain language, and they are shared at conferences and other events where the public have access or where abstracts are published online, so much the better. We also live in an atmosphere where in Europe, for example, every clinical trialist is now required to register their trial on a publicly accessible website, and they have to have a plain language summary with it. All of those things make it more accessible for reviewers, but our reviewers are experienced and know what they're doing, but we all find academic papers quite challenging.

Sophie: The other thing is we do encourage authors to write in ways that are accessible. Given a choice of a long sentence that no one can understand versus an easy to understand one, we'd always encourage them to think about using easily accessible language and defining terms if they have to use a specific research term, try and explain that or define it. I think our reviewers are pretty good at picking up when that's not happening, and it's difficult to understand. That's fed back to the authors, and they can adjust it so you're not losing the essence of what a study is about; you're just making it more accessible to more people so they can take those findings and use it. I think also being open access means anyone can access our papers, because I know there is a huge frustration in the patient community because papers are behind paywalls, and it might be papers those patients have been involved in, or it might be their idea. That's really difficult then to hear that it's behind a paywall, and you can't access it. I think a big plus for us is that anyone can read our papers, hopefully anyone can understand them, and our system is set up to support that vision of trying to create an understandable paper for everybody.

Richard: Our readers can also, of course, read the peer reviews online, so if there is part of the paper that is hard to understand, and that's been picked up by reviewers, they can actually see that; even if the authors have not changed the paper, they can see the authors' response to it.

Sophie: I think you have to recognize, in a way, that the nature of what we're producing, by its very definition, demands that it's accessible because it's about developing our knowledge and evidence about public involvement. It would be a slight sort of our own goal if it wasn't understandable. Also from a publisher perspective, you haven't just got a small group of people interested in your journal. You've got everyone in the world interested in it,

potentially, which is I think very attractive. The other element here is the interdisciplinarity so that any academic can read our journal and understand it.

Richard: It would be very ironic given that our journal is about involving and engaging the public and patients if an academic gave us a paper that was impenetrable, but so far nobody has. Or rather, we haven't published one!

Sophie: I think that's a testament to the community that people do get that, and they are respectful of it. They're often working with public contributors who may be part of the writing, so the impenetrable language is slowly removed from a paper as part of the presubmission writing process. A lot of the papers come from funded research where the funders support this more plain way of working. The researchers have had to think in this way from the beginning, and they've had to write a plain English summary of their intent. It's embedded at all levels, certainly in the UK context and a lot internationally now. We're supporting a movement; we're not creating a new one. We are part of a bigger picture that is, for me, a paradigm change in the nature of academia, but one that is a positive one that takes us beyond the small groupings of specialty we've had in the past, but actually creates a universal community of academics and patients and public working together.

Science Editor: How are patient and public reviewers invited to review manuscripts, and how can they express their interest in reviewing?

Richard: The mechanics of it are the same as the way we invite academics. There is absolutely no difference. It's a computer-generated email. Some of the patient reviewers struggle with the computer system, perhaps some of the academics too. If they want, they can sign up on the website, and many of them have, so it isn't really an "invitation"—they have volunteered. Of course, first they've got to learn about the journal, and the problem we have with the journal is getting across the concept of it. It is an academic, peer-reviewed journal. Every single paper we publish is reviewed by at least 2 academics and at least 1 patient (2, if we can get them). It's the same as any other journal. It's academically peer reviewed, but the papers are accessible to the public, partly because of the plain English summary, but also the general structure of the papers. It's not just the paper being open access; it's the reviews being open access too. Getting that across to people is difficult.

Science Editor: Looking at the published reviewer reports, the academic and patient reviewers are not identified as such to authors and readers, correct?

Richard: No, we wouldn't want them to be. The reviewer type is identified in the invitation letter that goes to them, but that's

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partly because we do have people who are both so we're trying to tell them which hat we want them to wear for this review.

It's interesting because I've made some general comments about patient and academic reviewers, but as you can see on our website, you will find academics who have corrected the spelling of every single word in a manuscript and said little more. And then you'll find patients who have written a 400-word review, which in effect says this is a really interesting paper, but you have missed so many opportunities. You cannot always tell which would be which.

Science Editor: Have you seen a change in the approach of funders, industry, and researchers to the inclusion of patients and the public in research since the journal started?

Richard: I think, yes. One or two groups have started to look at things like that, such as initiating clinical studies with pharmaceutical companies. This was patients going to a commercial company saying these are our concerns and what can you do to help resolve those concerns? That's a brilliant model. As that happens more and more often, I hope we will get more and more papers. I think it's natural the more we do things like biobanking and genomic research, patients who donate those samples or genomes are asking the research community, "What are you doing with them?"

Sophie: Same with health data. I think there's much more of a movement towards active forms of involvement; not just building trust in health data, but actually working together to create a data set. I think in the last decade, there has been change, there's been much more embedding and much more acceptance. Year-on-year the number of papers coming to us is increasing, and we see that for other journals as well who are publishing public involvement papers. I think there is an increasing movement that's gathering pace and looking for the next challenge of trying to enhance the diversity of who works with us.

It's an exciting time. As Richard said earlier, going online has created all sorts of opportunities for people. We're working with public contributors who represent different communities, who we've recruited because of their community voice. They're not necessarily NIHR experts with lots of expertise. They bring a different voice and they're creating a greater diversity in the types of contributions people are making, which is really exciting.

Science Editor: That leads nicely to our final question: if there is a journal out there that is not typically involving patients right now, what recommendations would you have for those editors about how they can do that and what they should be looking for?

Sophie: It depends on the subject area. They could certainly come and talk to us about it. I guess doing things

like establishing a patient or a public panel might be one way forward in the way the BMJ has. I think they could look at their publication system and look for the opportunities where patients or the public could be involved. I guess pragmatically, it's about seeing how it could work. I think they'd need to consider what their vision is of involvement. For us, it's about coproduction. They might want to follow or adapt it. I think they need to have patients or the public advising them on that, because I think it's really hard to do that without that sort of expert knowledge of how it would be received in the community.

I would also encourage them to think about writing something, which is about that position so that people understand what they're thinking. We've had other journals approach us, and we've had discussions with them and explained how we work. I think they've gone away and thought "this bit could work or that bit could work." It would depend on the journal, but I think the advantages to them would be significant. I think all the things we've talked about today: about opening the journal up to wider scrutiny, that sense of democratization of knowledge, and creating useful knowledge for patient benefits. I think there's lots of different things they could consider.

Richard: From the other end, I would ask the journal editors, what's your journal for? Are you interested in publishing and continuing to publish very successfully lots of academic articles, or would you actually like to help democratize research and explain your science to the masses? If so, you have a role here, but it's not just you: what are you doing to encourage your authors; to say, next time you do a piece of research, how about involving patients and the public or citizens from the start? Is there an opportunity here to involve citizens, that is, the people who participate in health research and who benefit from it?

Not because you think you ought to, or because Sophie and I are saying it's a good idea but think more constructively about whether involving citizens actually adds value to your research. Would it add relevance to the people you want to read and act on your research? Would it help sharpen some of the questions or would it bring a completely new angle that you haven't thought of? You won't know until you bring the patients in the public and the citizens into your work. Journal editors could help revolutionize the world and make a better planet for all of us. That's what they should be doing.

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3. <https://www.nejm.org/doi/full/10.1056/NEJMe2114651>

Dr Sabina Alam: Shaping Critical Thinking About Science

Anna Jester

As Director of Publishing Ethics and Integrity at Taylor & Francis Group, Sabina Alam provides support and guidance for more than 2,500 journals covering the scientific, technical, and medical (STM) disciplines, as well as the humanities and social sciences. Given the mix of different topics and issues that can arise in a broad portfolio of journals, the challenge of Sabina's position is to think broadly about how integrity of published content is established and how this can be communicated to authors, editors, and readers. *Science Editor's* Anna Jester recently spoke with Sabina about trustworthiness in peer review, her path toward scholarly publishing, important scholarly publishing developments, and why examining policies and procedures is vital.



Science Editor: Is the job of Director of Publishing Ethics and Integrity one that's been around for a while in your organization or is it a newer position?

Dr Sabina Alam: Taylor & Francis launched their Research Integrity and Ethics Team in 2017. I was not there at the time, but it entailed Research Integrity Managers working with editorial teams to resolve ethics and integrity cases as needed (e.g., dealing with authorship disputes, plagiarism, image integrity concerns, etc). Within a short time, though, ethics cases grew in volume as well as complexity, and in 2019, Taylor & Francis realized someone was needed at the Director level, so I stepped into the position to lead the team in driving and enhancing the ethics function for the journals published by the organization. This involves refining our editorial policies, developing and providing training for colleagues as well as editors, working with colleagues in operational, peer review, and production functions to improve our processes and checks, and to take proactive measures to respond to challenges presented by the evolving research and publishing landscape. I tend to describe

what we do in three arms: reactive (case management and resolution), proactive/preventative (policy setting/refinement, training, improved processes for checks, verification, etc), and transparency/public information (improved consistency of ethics statements in papers, data sharing considerations, etc).

Science Editor: How did you end up in scientific publishing?

Dr Alam: In 2008, I was a researcher in neuroscience, deciding what my next steps would be as my postdoctoral contract was finishing. The most obvious thing to do was to apply for another postdoc position, but I felt the need to broaden my horizons and thought giving publishing a go would be worthwhile. I don't know specifically what compelled me to do it. I didn't know anyone in publishing but was driven by my experience as an early career researcher, where although publication of research in journals is an integral part of the profession, in my experience, it wasn't a particularly transparent process. For example, how does the editor make decisions, and who are the peer reviewers? So, I thought it was something worth learning more about.

Almost on a whim, I applied for a position at BioMed Central, an open access publisher, and they invited me over for an interview as an assistant editor. During the interview process, they explained the position involved assessing papers, understanding the peer review process, and being

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Opinions expressed in this interview do not necessarily reflect the opinions or policies of the Council of Science Editors or the Editorial Board of Science Editor.

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involved in inviting appropriate peer reviewers to help ensure worthy papers were published. This interested me and they offered me the position. However, going from a 4-year postdoc level position to an entry level assistant editor position involved a huge pay cut and required a significant lifestyle change. I was hungry to learn and didn't have any dependents or a mortgage at the time, so decided to go for it (against the advice of my family!). I intended it to be like an internship that I would do for 6 months before returning to the lab to complete another postdoc project.

However, once I started working on journals at BioMed Central, I got absolutely hooked. It was so different to being in the lab, where for so many years I was laser-focused on a specific family of neuroreceptors and its signaling mechanisms, etc. By contrast, once I was working on journals, I was introduced to a wide variety of research topics across STM—and I really loved this. I felt it was shaping my own critical thinking about science and different study designs and felt there was much to be gained in developing this knowledge, and so I stayed. I continued down that path and even edited *BMC Medicine*, a flagship medical journal, for 5 years. When handling content, we were very focused on working with peer reviewers and the editorial board to ensure that novelty and exciting findings were not the only factors that drove editorial decisions, that limitations of the study were stated and considered, that impact (and generalizability) of the study was clear, that methodology and analysis was clearly reported, and of course, that the ethics of the research had been checked and verified. Working with authors from all over the world, I became increasingly interested in the research ethics and publishing ethics aspects, because I grew to understand how much standards and guidelines can vary in different settings as well as in different disciplines.

Eventually, I left BioMed Central for F1000, where I joined as Editorial Director. I made that move because I was interested in a whole new way of publishing. The F1000 model is such that they publish first (open access) and then conduct peer review, in a completely open and transparent way. The content can be updated as a different version when needed, and authors and reviewers have direct interactions with each other on the platform. They really help drive the Open Science agenda because the model runs on the principles of speed and transparency—open peer review, open data, open commenting, versioning of content (i.e., “living” articles), etc. What I loved about working with content on this model is that it was necessary to think outside the box, especially when it came to certain ethics issues, and so this continued my foray into that side of things. It led me to where I am now at Taylor & Francis, working with colleagues to ensure the integrity of content and what we need to do as publishers to support researchers, disseminate verified

and trustworthy content, and how we apply standards and processes to prove that. Perhaps a convoluted journey, but an interesting one for me.

Science Editor: What do you enjoy most about your career and what challenges do you face?

Keeping pace with evolving research and methodologies is part of recognizing how research continues to become more global and diverse.

Dr Alam: I most enjoy the impact it has. It is an important responsibility to work with researchers to scrutinize, validate, publish, and disseminate research findings; to ensure accuracy and discoverability; and simultaneously make certain the science is understandable and can be built upon for further research and to improve ways to give credit where it's due (e.g., authorship contributions and peer reviewers).

We have a responsibility regarding these challenges, and keeping pace with evolving research and methodologies is part of recognizing how research continues to become more global and diverse. We must understand different standards and settings and how they inform due diligence checks.

Unfortunately, we do have to deal with deliberate manipulation of the publishing process (e.g., fraudulent contributions and fake or manipulated data), and some of it is large-scale, such as paper mills whose only motivation to publish is financial, that is, a business set up to create papers using fake data and sold to researchers desperate to publish in journals. Stopping this type of content from polluting the scholarly record is a top priority for us!

Science Editor: What skills, abilities, and personal attributes have you found to be essential in your current work?

Dr Alam: Curiosity and a hunger for knowledge. Much of what my team does is based on what we don't know, what we need to understand better, and finding out what policies and guidance journals and authors need. I'll often join different collaborations or working groups, talk to lots of different kinds of people, and ask lots of questions because I learn so much and broaden my perspective and understanding this way. To do my job well, I think it's incredibly important to avoid tunnel vision; to be aware of the challenges authors, reviewers, and editors face; and learn how we can address these, making it better for all.

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Science Editor: Can you tell us about your recent work regarding the process at Taylor & Francis, and perhaps other organizations with which you volunteer, specific to name changes and the policies surrounding them?

Dr Alam: Taylor & Francis participated in various discussions, spurred in some ways by the Committee on Publication Ethics¹ (COPE), as well as author queries, about the need for a better way of updating author names on papers that did not involve publishing a separate correction notice. We were being contacted by authors from the transgender community requesting us to replace their previous name with their new name on their published articles and presented compelling arguments for why they needed to do it without an associated correction notice. They've made such a big change in their lives, but they don't necessarily want that part of their personal history to be a permanent part of their published academic record, or to end up having a split published record between their previous name and new name. As we became increasingly involved in these discussions with authors, colleagues, and COPE, we realized that our authorship name change policy and process was outdated and needed to be reassessed. We had various conversations with authors to gain insight regarding the challenges they faced with this issue. It forced us to take a step back and examine why we had the current correction policy for author name changes, and if we were to change it, how we could do so without affecting the integrity of authorship. We realized our process created unnecessary barriers for people who change their name for all sorts of reasons (e.g., new identity, marriage, divorce, etc.) and that we were causing authors to have broken publication records for no good reason. We revisited our policy and determined a name change would be treated as a minor revision, which doesn't require a correction notice.

The author is still identifiable, contactable, and accountable for the content of their article. Our legal team advised that the author publishing agreements originally signed are still valid, so we don't need an updated version of the agreement. We also had discussions with our tech team, asking if we went forward with retrospective name changes, how we could also update indexes so that the information comes through. This was incredibly important to authors that came to us requesting a name change.

In our discussion with authors, we have to be very clear about what we can do and what we can't currently do or guarantee. For example, we will change the name without an associated correction notice, and will transmit this update to indexers, but can't guarantee when they will update their records. We also ask the author to take some actions—for example, if they had coauthors, we ask them to inform those coauthors, especially if the person changing their name is

a corresponding author. We suggest they also inform the institution affiliated with the paper, which likely tracks papers published by their researchers. Ideally, whomever needs to be informed should be, while simultaneously respecting the need for privacy and sensitivity. We have made this our default process, so if any author changes their name for any reason, this is done without publishing a correction notice, unless they specifically request one. To improve the process at a wider scale, there is now a NISO working group² collaborating with different stakeholders to develop recommended practices.

Our author name change policy serves as an example of why taking a fresh look at policies and procedures is vital. Do we believe we are doing things the right way, for the right reasons? Should we reassess long-standing policies? Since launching our policy, we have been receiving a steady stream of requests from authors, and it's very satisfying to be able to accommodate their needs in a way that is straightforward and does not compromise the integrity of authorship.

Science Editor: What's next on your horizon in terms of topics which may receive this type of review and refresh?

Dr Alam: One project I am currently involved with that may make a big difference immediately is the Peer Review Taxonomy project, which originated as a working group for the STM project³ led by Joris van Rossum. The project is taking a fresh look at peer-review terminologies. It is not about whether a journal should implement open peer review, single-anonymous, double-anonymous, or other models of peer review. Instead, the project aims to clarify whether we all mean the same thing when we say "peer review," and then, are we in agreement about what the various peer-review terms, like open or double-anonymous peer review, mean? Something that came out early on was that we should stop calling peer review "blind," in favor of "anonymous." The project has been very beneficial because several publishers and journals are involved. I've been representing Taylor & Francis, and we've been working on the terminology but also the level of information we should strive to give to readers.

There are a handful of different elements. One is the peer-review model, meaning does the journal use single-anonymous, open, etc. Because "open" can be used in so many ways, we break it down by levels of interaction, defining which open elements are in use. If a reviewer interacts with only the editor, that is single- or double-anonymous peer review. If the reviewer interacts with the editor and other reviewers, or the authors, we want to be able to capture that and classify it accordingly. Additionally, does the journal provide any information to readers? Some journals publish the editor's decision letter, including reviewer comments in an anonymized format, and we should be specific about that

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as well. We don't tell journals what model to use, or whether peer-review comments should be published, but having a level of transparency is helpful. We've been piloting it at Taylor & Francis (as have several other publishers), and there is now a working group with NISO⁴ to improve standardization across the industry.

Another important working group I have been involved with is the Text Recycling Research Project⁵ led by Cary Moskowitz, Michael Pemberton, and Susanne Hall. It is a wonderful project because it really addresses the simultaneously vague and complex questions defining text recycling, noting how it differs from salami slicing, and providing guidance of when it is appropriate and inappropriate. Guidance⁶ has also been developed for editors and researchers regarding text recycling, and I strongly believe this will make a great impact in addressing an area of common concern and confusion.

Science Editor: What is one thing about you that might surprise our readers?

Dr Alam: As a teenager growing up in Bangladesh, I started to write poems. One day, on a whim and without

discussing with my parents, I submitted one to a local newspaper which published it and invited me to send in a series of poems over a few years that were published in their weekend edition every Friday. When my parents found out, they mentioned I should get something for doing this work, and so every time one of my poems got published my parents rewarded me with some pocket money to spend on anything I liked (it would usually be spent on a cassette by some pop or rock artist!) Perhaps it is most interesting that I went into science instead of literature?

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Joseph Mills: An Author's Editor

Anna Cho Walker

Joseph Mills is a senior editor in the Neuroscience Publications Department at the Barrow Neurological Institute in Phoenix, Arizona, where he lends his editorial expertise to assist authors with preparing manuscripts for journals, surgical textbooks, videos, and presentations. During a recent phone conversation, Mills shared his career path as a science editor, and we discussed matters about substantive editing for authors and publication ethics.

After finishing graduate school for English, Mills started his first editorial job with Pfizer, where he copyedited internal laboratory reports and other scientific materials. This led him to his next opportunity editing medical journals for the University of Chicago Press. Following the closure of the medical journals department, he briefly worked supervising freelancers for American Journal Experts before returning to the press to work on scientific journals including *American Naturalist*, *Current Anthropology*, and others. Eventually relocating to Arizona, he was a freelance editor for the *Journal of the American Medical Association* (JAMA) network for a year before taking his current position at Barrow in 2018.

There is visceral satisfaction that Mills finds in making something better—to contribute to the texts he edits by improving clarity that will in turn communicate important knowledge to the medical community and directly help patients. The instruments and devices, research findings, and surgical techniques being developed at Barrow are incredibly specialized and important, and while the surgeons are skillfully trained to execute precise procedures in complex areas of anatomy, they can be less experienced in expressing their ideas clearly or presenting findings in a compelling and consistent way, similar to other experts in any industry. “Part of the job is teaching the less experienced how to do it: writing clear methods, presenting results properly, constructing tables correctly—things they are not especially cognizant of. It is extremely satisfying to start with an unclear mess and help the authors shape it into something that conveys what they want to express.”

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However, Mills admits it can also be challenging or frustrating to work with an author who is not sympathetic to changes. Working directly for the authors, rather than for a journal or publisher, means ultimately deferring the final decision to the author. “You can make suggestions; the suggestions are not always going to be taken.”

Editors need to be able to refocus the language so that it becomes clear, specific, and unambiguous.

“When dealing with authors, you have to occupy 2 positions simultaneously. First, be the smartest reader in the world—decipher what they mean even when they’re saying it in an unclear way and identify contradictions or issues that most readers might not notice. At the same time, you have to think like the most easily confused reader in the world and help the author to make the writing as clear as possible.” Although authors usually imagine that they are writing to their peers who understand the material as well as they do, editors need to be able to refocus the language so that it becomes clear, specific, and unambiguous. Even when writing on a specialized topic, such as neurosurgery, the writing needs to be accessible to a broad, global audience.

Ethical issues Mills has encountered during his career were equally important to discuss as the benefits and challenges

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of being a science editor. "You have obligations because of the knowledge you have. If you're working in this field, you become aware of certain ethical issues that aren't necessarily going to be clear to the author. Authors are usually not deliberately trying to fool people or be unethical."

Most cases will be inadvertent. On occasion, there can be instances of plagiarism and self-plagiarism. Pharmaceutical or medical companies may hire medical writers and editors to assist in publishing studies that essentially become thinly veiled advertisements for their products. Case reports can risk identifiable information being revealed.

To prevent many of these instances, there are systems in place. Programs such as iThenticate are available, which will detect potential plagiarism by producing a report showing a percentage of similarity when compared to other articles and texts. Transparency in where funding comes from has grown over the years. Significant improvements have also been made with patient consent and internal review board approval.

Authors may try to make results seem more impressive than they actually are. They may try to steer the conclusions to state a claim not fully justified by the science. When it comes to certain rules regarding the correct presentation of data in graphs and charts, "authors will sometimes flout those rules."

Mills reasons that authors may overstate their findings or present data in a misleading fashion simply because they want their data to make an impact. Authors are excited about what they are doing, and they want to get their findings published.

Although working directly on behalf of authors somewhat limits his editorial authority, Mills explains his role is to draw attention to potentially misleading aspects of the author's

work rather than police it. "If you are working for the author, you have ethical obligations to the science. Just be aware of broader implications of how the material is presented that authors might not be aware of themselves."

If you are working for the author, you have ethical obligations to the science.

Most ethical questions are queried back to the author. If working for a journal, editors have a greater ability to push back and reject or revise the manuscript. Generally, when it comes to editors and ethics, "Editors notice when authors are going too far, when they're overstepping, and need to hold the authors accountable. Authors may see something and think it's okay; editors tell them that they see a problem and others could as well."

As our conversation concluded, Mills described his approach to querying authors and how he chooses his tone carefully, depending on the personality of the author. He explained that he puts the author's intent and substance of the content first and thinks of the editorial process as revising, not changing, what is written. He provides the author with logic and gives reasons for his edits with his feedback. He tailors his comments to the individual, asking them for their help and thanking them for their help during the process.

"When writing comments, instead of 'This is incorrect/confusing/terrible', try to use the Columbo approach: 'Maybe I'm confused, but it looks to me like this patient group here has x number, but over here seems to be different... Is there something I'm missing? Can you help me understand what's going on here?'"

Best Practices in Table Design

Diana Burke

Even though best practices in table design have been well established for decades, I have found during my career as a technical editor that authors, editors, and graphic designers are often unfamiliar with them and sometimes have strong preferences for design elements that make tables harder to read. The fact that the built-in table styles in Microsoft Word are inconsistent with best practices does not help.

Tables and other visual elements such as graphs, diagrams, and photographs are a critical part of most scientific and technical writing because they help readers remember key points, understand complex processes, and see patterns, similarities, and differences. Tables are visual elements because they display information in a logical sequence of columns and rows.

Best practices in table design are important because designing a table that is effective is more complicated than you might expect. According to *Scientific Style and Format*, tables “can be the most difficult and time-consuming part of [preparing] a manuscript.”^{1,p678}

Table Basics

Before we get to the best practices, following are a few basics about tables. Tables are commonly used to show:

- Comparisons, such as the advantages, disadvantages, and cost of the options to fix a problem
- Lookup information, such as the cost of nails of various diameters and lengths
- Precise values
- A large number of numerical values
- A summary of information

Figure 1 shows the basic components of a table. The left-most column, called the stub column, and the column headings contain the variables and are analogous to the x and y axes in a graph.

Best Practices

The best practices that are described below address the most common design issues that I see as a technical editor and are not comprehensive.

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Nondata Elements

One of Tufte’s principles of data visualization is “above all else show the data,”^{2p105} which means that nondata elements that are not necessary to make a table understandable should be omitted. Nondata elements include lines (called “rules” in typography), shading, and elements that are added strictly for visual appeal (e.g., color).

A few horizontal lines are required: above and below the boxhead, below spanner heads, above rows with totals, and below the bottom row, not including table notes.³ Lines should be as thin and light as possible. Vertical lines and other horizontal lines may be needed in complex tables, but deciding which ones, if any, are truly needed can be difficult. Added white space can be used for delineation instead of lines.

Table 1 has unnecessary horizontal and vertical lines that compete with the data and make the data harder to compare. Table 1 also has white text on a dark background (called “reversed type”), which is unnecessary and generally harder to read than nonreversed type.⁴ Table 2 is the same table without the unnecessary elements. The light shading in Table 2 is used to emphasize the data the author wants to highlight and is one type of shading that can be effective. The reason for the shading should be explained in the description of the table (e.g., “Note the shortfall ...”).

Zebra striping in a table with a lot of columns is another type of light shading that can be useful. Table 3 is an example.

Arrangement

Important factors to consider when deciding how to arrange information in a table are as follows:

- Numbers are easier to compare down columns than across rows.⁵
- Time-series categories should be across columns.⁶
- Calculated values in a column that are derived from values in other columns should be to the right of the values the calculations are derived from.⁶
- When the stub column has entries and subentries, indenting the subentries or putting them in a separate column is better than putting the entries in cut-in rows that span the width of the table (see Tables 4, 5, and 6, respectively).

Treatment of Text

Horizontal alignment. Left-aligned text should be the default because it is easier to read than centered or right-aligned

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Table X: Estimated Housing Shortfall in the Region ← Title

Boxhead (stubhead + column headings) →	Months post-event	Displaced households	Estimated housing ← Spanner head	
			Available	Shortfall
	1	404,300	9,600	394,700
	3	352,400	89,900	262,500
	6	276,800	145,600	131,200
Stub column →	9	95,400	92,300	3,100
Table notes → Source: Hazus damage estimates				

← Body

Figure 1. Basic components of a table.

Table 1. Estimated Housing Shortfall in the Region

Months post-event	Displaced households	Estimated housing	
		Available	Shortfall
1	404,300	9,600	394,700
3	352,400	89,900	262,500
6	276,800	145,600	131,200

Table 2. Estimated Housing Shortfall in the Region

Months post-event	Displaced households	Estimated housing	
		Available	Shortfall
1	404,300	9,600	394,700
3	352,400	89,900	262,500
6	276,800	145,600	131,200

Table 3. Weekday Southbound Train Schedule

Station	P601	P603	P605	P607	P611	P613	P615	P617
Mangonia Park	4:00 am	4:40 am	5:20 am	6:00 am	6:40 am	7:00 am	7:30 am	8:00 am
W. Palm Beach	4:06 am	4:46 am	5:26 am	6:06 am	6:46 am	7:06 am	7:36 am	8:06 am
Lake Worth	4:15 am	4:56 am	5:36 am	6:16 am	6:56 am	7:16 am	7:46 am	8:16 am
Boynton Beach	4:20 am	5:02 am	5:42 am	6:22 am	7:02 am	7:22 am	7:52 am	8:22 am

Table 4. Energy Assessment

Category	Adequate?
Backup power	
Critical loads	Y
HVAC loads	N
Other loads	N
Building systems	
Cooling	Y
Heating	N

Table 5. Energy Assessment

Category	Subcategory	Adequate?
Backup power	Critical loads	Y
	HVAC loads	N
	Other loads	N
Building systems	Cooling	Y
	Heating	N

Table 6. Energy Assessment

Category	Adequate?
Backup power	
Critical loads	Y
HVAC loads	N
Other loads	N
Building systems	
Cooling	Y
Heating	N

text.⁷ Text in the stub column should always be left-aligned.³ Column heading alignment should match the column alignment except that right-aligned columns should have centered headings.³

Capitalization. Sentence case should be the default because it is easier to read than title case (or headline style), and title case is easier to read than all caps.⁷ In

addition, sentence case requires less space than title case and all caps.

Text direction. Text should be horizontal because text in any other direction is hard to read.⁶ Long column headings may be abbreviated if the meaning is clear³ to allow them to be horizontal. Sometimes flipping the columns and rows allows for horizontal text if doing so does not cause other

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Table 7. Travel Distance

Occupancy	Dead-end corridor	Common path	Travel distance
Residential	15 m	15 m	99 m
Storage	30 m	30 m	122 m
Business	15 m	30 m	91 m

Table 8. Travel Distance

Occupancy	Dead-end corridor (m)	Common path (m)	Travel distance (m)
Residential	15	15	99
Storage	30	30	122
Business	15	30	91

problems. Tables 7 and 8 show a comparison of vertical and horizontal text.

Line length. Line length is an important factor in readability in general, not just in tables. Lines that are too short require the eye to change direction every few words, which is tiring. Lines that are too long make finding the next line difficult and affect the reader's focus because the brain is energized at the beginning of a line, but the focus dwindles over the duration of the line.⁸

Line length can be measured in characters per line (cpl), including spaces. According to Butterick, the recommended range is between 45 and 90 cpl,⁹ and according to Schriver, the optimal range is 50 to 70 cpl.¹⁰ Other sources recommend slightly different ranges. Table 9 shows line lengths that are too short, within the optimal range, and too long.

Alignment of Numbers in a Column

Numbers in a column should be aligned as follows:

- Right-aligned: Numbers with the same unit of measure and same number of decimal points, including none¹ (see Table 10)
- Decimal-aligned: Numbers with the same unit of measure and different number of decimal points¹¹ (see Table 11)

- Left-aligned or centered: Numbers with different units of measure¹ (see Table 12)

Columns

Headings. Every column should have a heading except the stubhead, which may be omitted if the entries in the stub column are self-explanatory or too different to make a heading possible.³ Column headings should be as brief as possible³ and as noted earlier, may be abbreviated if the meaning is clear.

Space between columns. Column width depends on column content, but the space between columns in a given table should be consistent and the minimum needed to delineate columns visually.¹² Tables are sometimes stretched so they span the page margins or column width, but unnecessary space between columns makes tables harder to read.

Vertical Alignment

Column headings that occupy two or more lines should align on the lowest line.³ Nonheading rows with multiple lines should align at the top.⁶ Few says to "be careful to align the edges of text ... so readers ... can scan down and across without disruption."^{6,p124} Vertically centering text in a row is disruptive

Table 9. Line Length

Line length	Example
Too short	27 cpl: Lorem ipsum dolor sit amet, consectetur ut adipiscing
Within optimal range	65 cpl: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut ad
Too long	114 cpl: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et sint dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo

cpl = characters per line (including spaces)

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Table 10. Post-2000
Building Count

Occupancy	Number of buildings
Single-family	1,239,763
Commercial	39,171
Industrial	6,382

Table 11. Element Symbols,
Atomic Numbers, and Weights

Name	Symbol	Atomic number	Atomic weight (amu)
Aluminum	Al	89	26.9815
Antimony	Sb	51	121.75
Carbon	C	6	12.01115

amu = atomic mass unit

Table 12. Drainage Layer Properties

Property	Taxiway	Apron
Permeability of drainage layer	350 m/day	350 m/day
Effective porosity	0.3	0.3
Drainage path slope	1%	1%
Drainage path length	11.5 m	60 m

Table 13. Fire Stations Damaged by Hurricane Amy

Fire station	Damage from hurricane	Comment
Bayou Parish	Foundation undermined	Rear of building, which is sited along the bank of a canal, was undermined by bank erosion.

Table 14. Fire Stations Damaged by Hurricane Amy

Fire station	Damage from hurricane	Comment
Bayou Parish	Foundation undermined	Rear of building, which is sited along the bank of a canal, was undermined by bank erosion

because the eye has to jump unnecessarily. Tables 13 and 14 show incorrect and correct vertical alignment, respectively.

Table Titles

The table title should be above the table.³ *The Chicago Manual of Style* recommends sentence case for table titles but recognizes that title case is traditional.³ The title of every table should be unique, concise, and informative⁶ and “should not suggest any interpretation of the data.”^{3,p135}

Table Notes

Table notes should be listed in this order: source of the data, referenced notes in the table, and definitions of acronyms and other abbreviations used in the table.³ Deciding whether to define all, some, or none of the abbreviations that are used in a table is a stylistic choice and beyond the scope of this article.

A Final Note

If the tables in a manuscript that I am editing are not well designed, I normally suggest to the author that the tables would be easier to read if they adhered to best practices in table design. In my experience, authors are more likely to accept the suggestion if I provide before-and-after examples of one or more of the tables in the manuscript.

Adhering to best practices in table design is a win for readers and for more effective communication of information!

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The Road to Double-Anonymous Peer Review

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For this CSE Peer Review Week Webinar, moderator Jennifer Regala launched the discussion on double-anonymous (often referred to as double-blind) peer review (DAPR) by explaining that the genesis for this CSE webinar topic stemmed from a good-natured debate with a colleague over the ease with which a publication can implement a DAPR process. Participants Christine Beaty, Christina Nelson, and Anna Jester outlined both the motivation behind the implementation of DAPR and the necessary changes to the mechanics of the peer-review process that must be considered by those editorial staff and editors who are weighing the factors in their own possible shift to DAPR for their journal(s).

Let the Science Speak for Itself

At the time of the webinar, Beaty and the editorial team of *Circulation: Heart Failure* were on the cusp of implementing DAPR. She shared their motivation for implementation and the steps taken thus far to install the DAPR process in their editorial office.

The goal of fair and equitable reviews, especially for early career investigators and those authors from diverse ethnic and geographical backgrounds, was the major impetus for change. Implementation of DAPR, Beaty stressed, will break down barriers by helping those authors who do not belong to the top tier of published authors (or “super groups”) stand a better chance of having their work considered and accepted based on the merits of the work alone—despite no “big names” to back it up. The reputation of the journal itself can only be strengthened, it could be argued, because it is less susceptible to charges of bias in the acceptance process.

Delving into the mechanics of DAPR, Beaty explained that the first step is made by the authors at submission when they elect to choose DAPR. Expectations must be clearly communicated to authors in the journal instructions and submission site (e.g., uploading of correct title page). Once a manuscript is submitted and flagged as DAPR, editorial staff must ensure that the necessary coding changes are made and that all double anonymous parameters are met—within the manuscript files themselves and in all system-generated correspondence to editors and reviewers.

Beaty stressed an important point here in that an editorial office must remember to maintain overall stability in the eyes of editors, reviewers, and authors during this transition process. Readers and participants in the review process must be reassured that the quality and mission of the journal(s) have not waived. Specifically, the editorial staff must maintain a steady brand presence and a consistent look and feel across all communications for their suite of publications.

What Does Success Look Like?

How do you measure success in reports back to your editorial boards? Editorial staff must show a steady growth in DAPR selection by authors and demonstrate that diversity goals are being met across all categories—gender, ethnicity, geographic location, and early career. Beaty mentioned that data can be collected via custom reports from the submission software and also from surveys, which can provide more “holistic” feedback.

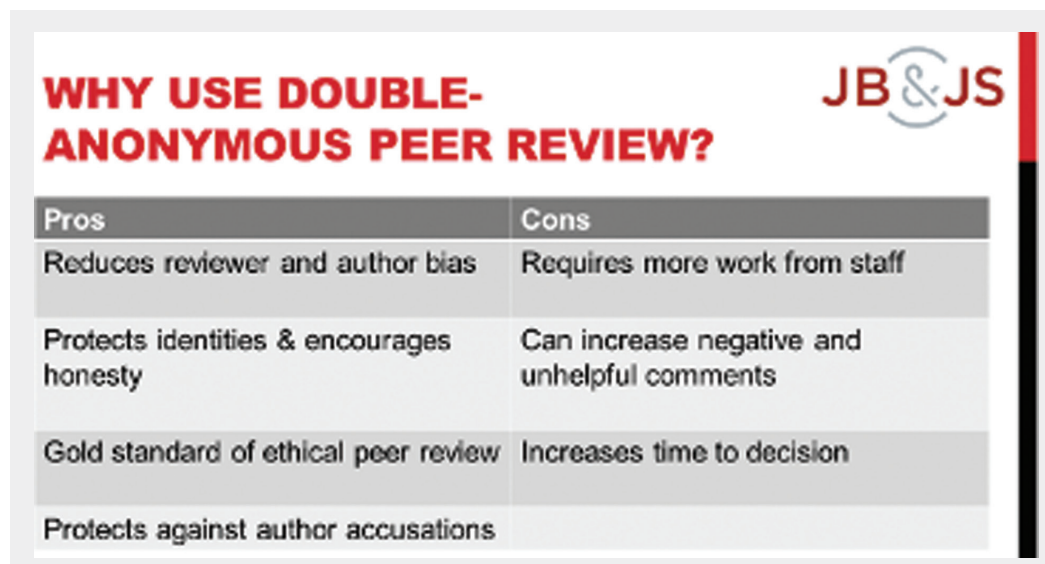
The editorial team must also demonstrate that the implementation of DAPR did not negatively impact the peer-review process for the journal(s). For example, there can be no delayed time to decision. Retention of reviewers is actually another indication of a successful transition. It is the perception of the reviewers, Beaty remarked, that is the most changed by the implementation of DAPR, and retaining a steady pool of reviewers for your DAPR journal(s) is an overall sign of success.

Delving Into the Details

From Beaty’s efforts to visualize and initiate the DAPR process for *Circulation: Heart Failure*, the webinar pivoted to Christina Nelson of *The Journal of Bone & Joint Surgery*, who has been implementing DAPR for 5 of their 6 journals for years. Nelson reiterated many of the goals of DAPR—to reduce bias toward authors, encourage honesty, and protect journals against author accusations of biased reviews (Figure).

Nelson’s significant experience with DAPR also put her in a great position to share all the detailed steps required

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Pros	Cons
Reduces reviewer and author bias	Requires more work from staff
Protects identities & encourages honesty	Can increase negative and unhelpful comments
Gold standard of ethical peer review	Increases time to decision
Protects against author accusations	

Figure. Some pros and cons of double-anonymous peer review. Image reproduced with permission from Christina Nelson.

of staff to successfully anonymize submissions. “Giveaways” that must be redacted from manuscripts include CTR and institutional review board numbers, single institution databases, and graphics that include institution names, foreign languages, or even zip codes on the image files are all examples of information that may need to be redacted before the manuscript can be sent out for peer review. This redacting information must be retained behind the scenes, however, as it must be put back into the paper at acceptance. Nelson remarked that there are many “judgement calls” that must be made in the anonymization process, and that editorial staff must be properly trained. Practiced staff can review and redact a manuscript within 5 to 10 minutes after working through the learning curve.

Benefits Versus Efforts

Anna Jester of eJournalPress followed up on Nelson’s points regarding the many safeguards that must be implemented to ensure fully anonymized submissions for those authors who elect DAPR. In addition to the manuscript files themselves, all editorial software interfaces—including reviewer forms, submission questions, letter templates, and all system-generated notification emails—linked to a DAPR manuscript all must be configured to journal preferences to guarantee anonymity. Jester stressed that staff must invest the time up front to walk through the entire peer-review process on the journal test site, checking that all screens, letter templates, notifications, and configurations are anonymized per journal preferences before launch to avoid unintended consequences. In addition, it is always recommended to reiterate the DAPR process (“and why you believe in it”) to authors and reviewers alike via on-screen messaging and reviewer and author instructions.

The anonymity of reviewers is another factor to consider. Should peer reviewers of a given paper be anonymous to each other? Jester suggested the publication of a general list of reviewers to recognize their contributions without the possibility of readers being able to link specific reviewers to particular manuscripts. This type of reviewer anonymity is especially important in specialties with relatively small reviewer pools.

Jester also addressed the potential need for staff to collect diversity, equity, and inclusion demographics when authors elect to identify (e.g., ethnicity, gender, career stage, etc.). There are challenges in pulling together this information in a meaningful way to measure success of the DAPR efforts in board reports, marketing, and other communications. Jester also recommended asking your legal team to weigh in prior to collecting demographic information via your peer-review platform.

At the conclusion of the meeting, the following references were provided for publications staff to share with their editorial boards to assist in determining whether DAPR would be the right fit for their journal(s):

1. <https://elifesciences.org/articles/32014>
2. <https://www.pnas.org/content/114/48/12708>
3. <https://link.springer.com/article/10.1007/s00192-019-04187-2>
4. <https://news.asce.org/i-cant-breathe-and-this-is-why/>
5. <https://www.nationalacademies.org/trb/blog/trb-executive-director-message>

Lastly, Jester encouraged all attendees to get involved with the Council of Science Editors community, which provides great resources and great networking opportunities for all!

New Identities in Peer Review: Who Are They and Why Are They Important?

Janayne Carvalho do Amaral

Exalted by some people and criticized by others, since the peer review system has been implemented in scholarly journals it has transformed into an effective tool to select manuscripts of scientific merit for publication. Henry Oldenburg, the first Secretary of the Royal Society and creator of the *Philosophical Transactions of the Royal Society* (founded 1665), was one of the pioneers in implementing peer review in scientific journals. He started the peer-review system in *Philosophical Transactions of the Royal Society* by inviting 3 members of the Royal Society “who had more knowledge of the matters in question than he, to comment on submissions prior to making the decision about whether to publish.”¹ At that time, the development of the peer-review system was linked to the concerns of scientists as science producers and consumers.² As science producers, they wanted to have their work recognized by publishing in spaces valued by other members of the scientific community. As science consumers, they wanted to make sure that the studies elaborated by other scientists were evaluated with competence.² The decisions taken by Oldenburg and the Council of the Royal Society to evaluate the quality of the content published in the *Philosophical Transactions of the Royal Society* constituted the foundations of peer review.²

Throughout the history of scholarly publishing, the peer-review process has typically been done by a small community of peers. These peers are defined in literature as “experienced researchers”³ and selected by the editors based on criteria such as academic seniority, academic degree, involvement in research activities, and scientific production.⁴ However, the Open Science movement has expanded the community of peers by fostering the participation of new identities in peer review and establishing new criteria to select peer reviewers.

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Opinions expressed are those of the authors and do not necessarily reflect the opinions or policies of their employers, the Council of Science Editors or the Editorial Board of Science Editor.

Open Science, Open Access, and Peer Review

The Open Science movement and its components, such as Open Access, open data, open peer review, and citizen science, share values such as transparency, collaboration, sharing, and remixing knowledge.⁵ This movement is working toward changes in the conditions of production and circulation of information, knowledge, and culture, which have been interfering with the current epistemological and institutional structures, making it necessary to highlight the effect of these changes on the values and practices of scientific dynamics.⁶

One of the goals of Open Access advocates is promoting a more democratic access to scholarly journals, potentially giving readers a more active role in scholarly publishing. That is, if the products of scholarly publishing—articles—are more freely available outside academia, it is possible that the role of the peer-review system can expand to promote a more democratic and inclusive participation in science both to the scientific community and anyone interested.

In addition to open peer review potentially reducing some of the bias of anonymized peer review models, promoting a fairer system to researchers, it is also capable of bringing together a multiplicity of voices to collaborate in the evaluation and improvement of manuscripts submitted for publication. Once peer review is open, it can be further expanded to be public, in the community, and crowdsourced,⁷ which can help give voice to new identities in peer review. It means that “whereas in traditional peer review editors identify and invite specific parties (peers) to review, open participation processes invite interested members of the scholarly community to participate in the review process, either by contributing full, structured reviews or shorter comments.”⁷

New Identities of Peer Reviewers

As scientific publishing has changed, two new types of peer reviewers have emerged to bring fresh and important voices to the peer review process.

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Early Career Researchers

Early career researchers (ECR) are one of the new identities in peer review. This group can be defined both as undergraduate, graduate or postgraduate students,⁸ or researchers under the age of 35 who are working toward a doctorate or have recently completed a doctorate.⁹ ECRs are important to peer review exactly because they bring a different perspective from an earlier career stage of the typical reviewer. They can help improve the peer-review process by identifying gaps in manuscripts and helping ensure they are written in an understandable way. Research conducted by Casnici et al.¹⁰ on attitudes of referees in a multidisciplinary journal found that “the disciplinary background and the academic status of the referee have an influence on the report time, the type of recommendation and the acceptance of the reviewing task.” The same study also noted that “senior researchers are harsher in their judgments than junior researchers, and the latter accept requests to review more often and are faster in reporting.”¹⁰ ECRs can build a two-way street to improving the-peer review process by learning from “seeing other people’s errors”⁹ and successes, becoming better authors and reviewers, and helping senior researchers to better communicate research results.

In 2018, BMC journals (<https://www.biomedcentral.com/>)¹¹ launched a pilot project to engage ECR in the peer review process.¹² Called Peer Review Mentoring, the process consists of a professor or senior researcher mentoring an ECR through a peer review, and the report must be assigned to both of them.¹² Examples of journals supporting this project are *Trials*, *Systematic Reviews*, *Pilot and Feasibility Studies*, and *Journal of Medical Case Reports*, among many others.

Nonscientist Peer Reviewers

Healthcare users, patients, lay experts, nonacademic experts, professional communities, readers from non-Anglophone settings, and other interested parties^{13–14} are some examples of nonscientists in peer review. These people are important to peer review as consumers of scientific information and subjects of research; examples include participants in clinical trials and groups studied by anthropologists. They are able “to detect weaknesses in the reasoning that subject-expert peers may overlook if they are stressed for time or not motivated to produce a careful review.”¹⁴ Patients and the public can help to evaluate the quality of the evidence,¹⁴ reducing waste in research and ensuring that the design of the research is appropriate, relevant, and beneficial to them.¹⁵ In the case of groups studied by anthropologists, they can help to evaluate if their culture and costumes are being described in a correct way, without making them seem exotic or introducing other types of bias.

Research Involvement and Engagement (<https://researchinvolvement.biomedcentral.com/>)¹⁶ is an example of a journal that engages stakeholders, policy makers, service users, and patients in their peer-review process. These various identities are brought in as editors and peer reviewers to coproduce the journal side-by-side with academics. The editors of the journal see the role of the “reviewer patient” as someone who “may comment on the relevance of a study for a particular group, while those with academic training and research knowledge might comment on methodology.”¹⁷

Challenges and the Future

Scientific communication is changing and bringing new challenges to editors, authors, peer reviewers, and publishers. These challenges range from the technological structure of journals, new peer review policies, new ways of managing information, interaction between authors and reviewers and between researchers and society. At the same time, these changes have allowed for the inclusion of new voices and identities in the peer review process. Understanding the role of these new identities is like diving into an infinite sea full of different experiences, with different interests and with different ways of producing knowledge.

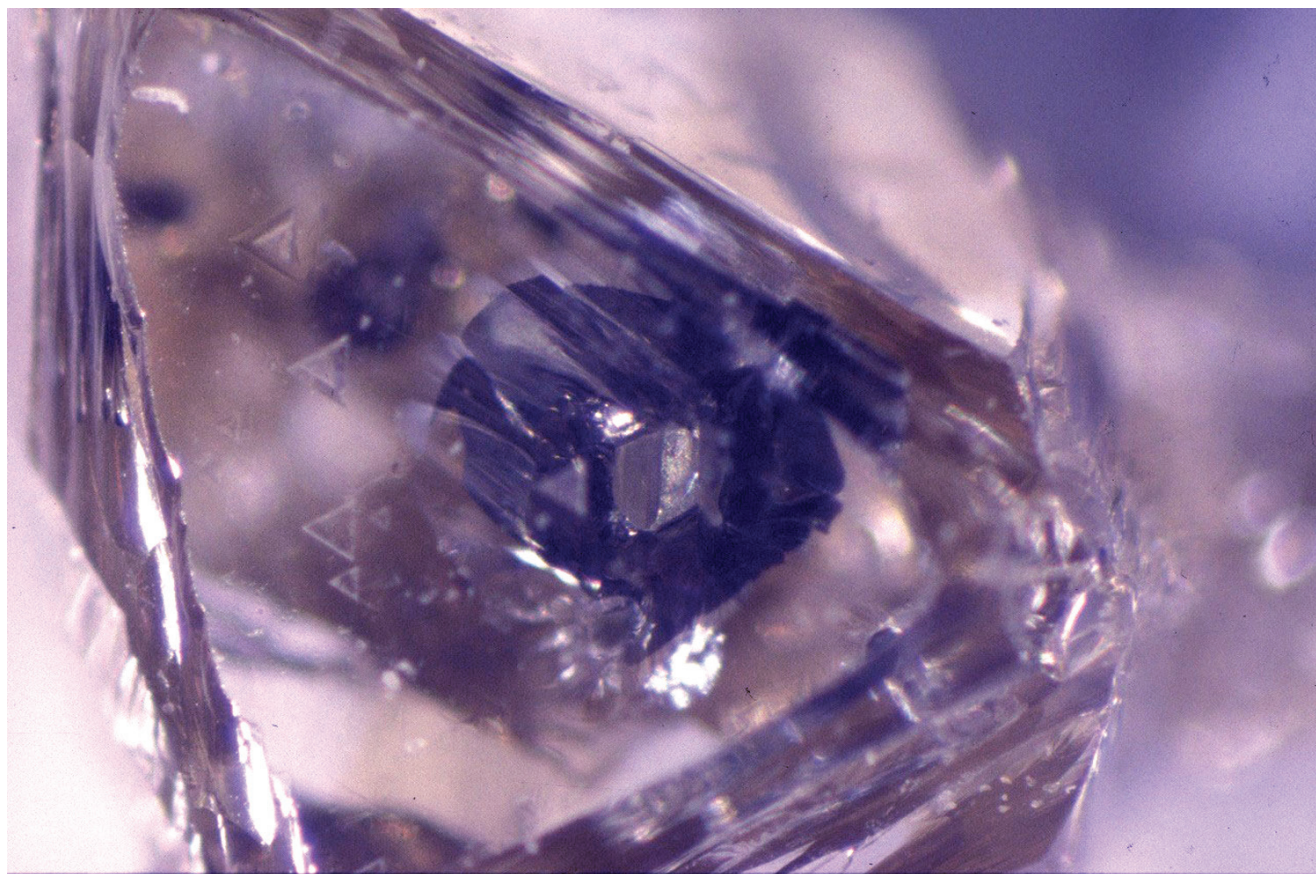
In the context of open science, diversity, equity, and inclusion initiatives in journals and institutions are helping to transform peer review from a tool to select manuscripts for publication to a way to democratize science and embrace the humanity of all actors in the editorial process.

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Inclusion-bearing Rough Diamond. Credit: Jeff Harris, University of Glasgow, U.K. (via nsf.gov).

Facilitating an Engaging, Productive Editorial Board Meeting—Not Just a Static Presentation of Stale Facts

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Publisher
John Wiley & Sons
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REPORTER:

Ashley Ketelhut

Managing Editor
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The 2021 CSE annual meeting session, “Facilitating an Engaging, Productive Editorial Board Meeting—Not Just a Static Presentation of Stale Facts,” explored different ways to effectively utilize meetings to better leverage editorial board members’ journal participation.

As a managing editor myself, I have hosted many editorial board meetings and was intrigued by this session to improve my meetings. With the switch from in-person, to virtual, meetings due to the pandemic, I was also interested to learn how I might be able to make my presentations more engaging.

Carolyn M de Court, from J&J Editorial, LLC, acted as the moderator. She started off the session by recognizing that so many different people with different roles attend editorial board meetings. This CSE annual meeting session would offer insight into 3 different perspectives on running more effective meetings: from a publisher, managing editor, and editor-in-chief’s point of view.

The first person to present was Jennifer English from John Wiley & Sons. With her role as publisher, she has had the opportunity to attend and host many editorial board members. When formulating a meeting, she makes sure it comprises 5 different components—appreciate, inform, engage, observe, and utilize—to avoid becoming stale.

Preplanning is essential. With input from the editor-in-chief, meeting coordinators should establish the goal of the meeting, what platform will be used (in-person or virtual), and the timeframe. Involved parties should also consider mixing things up to avoid falling into the familiar rut, such as changing the venue, format, or length of the meeting. English also suggested involving the attendees in the agenda process: What do they want to hear about? This request could be included when obtaining RSVPs. Getting their topics of interest early could lead to a more productive, engaging meeting.

As for the meeting itself, English recommended starting with the positives, so it doesn’t get lost at the end of the day, whether it be progress or milestones. The content of the presentation should be relevant, free of jargon, and easy to understand. If data is being shared, consider displaying this differently with word clouds or a video. If you’re going to be providing information about the journal, consider inviting a guest speaker or offering a live demo of a new feature. Lastly, make sure to leave time for discussion, but avoid leaving it too open-ended. To foster conversation, consider framing this around a brainstorming topic, mini-SWOT (strengths, weaknesses, opportunities, and threats) analysis, or problem-solving activity.

The second person to speak was Dianne Dixon, Managing Editor for the *International Journal of Radiation Biology*. Her editorial board meetings usually consisted of going over reviewer performance; however, their journal reevaluated this approach to make meetings more engaging. During this session, she offered a specific use case of similarity. Checking for plagiarism was something usually only handled by staff; however, Dixon decided to include the journal’s editorial board in this process.

For her journal, they use Crossref’s Similarity Check to monitor for plagiarism. Through this service, the journal found that 32% of papers had a similarity match over the journal’s 20% threshold. After further investigation, this didn’t appear to be a language issue, but going back to the authors to rewrite didn’t solve the problem and took a lot of time to correct.

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Figure. Key takeaways for an engaged board and meeting (Dianne Dixon, Managing Editor for the *International Journal of Radiation Biology*).

Armed with this knowledge, Dixon used their editorial board meeting to address this problem. Editorial board members can play multiple roles within the journal and may be authors or guest editors, which the journal could use to their advantage. They decided to partner with the board to help educate their authors on correcting similarity (Figure). During the meeting, editorial board members were interested, open to discussion, and worked together to problem-solve. Now, a year later, the number of papers that are over the journal's Similarity Check threshold has decreased and authors better understand the issue.

The third person to present was Samir S Shah, MD, MSCE. As Editor-in-Chief of the *Journal of Hospital Medicine*, Dr Shah has many groups with whom he interacts when leading the journal. With that in mind, he tailors his meetings for each specific group, from meeting frequency to topics discussed. For example, his senior deputy editors meet monthly to discuss more granular items such as manuscript

dispositions, while the editorial board meets less frequently, about 4–6 times a year, to go over broader journal topics like 3-to-5-year goals and strategy. By maintaining a reasonable frequency, Dr Shah was able to better leverage each group's engagement. While more meetings may be helpful, it may not always be possible or reasonable, so alternative communication via email or platforms like Scholar One can support process efficiency.

Dr Shah also emphasized how important it is to recognize and reward those who work and support the journal, including an example of when his journal gifted mugs displaying the journal cover. Recipients were unexpectedly delighted to receive these tokens of appreciation and even posted their journal pride on Twitter, which turned into a contest of more mug giveaways and even more engagement on Twitter.

Time was left at the end of the session for Q&A and discussion. The Zoom chat was lively as people asked questions and bounced ideas off each other. Attendees were interested to know how to best engage editorial board members. Different ideas were suggested such as icebreakers: from cheesy (what animal best represents you) to serious (what's your goal for the journal) to casual (what are you watching on Netflix?). Other attendees wanted to know how to motivate members to help increase submissions. Presenters suggested handing out business cards, including members as participants in special series, or engaging them on social media. There was also discussion on the best way to recognize and thank members for their service and time, from a hot breakfast, journal tokens like coffee mugs, or discounts for meeting registration, if possible.

A general theme of these meetings was that no matter how you choose to engage your members, there should be recognition, dissemination of information, and plenty of time for discussion. There were many ideas presented at this session for me to revamp my editorial board meetings.

The Ethics of Data Sharing

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REPORTER:

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Quality Lead
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COPE CORE PRACTICE Data and reproducibility

“Journals should include policies on data availability and encourage the use of reporting guidelines and registration of clinical trials and other study designs according to standard practice in their discipline”

Figure. One of COPE's core principles.

Promoting data sharing among the scientific community is important; it helps in the advancement of science in small increments rather than through single blockbuster studies. Data sharing ensures replicability and thereby helps confirm a study's findings. It accelerates the time taken to progress from one breakthrough to the next and reduces the time and costs required to gain confidence about a particular discovery. However, many authors are reluctant to share their data, and editors, publishers, societies, and individual journals need to be able to access these data to promote transparency and fair practices in their publications.

The panel comprised Shelley Stall, Matthew Cannon, and Trevor Lane. Using cases and polls, these experts shared examples of the ethics-related muddle one often finds themselves in when it comes to data sharing and responsibility. The importance of verifying data and investigating them in case of ethical issues was emphasized. The session proceedings will particularly benefit individuals in scholarly publishing who would like to learn more about editor responsibilities, investigations when ethical issues arise, and the verification process.

Trevor Lane opened this session by discussing data problems, the practices the Committee on Publication Ethics (COPE)¹ follows, data stewardship, and responsible data sharing and shared 2 interactive cases with the participants. Data fabrication, falsification, and plagiarism are the 3 primary areas of ethical misconduct. The Cooperation & Liaison between Universities & Editors,² COPE, and Responsibilities of Publishers, Agencies, Institutions, and Researchers in Protecting the Integrity of the Research Record³ guidelines are important guidelines to debunk fabrication, falsification, and plagiarism. Questionable research practices (unauthorized data use, data censoring, fishing, hacking, etc.) and questionable publishing practices

(image distortion, data misinterpretation, selective publication, salami slicing, etc.) are some of the commonly encountered data problems.

Authors need to exhibit data stewardship by adhering to laws and regulations, respecting the study subjects' consent and approval, and by themselves adhering to all ethics principles. Trevor discussed one of COPE's core practices and how these are required to attain the highest standards in publication ethics (Figure).

Next, Shelley Stall talked about the work she does at American Geophysical Union's (AGU's) Data Leadership Program. She highlighted that "data should be as open as possible, as closed as necessary." Until 2019, data were required to be cited in the paper so they could be preserved in a trusted repository with a proper identification tag. Although this seems easy to say, it is really difficult to put into practice, often requiring data stewards, and that's where ethics comes in. To substantiate her points, Stall presented a few cases to the participants via a Zoom poll.

Just to give an example, she discussed a particular scenario wherein the authors drafted a paper with links to the software used in the study. No discrepancy was highlighted during the review or even when the paper was published. However, another research group, when reviewing this paper while conducting their own study, identified an error in the software and contacted AGU. The session participants were allowed to answer a poll on what would be the best thing to do in such a situation—whether the paper should be retracted, the error ignored (just a software after all!), or the author contacted, so as to get an idea about what really went wrong. Most participants agreed that the author should be contacted, and that is what AGU did. The second research team was extremely particular that this error should be corrected because this software was a really important one and was actively being used in the research community, and future research would be affected if this error remained uncorrected. AGU did facilitate the discussion between the original authors and the second research team; the

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discussion was cordial, and the authors identified the error and corrected it via an erratum. The best part about this was that the paper was not retracted and the research findings published previously were in no way affected; moreover, the authors were pleased to have received the feedback. This is why data sharing is so important, and this case is a fantastic example of how data transparency can be fostered in the scientific community. Having a good ethics policy in place will also support reproducibility of research; hence, asking the right questions and making sure data are shareable is critical.

Finally, Matthew Cannon, who has been working in open research, discussed how his organization, Taylor & Francis, is trying to use the data sharing policies used in the sciences and applying those to the fields of arts and the humanities. In furtherance of Stall's session and cases, Cannon presented a few cases and discussed the best practices in terms of data sharing. A particularly interesting case he presented was of a patient who granted the author permission to publish data and a code to enable the creation of a 3D model of their brain (this would mean that anyone with access to a 3D printer would be able to print the model!). Editorial checks performed prior to publication led to the author being queried if the patient had allowed them to "just publish" their data or to "use the data in other ways as well without any further consent being required"; the author then confirmed that the patient had granted permission to "just

publish" their data. The participants and Cannon reached a consensus that "it would be unfair if the patient was asked to consider all potential commercial and other reuses of their brain scan." The data and code were created to aid research; hence, the author agreed to restrict file access to bonafide researchers so as to protect the patient's rights.

The effort put into research comes to fruition when it is published and becomes available to the scientific community; however, publishing one's work following the required ethics is a challenge. This session greatly contributed toward spreading awareness among the researchers and the scientific community regarding publication ethics and how it can diminish misconduct in research. All-in-all, this was an extremely informative session and laid emphasis on why ethical standards are required in scholarly publishing—to ensure high-quality scientific publications and public trust in scientific findings, and so that people receive credit for their work and ideas.

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1. <https://publicationethics.org/resources/guidelines-new/cooperation-between-research-institutions-and-journals-research-integrity>
2. Wager E, Kleinert S. on behalf of the CLUE Working Group. Cooperation & Liaison between Universities & Editors (CLUE): recommendations on best practice. *Res Integr Peer Rev.* 2021; 6(1):1-2. <https://doi.org/10.1186/s41073-021-00109-3>
3. <https://publicationethics.org/files/RePAIR%20Consensus%20Guidelines%20v2.pdf>

Open Access: A Global Conversation

MODERATOR:

Jennifer Deyton

Senior Partner
J&J Editorial, LLC
Cary, North Carolina

SPEAKERS:

Chi Wai (Rick) Lee

General Manager
World Scientific Publishing
Singapore, Singapore

Glenn Hampson

Program Director
Open Scholarship Initiative
Seattle, Washington

Margaret (Peggy) Perkins

Director of Manuscript Editing
New England Journal of Medicine
Boston, Massachusetts

Magdalena Skipper

Editor in Chief
Springer Nature
London, UK

Mandip Aujla

Senior Editor
The Lancet Global Health
Danvers, Massachusetts

Ana Marusic

Professor, Department Chair
University of Split School of
Medicine
Split, Croatia

REPORTER:

Judy Connors

Do It Write Editorial, LLC

At last year's Annual Meeting, CSE offered a session, as well as a webinar in 2020, covering the topic of Open Access (OA) from a global perspective. For the 2021 meeting, CSE convened a panel of speakers from these sessions, and a few additional special guests, for an updated discussion about OA's challenges and practical application for publishers and societies globally. With perspectives ranging from large commercial publishers to prestigious societies from 5 countries, the discussion, framed by the global pandemic, vaccine discovery, climate change, and food insecurity, focused on why the world needs science today more than ever.

Glenn Hampson, Program Director of the Open Scholarship Initiative, opened with the theory that "Science is based on sharing knowledge and without that sharing there is no science. The question for today is how to share findings that will create the longest benefit for research and society." OA is instrumental for this knowledge sharing, he continued, and is part of a long-time movement with government-funded research making significant contributions to science; but, because of the different approaches to this globally, there is no coordination toward common goals, and a lack of leadership on the worldwide stage has prevented universal acceptance of open sharing. The movement is driven by the theory that open research is for the public good, but the reality is that there are many barriers to achieving a wide-reaching agreement. There are no one-size-fits-all solutions,

and the remaining question is what will research sharing look like in the future. The answer depends on what future we are talking about and who we are talking to.

Everyone agrees that the solution must work for research and that reaching a common purpose has always been critical in scientific discovery. But, not everyone agrees on how to achieve that. This panel discussed the challenges facing a global OA research publication model and potential routes for getting there.

Finding Common Goals

The difficulty, according to Margaret Perkins of *The New England Journal of Medicine (NEJM)*, is that there are so many different approaches given the complex ecosystem of scholarly research. "Recognizing that identifying common goals in a complex system is larger than one specific approach is important and the most critical workaround for different perspectives," she says. "Then let the best solutions evolve from that."

Perkins discussed *NEJM* and raised the question about where it stands in the overall ecosystem. Is it representative of common goals or an outlier? Where do they fit? "We appear as a public access journal—on our website all research is available without cost after 6 months regardless of funding; 98% of our content is freely available; we participate in Hinari; public health articles are always free and we are compliant with UNESCO OA. But," Perkins continues, "we are also a subscription journal, which is odd for OA." How do they support their position in relation to the ecosystem? "Currently, we have a 5% acceptance rate and our goal is to not fit into a model where all content is readily available to everyone but a hybrid type of publication."

Researcher Concerns

Concerns of young professionals in the "publish or perish" environment were presented by Rick Lee of World Scientific Publishing in Singapore. "In a culture where downloads and citations quantify research impact, research being widely accessible and distributed is the key to those metrics so the researchers look good and their research impact is being recognized," Lee states. Young professionals' promotions are often tied to their publishing record, but article publication charges (APCs) are a block sometimes, Lee believes. "More senior researchers don't have the same concerns, so do they think it is as important to have OA as the younger ones?"

OA is not always doable and can also create a burden on the researcher when considering large, complex data sets,

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and how to make them accessible without barriers to full use. Many researchers look at the practicality of doing this and, when coupled with the financial considerations, have to really examine where and how to publish. Open research is important, but we need to develop open tools and processes that researchers want, will use, and that consider their needs and concerns.

Manage Unintended Consequences

Our evolving open models are not containing costs. Is this okay? Reducing costs was an original driver of the move to open but are we trading a bad barrier for a worse one? The APC solution is becoming calcified, but APCs for top-tier journals are no longer affordable for most of the world. What does this mean long-term? Are we heading down the road of scientific haves and have-nots?

Policy/regulatory conflict is increasing. Because we aren't working together on developing globally workable open solutions, countries are creating their own solutions. For example, General Data Protection Regulation (GDPR) is currently conflicting with open data requirements and stalling major science research around the world. Soon, we'll have an ideologically based UNESCO open science policy that may paint science research into a corner. Ana Marusic of University of Split Medical School in Croatia suggests GDPR could be regulated at country levels, which would benefit researchers as they consider participants and what happens with their personal data.

All speakers agreed that open policies are having unintended consequences. It is critical that we don't dismiss these in our pursuit of open solutions that we "feel" are right.

Anticipate a Fractured Solution

The panel started with the question that if we aren't working together, are we creating a lot of different solutions and, therefore, not one?

Mandip Aujla of *Lancet Global Health*, an OA journal that publishes global health research, says that APCs are difficult for noneconomically advanced countries that have different research infrastructures, and he believes that the cost to publish in an internationally renowned journal is a burden and a barrier to publishing for these countries. Watson agrees: "Most authors in southern areas pay their own APC while in the U.S./EU most are paid by institutions, thus magnifying inequities in the current system; hopefully, solutions that are more equitable will emerge from this discussion." From low- and medium-income countries, 60% of APCs are paid out of pocket by the authors. Lee points

out "that an APC of USD\$2,000 could be a monthly salary for some of these researchers."

Lack of funding to cover fees is not the only challenge. Often authors from these countries (particularly those that meet Hinari standards) are not aware of available help from publishers. Communication with the communities that will benefit from this type of funding is critical. Obtaining assistance is also hard due to language barriers. Also, OA may not be the best way to publish. In China, for example, if an APC is more than USD\$3,000 equivalent, researchers need permission to even publish it. "Open Access is not quite as important for different areas of research and cultural ways of thinking," Aujla concludes.

Improve Access, Equity, and Diversity

The scientific community really is all in this together and should reach for the same goals. The first step is charting a path to identify commonalities and figure out how to work together. Improving access is the key driver of open policies. As open evolves, will access improve for some or all? Will equity and diversity also improve or get worse? These are questions that remain unanswered.

If we follow our current open policy path, science will continue to primarily focus on (and fund, and benefit) only the most privileged researchers, areas of research, universities, and countries. Our current open reforms are tailored for wealthy countries, and will mostly make their research more visible at the cost of less visibility for other researchers' work from less economically advantaged countries.

To raise visibility for non-English published journals, we need better indexing for regional journals, many of which are published in local languages. So far, this visibility has remained poor.

The public need for information must be met in a realistic, demand-driven, and sustainable way. All panelists agreed there are no practical solutions for making everything available to everyone as a default objective.

What other actions would help? Global infrastructure efforts? National subscription plans (like India's)? Improved public access (like the U.S.)? More development requires more conversations on a worldwide basis where all countries and economies can bring their perspectives and experiences to the discussion. Journals and publishers need to do this, too, including a diversity of editors, authors, and reviewers.

As the year and discussion unfold, many questions remain unanswered but one thing is clear: We are a long way from reaching a sustainable, achievable, equitable OA model for scientific publishing.

Freelancers Roundtable

MODERATOR:

Peter J Olson

Freelance Manuscript Editing
Coordinator
JAMA Network

REPORTER:

Simona Fernandes

Quality Lead
Enago, Mumbai

SPEAKERS:

Judith M Orvos

President
Orvos Communications
Washington, DC

The Freelancers Roundtable was one of the opening sessions for the 2021 CSE Annual Meeting. As a follow-up to the Virtual Happy Hour discussion on freelancing that took place in January 2021, in this roundtable, the speaker Judith Orvos of Orvos Communications talked about the turns a freelancer's life takes; while it seems glamorous that one can be their own boss, several challenges also exist. Peter Olson, the moderator, facilitated this discussion and began with a brief introduction. Olson represented a wide variety of careers in the science editing field and had years of experience from which he was able to draw answers to the participants' questions. He focused on the various career options for scholarly editors and gave advice regarding new opportunities in scholarly publishing.

In the Freelancers Roundtable, Olson and the participants discussed their freelancing goals within the science editing community and also addressed the overall freelancing workflow and management. Participants in the roundtable discussion included early career and professional freelancers looking for more information about freelancing opportunities or how to make the most of their current gigs. Additionally, there were participants who were contemplating switching to freelancing and were interested in learning more about the scope and opportunities. This diversity prompted discussions about the flexibility available in freelancing and the idea that most people can find their own niche.

The main grounds of discussion being determining fair and competitive rates, marketing oneself, and balancing one's client base, Orvos shared several tips and tricks that could help a freelancer with the issues and challenges they may face each day. The first part of the discussion was focused on how freelancers can balance their client load. The participants were encouraged to not invest too much time and effort into one organization as this may have its own limitations—limited jobs, risk of the company shutting down, etc. Clients come and go, and no matter what level of services one provides, there is always a chance of receiving negative feedback and/or the contract being terminated.

How one can up-sell and cross-sell existing clients and ask for recommendations/referrals was also discussed.

The second part of the discussion was focused on how one can determine fair and competitive rates for their business. Resources on survey-based salary data of freelancers and cover topics, including median gross income (by type and area of work), highest level of education and years of experience, and benefits, remote work, and more, by the American Medical Writers Association¹ and the Editorial Freelancers Association (EFA)² were recommended. The participants were advised to examine all aspects of an assignment and inventory the editing files before quoting rates or accepting jobs. Orvos and the participants also discussed the advantages and disadvantages of billing methods—hourly rates, flat project rates, payment on retainer—with emphasis on the assessment of the client's typical payment terms.

The final part of the discussion was focused on how one can market and really put themselves out there. A good, engaging LinkedIn profile can do wonders; this platform can be used creatively to engage in conversations with experts and institutions and share ideas with the community. If you run out of ideas, fret not! Feedspot³ and EurekAlert⁴ are nonprofit news-release distribution platforms that serve as resources for journalists and the public. They help readers keep up with multiple websites simultaneously without having to visit multiple sites. Twitter is another helpful option for freelancers to engage with science people, understand the market, and identify potential connections while showcasing their work. Old-school techniques such as business cards and attractive, meaningful website logos and email signatures may do the trick as well. Finally, no matter how many times you've worked with a particular client, always make it a point to stay in touch with them. This facilitates good business relations and ensures client delight while reminding them of your business. If feasible to your business, sending a small gift or a token of thanks to VIP clients is a pleasant thing to do. Orvos could not emphasize enough how one is allowed to ask for referrals and return the favor, both from clients and friends/colleagues—it's an absolutely normal thing to do! Finally, never stop learning; take courses that will help you get better at marketing yourself and actively participate in organizations (CSE, Board of Editors in the Life Sciences, EFA, etc.) that disseminate STEM knowledge.

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2. <https://www.the-efa.org/rates/>
3. <https://www.feedspot.com/>
4. <https://www.eurekalert.org/>

Submission System Transitions: Editor Experiences

MODERATOR:

Shari Leventhal

American Society of Nephrology
Washington, DC

SPEAKERS:

Ruth Isaacson

Managing Editor
Genetics Society of America
Bethesda, Maryland

Lindsey Topp

Former Managing Editor of
the American College of
Gastroenterology
Manager, MCAT Publications,
Technical Writing, and Editorial
Projects
Association of American Medical
Colleges
Washington, DC

Robin M Zavod

Founding Editor-in-Chief
*Currents in Pharmacy Teaching
and Learning*
Downer's Grove, Illinois

REPORTER:

Rachel Taylor

*Proceedings of the National
Academy of Sciences*
Phoenix, Arizona

This session was moderated by Shari Leventhal from the American Society of Nephrology and included presentations from Ruth Isaacson, Managing Editor of Genetics Society of America; Lindsey Topp, former Managing Editor of the American College of Gastroenterology and current manager of MCAT Publications, Technical Writing, and Editorial Projects at the Association of American Medical Colleges; and Robin M. Zavod, founding Editor-in-Chief of *Currents in Pharmacy Teaching and Learning*. The hour-long session included a Q&A segment with participants.

Each presenter provided a unique perspective on transitioning to a new submission system: Isaacson chose to migrate to a new submission system in search for greater customization and improved reports; Topp migrated to a new submission system as part of selecting a new publisher; and Zavod was migrated to a new system by the publishing owners of the journal.

Ruth Isaacson

Isaacson was drawn to eJournalPress¹ when she learned about development sharing between clients. Development sharing allows any custom-built features to be used by other clients on the platform. She provided 5 areas of focus to ensure a smooth transition to a new journal system, as outlined in the following sections.

Resource Allocation

Along with ensuring sufficient staff for the project, Isaacson recommended not stretching the transition timeline too

Recommendations

1. Resource Allocation: do you have the staff necessary for this project?
2. Reporting: prioritize at the beginning of the transition
3. Project Planning: map from start to finish; have a plan that is flexible, but detailed; and understand your dependencies
4. User Testing: essential, but often overlooked
5. Communication and Training: what do your editors, reviewers, and authors need to know?



far, as it was often frustrating for developers and difficult for the editorial staff to step back in.

Reporting

When working with the developers, it is important to prioritize reporting at the beginning of the transition to determine what reports best suit the journal's needs, and which reports may need to be built. Isaacson noted the journal's previous submission site allowed them to sit in "idle mode" for a small annual fee, which provided them the flexibility of pulling reports from any previous manuscripts that were processed in the original submission system.

Project Planning

Isaacson noted the importance of mapping out the entire project prior to commencing, from site migration to phase out. Isaacson remarked that it is important to communicate with the publishers about their ability to handle exports coming from multiple systems. She keeps general documentation of all of the cases where modifications were made in the system, but encourages any who are on the same path to add categories and descriptions of every ticket so that, in the future, it is easy to understand when and why certain changes were made.

User Testing

Isaacson observed that after the initial test site is ready, a wide variety of testing is needed to solicit feedback from editors, reviewers, authors, and internal staff to identify any areas of confusion.

Communications and Training

As the transition draws closer, it is important to create a communication and training plan for the authors, editors,

1. Your workflow is ok! It isn't wrong, it isn't bad, it doesn't need to be fixed. Beyond a general openness to potential improvements afforded by a new system, don't waste time entertaining pressure to make your process fit someone else's idea of "correct."
2. If your new publisher requires a new manuscript system, require a demo of that system and a detailed walk through based on your workflow before signing the contract.
3. If you have a small staff, solicit help early! An external consultant with experience in your new system and with transitions in general can make a big difference in just a few hours a week. Have someone on your team who understands your role and your needs.
4. Demand admin access and learn how to configure your new system. Invest the time so you know the true capabilities and limits of your system, can adjust settings in the future, and can troubleshoot problems without waiting for support.
5. Don't underestimate the enormous impact this transition will have on your existing work. Don't avoid it; start configuring and testing early!

Topp concludes that the best way to tackle a tremendous transition is to start reading, testing manuscripts, and thinking about the transition early.



Since You Asked... Advice from the CSE Editorial Policy Committee

Jill Jackson

Working in an editorial office can be very routine as there are policies in place to answer most questions. But what about those times when you have a question but are unsure of the answer or where to even begin the work to find the best possible solution? Your colleagues at CSE have most likely encountered a similar situation and are a great resource for answers. In this section, we will highlight a few of the questions that may have come up in your editorial office recently.

Serving on Multiple Editorial Boards

A question came up on the CSE Listserv about editorial boards: "I am curious if you prohibit your editorial board members from serving on other editorial boards. If yes, do you limit them from all other boards or only those of select journals?"

The following section (2.1.6; updated in 2017) from the CSE White Paper on Publication Ethics^{1,p13} provides some guidelines to consider when developing a policy on serving on multiple editorial boards:

The editor-in-chief or principal editor should define the terms and roles of the editors and editorial board that are appointed by and report to him or her. As mentioned above, the editor-in-chief should require disclosure of any conflicts of interest.

The editor-in-chief or principal editor should ensure that the journal's editors and editorial board are identified in the journal masthead; receive the necessary training and oversight to adequately perform editorial functions; and actively perform their responsibilities, such as assigning reviewers or reviewing manuscripts and advising on policy considerations.

The number of scholarly journals continues to increase, among them several "mega journals". These mega

journals can have editorial boards that include thousands of editors. The ever-increasing demand for leading scholars to populate editorial boards has led to researchers frequently and repeatedly receiving invitations to join editorial boards. Some scholars accept several such invitations and sit on multiple editorial boards simultaneously, including the boards of journals that compete directly for the same content.

Scholars, and journal editors, should consider the following issues when deciding whether any one researcher should sit on multiple editorial boards simultaneously. Importantly, these considerations are most relevant to situations where the editor has decision-making authority over manuscripts for more than one journal and/or influence on more than one journal's editorial policies.

- *If the number of manuscripts that the editor is expected to handle for each journal is high, their ability to assess all of them thoroughly and in a timely manner may be compromised.*
- *Having the same scholar as gatekeeper for manuscripts on any given subject area for more than one of the primary journal outlets in a field is unhealthy because it gives that person undue influence over what is being published in that field.*

In the context of the above, researchers should disclose all of their existing editorial board commitments when they are approached about taking on an additional editorial role and the editors who are recruiting them should take those other commitments into consideration.

Permission to be Acknowledged

A question came up recently in an Editorial Policy Committee meeting regarding permission to be acknowledged in a manuscript, and how editorial offices handle these permissions. Does the editorial office collect the letters of permission from the person being acknowledged or ask the corresponding author to attest to having obtained letters

JILL JACKSON is Managing Editor & Publishing Administrator, *Annals of Internal Medicine*.

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of permission? The discussion revealed that editorial offices typically do one or the other. Below is the information from the CSE White Paper on Publication Ethics (Section 2.2.3)^{1,p27-28}; while it does not specifically state how an office should collect these letters, it does mention the importance of obtaining permission from the persons being acknowledged. Editorial offices should let authors know if permission forms will be required for publication.

In an Acknowledgments section, authors may wish to include the names and contributions of those whose involvement in a study did not qualify them for authorship or, because of journal policy on the number of authors in the author byline, cannot be included in the author byline. An example of this would be technical

laboratory or writing assistance; the specific contribution should be noted. Authors should have each person listed in the acknowledgment sign a disclosure form or other statement acknowledging that they agree to have their names appear. Those acknowledged should disclose potential conflicts of interest.

Do you have a question problem that needs an answer? Post your question on the CSE Listserv or email the CSE Editorial Policy Committee and it may be featured in the next column. Chances are your colleagues may have the solution.

Reference and Link

1. <https://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/>



CSE has launched a repository of journal and organizational statements related to diversity, equity, and inclusion.

Many journals have begun working to improve editorial board diversity, evaluate peer review processes for implicit bias, revise guidelines for authors, or develop training opportunities, while others are struggling with where to start.

Has your journal or organization issued a statement about policies and practices related to diversity, equity, and inclusion? Please consider sharing your efforts with our community by completing the [DEI Resources Submission Form](#) on the CSE homepage under “Resource Library.”

Submitted resources will be publicly available on the CSE website.



It's Time to Stop Reinventing the Wheel; Let's Connect Those Dots Instead

Jennifer Regala

A constant question I see come up for anything related to scholarly publishing—or really anything related to life in general—is: “How do I get started?” And now that I have entered the “halftime” of my life, as my husband so lovingly calls it, I see the hardest part of really any project is just figuring out how to get going. (Side note: Jonathan Schultz, our beloved Editor-in-Chief, is nodding his head knowingly as he reads this wee-bit-late column that I promised him would be early this month. We are all guilty of not knowing where to start.)

Publishing used to be so much simpler. I copyedited an article and saved it on a floppy disk. I marked up paper page proofs with my purple editing pen using old school copyediting marks. I had a pica ruler and a hardcover dictionary along with paper style guides. I even used to hand code articles with XML for overtime. I will always love those overtime opportunities both for the XML knowledge and the Christmas gifts they bought my kids. Articles were published and then largely forgotten as we moved on to the next ones. Glossy journals piled up in stacks and collected dust as the same cycle repeated itself again and again.

Thank you for indulging my walk down memory lane, but I am here to tell you that the way we do things today is so much better. Looking back, I think of all of those amazing articles that readers missed out on because they were hidden in a dusty stack in a publisher's office, university library, or lab storage room. What a shame!

Flash forward to 2021, almost 2022. We are all clawing for revenue and relevance, working to make authors know they chose the right journal to publish their very important work. Unlike in the past, this work does not stop when an

article is published; in fact, as we sit in our editorial offices, we confront a new set of challenges:

- How do we achieve maximum impact and exposure for each article our journal publishes?
- How do we link each article to other relevant content in our own organization and beyond?
- How do we make an article accessible and understandable to as many global audiences as possible?
- How do we keep an article alive long after it has published?

Today, we have so many tools that are free and easy to use with just a little training that can make an article live long after it is accepted and published. Twitter, Facebook, Instagram, LinkedIn, and more have become acceptable tools in the promotion of scholarly publications. A simple tweet, with a great graphic, article link, and some well-written, succinct text, can garner unfathomable attention. As one example, a recent tweet from @JUrology, the Twitter account for *The Journal of Urology*®, the flagship journal of the American Urological Association (my employer), had approximately 50,000 impressions and 2,000 engagements. In the past, it would have been inconceivable to think of audiences that large engaging with such an article.

Getting Started

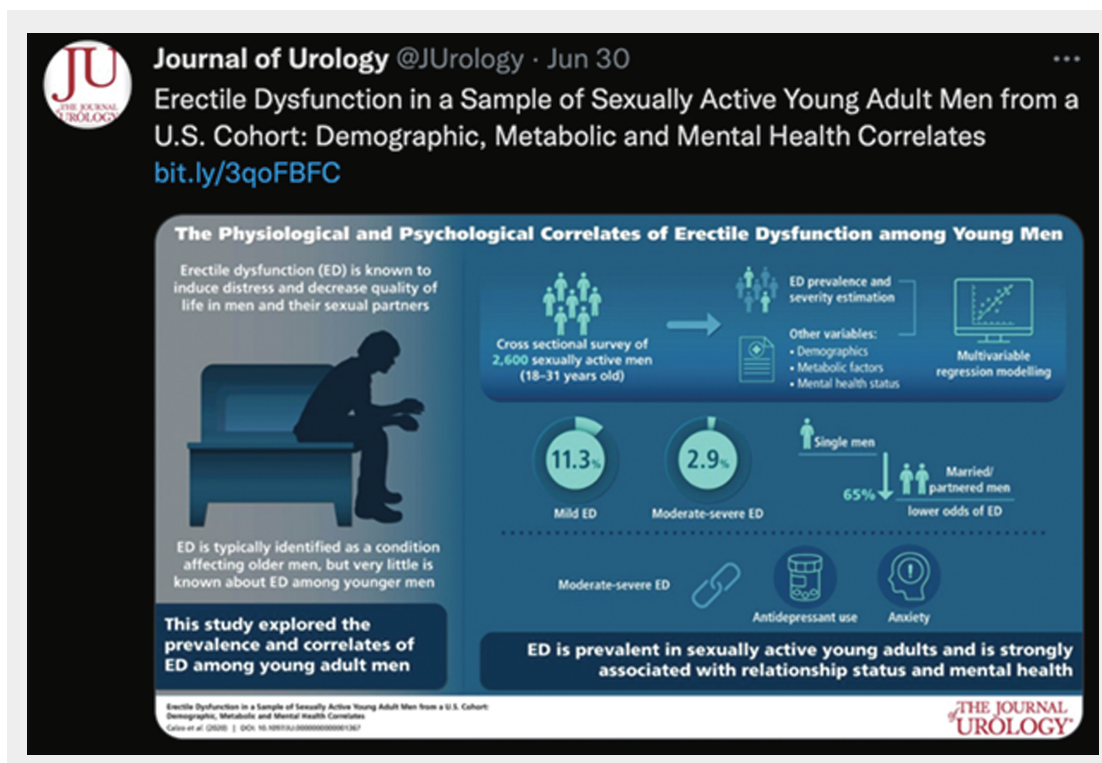
So, that brings us back to the question: How do I get started? How do I create a social media strategy for my journal(s)/publication(s) that is manageable for the staff on hand and the resources available? How do I help authors to keep the passion and effort that went into their article burning forever? How do I write compelling text and create aesthetically pleasing artwork that tells a story and makes the research accessible?

The answer is easier than it sounds. None of us should be doing our jobs alone. Who can help you internally? Do you have colleagues in your editorial office who have a social media background? Do you have marketing or communications colleagues in your organization who can contribute to your strategy and maybe even to scheduling posts and monitoring your account activity?

JENNIFER REGALA is the Director of Publications/Executive Editor at the American Urological Association.

Opinions expressed are those of the authors and do not necessarily reflect the opinions or policies of their employers, the Council of Science Editors, or the Editorial Board of Science Editor.

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Credit: AUA, 2021. @JUrology Twitter, June 30, 2021. Visual abstract created by Editage/Cactus Communications.

Learning from Others

Don't reinvent the wheel! Go have some fun and see what others are doing. See what you like and don't like. Check out the social media of your authors and editors who embrace social media and use it well. Here are some Twitter accounts that I really admire and look to for new ideas and fresh perspectives:

- @CJASN, American Society of Nephrology
- @AHAHistorians, American Historical Association
- @plantae_org, American Society of Plant Biologists
- @BloodAdvances, American Society of Hematology
- @DAupresses, Dogs of AUPresses

(Are you paying attention? Why, yes, I did slide in a scholarly publishing dog account. Just making sure you're still with me!)

How can the scholarly community help you? The CSE listserv was ablaze this past week with a poster who asked: "We are looking for insight around social media promotion for organizations with multiple journals!" The response was enormously helpful. CSE members provided so many wonderful tips and tricks that everyone, from social media novices to experts, could learn something about how to use social media in their editorial offices effectively. CSE

Connect, industry meetings and meet-ups, and social media itself offer connection opportunities to learn more about developing an effective plan. If you are a member of CSE, you can access the archive of CSE Listserv correspondence at <https://cse.simplelists.com/csel>.

How can a vendor or vendors help you? In the tweet I shared from my own organization, we work with Editage/Cactus Communications to create a limited number of visual abstracts per year. Schedule meetings with vendors who can support your social media strategy and learn more about what they offer. Maybe you can work to add that expense into your budget, but even if it doesn't work out, you will have a new connection and definitely walk away with some good ideas from those meetings.

Now, who out there can help me with my eternal questions of how to start eating fruit instead of gummi bears and how to exercise every day and like it? Feel free to answer those questions and chat with me and the rest of the scholarly twitterverse about your publishing social media strategy, plus any healthy lifestyle tips you are willing to share (@JenniferARegala). I promise to make you feel welcome and that you can ease gently, and with lots of support, into the not-so-daunting world of social media.

A Book Review 30 Years Late

Barbara Gastel

As editors, we worry about the one that got away: The author we should have recruited. The reviewer we should have enlisted. The paper we should have accepted. And maybe the book we should have reviewed.

In the early 1990s, I was book review editor of *CBE [Council of Biology Editors] Views*, the forerunner of *Science Editor*. In this role, I received the book *Editing and Publication: A Training Manual*, by Ian Montagnes. The book, published in 1991 by the International Rice Research Institute (IRRI) and the International Development Research Centre, was based on a course to help editors at research institutes and extension agencies in Asia, Africa, and Latin America.

Somehow, the book was not among those I sent for review. I do not recall why. Perhaps its emphasis differed too much from that of the Council at the time. Perhaps I had trouble finding a reviewer. Or perhaps it was because readers had to order the book from IRRI, in the Philippines.

So the book stayed on my shelf. A few years later, I started teaching a yearly course on science editing. I also became involved in training science editors in China and other countries. I returned to *Editing and Publication: A Training Manual* and found it to be an excellent resource: informative, wise, readable, and well designed. But obtaining the book from the Philippines for my students remained a challenge. I waited tensely as my shipments of it were delayed.

In recent years, though, *Editing and Publication: A Training Manual* has become openly available online, at http://books.irri.org/9712200094_content.pdf. So has its companion volume, *Editing and Publication: A Handbook for Trainers* (http://books.irri.org/9712200086_content.pdf), which provides guidance in giving such a course and contains sample exercises. Because the now freely accessible *Training Manual* contains much of lasting value—plus items now of historical interest—it merits some belated attention.

Items of continuing use in the book include

- guidance on word choice and related matters
- advice on working with authors

- concise guidance on editing the parts of a scientific paper
- an example of how to start a feature article 8 ways (e.g., with information, an anecdote, or contrast)
- a procedure for drafting titles for nonspecialist publications
- guidance on editing maps and choosing photographs
- a list of ways to reduce costs of producing printed materials

I also continue to appreciate the list of qualities of good editors.

The digital revolution, though, has relegated some of the content to history. Examples of items no longer current include the advice on designing a publication on a typewriter, on manually estimating the length of a manuscript, on instructing a typesetter, on preparing illustrations for the printer, and on checking proofs (Anyone else remember galley proofs?). Speculating about the future, Montagnes writes:

Imagine a journal without paper. Everyone connected with it has a computer terminal, and they are all linked together by telephone wires or radio. An author writes a paper on a personal word processor. It is transmitted electronically to the editor of this "electronic journal." The editor sends the article, again electronically, to referees, who reply in turn through the electronic network. Their comments are passed to the author by computer. The author revises on the word processor, and sends the revision back to the editor. If the editor accepts the revised article, it goes into the "journal"—which means it becomes available to readers who have subscribed to the journal and receive articles on their own computers at home or in the office. They may reply in "letters to the editor" electronically.

Insightfully, he also writes:

The computer can help editors to produce publications more quickly, and sometimes (but not always) more cheaply. The computer can also help us to maintain good business records, good sales records, and good mailing lists. It can help us to decide how many copies to print and how to distribute them more effectively.

But it cannot help us to decide what we will publish. And it can be only a partial help in reaching the intended reader with what we publish. Those are acts that require human, creative intelligence. They are the acts that lie at the heart of publishing.

Words worth reading, even 30 years after their publication.

BARBARA GASTEL teaches science writing, science editing, and related subjects at Texas A&M University. She was editor of *Science Editor* from 2000 to 2010.

Opinions expressed are those of the authors and do not necessarily reflect the opinions or policies of their employers, the Council of Science Editors or the Editorial Board of Science Editor.

XML 101 for Journal Production Editors

MODERATOR:

Julie L Nash

Senior Partner
J&J Editorial, LLC
Cary, North Carolina

SPEAKERS:

Michael Casp

Director of Business
Development, Production
Services Coordinator
J&J Editorial, LLC
Cary, North Carolina

Karie Kirkpatrick

Associate Publisher, Digital
American Physiological Society
Rockville, Maryland

REPORTER:

Heather DiAngelis

Associate Publications Director,
Transportation Research Board
National Academies of Sciences,
Engineering, and Medicine
Washington, DC

This session provided contextual overview, historical background, and best practice suggestions for XML novices in publishing.

Michael Casp, Director of Business Development and Production Services Coordinator at J&J Editorial, began the session with a definition of extensible markup language (XML) and gave basic visual examples of how it is both a human-readable and machine-readable language. This mark-up language is everywhere—even in Microsoft Word. His boiled-down definition was “XML is labels.” He went on to explain various versions of XML document type definitions (DTDs) and various ways to organize them, such as NLM, JATS, and custom DTDs for content management systems. Journal article tag suite (JATS) is the most commonly used DTD for scholarly journal content;

it has become the de facto XML standard in the scholarly publishing industry.

Casp also discussed how peer review systems such as Editorial Manager collect metadata from authors and editorial staff and then convert them to XML files for transmittal. Afterward, a manuscript document is tagged either before or after copyediting, mostly via automation with human review, to create a new XML file of the text, tables, and metadata; as he noted, almost every item relevant to the article except the figures will be contained within the XML. He continued by discussing what one can do with this XML, such as generating PDFs, creating webpages, or indexing (e.g., through Crossref). Casp ended by remarking on the importance of quality checking XML with automated tools (for validity) and a good eye (for accuracy) to find errors that can cause ingestion failures or downstream problems. His final takeaway was that XML is flexible, findable, and fast.

Karie Kirkpatrick, Associate Digital Publisher for the American Physiological Society, presented second. She discussed the benefits of JATS, including its universality, conversion tools, and large and helpful community of users and resources. She discussed different types of journal and article metadata commonly used in JATS, and then she demonstrated how articles can be tagged with eXtensible Markup Language (XML) and converted to XML after validation against the JATS DTD. From there, incorrect elements such as typos in the data or incorrect ISSNs can cause bad XML even when it is valid.

Kirkpatrick then defined Schematron, a rules-based validation language that creates rules and output messages and can catch recurring mistakes that a DTD can't detect. A helpful community of creators exists to help other production editors create and discuss these Schematrons, which can be run in-house or at a compositor and can vary in size from one rule to thousands. Kirkpatrick ended her presentation with a reminder that Schematrons have great downstream implications, as they help avoid XML redeposits and ensure indexers and archivists don't receive bad XML.

A question-and-answer period followed the presentations, with audience questions about XML-viewing programs and cleaning up XML errors before and after publication.

WHAT IS XML?

extensible Markup Language

■ XML Definition

- a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.
- a metalanguage which allows users to define their own customized markup languages, especially in order to display documents on the Internet.

```
<?xml>
<title>XML test</title>
<text type="test">
  <body>
    <p>
      Though this is a very pared
    </p>
    down XML document, it nonetheless
    </p>
    provides an example of how an XML
    </p>
    document displays on the web without
    </p>
    the intercession of a stylesheet or
    </p>
    other conversion program.
  </p>
</body>
</text>
</xml>
```

Alternative Ways to Tell the Story of Science

MODERATOR:

Emilie Gunn

Associate Director, Journals
Editorial
American Society of Clinical
Oncology
Alexandria, Virginia

SPEAKERS:

Charlotte Schubert

Science Writer and Editor
Seattle Children's Therapeutics
Seattle, Washington

Emily Therese Cloyd

Director, Center for Public
Engagement with Science and
Technology
American Association for the
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Washington, DC

Ashley Ketelhut

Managing Editor
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At first blush, it may seem odd to describe scientists as storytellers. Though our assumptions of scientists may summon visions of professionals in white coats locked away in labs while carefully calibrating instruments and capturing data, these same professionals are, in fact, storytellers of science. Though the methods for telling the stories of science have changed, the importance of making sure these stories reach the public has not. In this session, moderated by Emilie Gunn of the American Society of Clinical Oncology, 3 speakers shared their observations, experiences, and efforts concerning science communication.

Opening the session, Charlotte Schubert, Science Writer and Editor at Seattle Children's Therapeutics, shared her observations of how scientists have evolved their communication with each other. While publishing research in scholarly journals and presenting at scientific meetings served as the traditional methods for scientists to disseminate their work, emerging mechanisms using new media and technology are changing the landscape of how scientists reach one another. Graphical abstracts, podcasts, videos, online lectures, blogs, community websites, social media, and preprints have emerged as methods for communicating more continuously and quickly, often in real time. Moreover, as noted by Schubert, "Not only are new technologies enabling different gatekeepers for science, but they're also enabling different audiences and different senses." Where a scientific finding was formerly

communicated by a scientist through a published paper read exclusively by other scientists, now a scientist may communicate a finding through varied outlets, such as audio (e.g., online lecture, podcast), which can also be consumed by the general public.

In discussing the evolution of blogs, Schubert highlighted their initial purpose of capturing the voice of the blogger/scientist and their transition toward collections of invited or proffered pieces from multiple scientists. Some blogs have evolved to become "go-to" landing sites for specific fields with a range of resources (e.g., The Niche¹). Perhaps as a natural evolution of blogs, some publishers and organizations have occupied larger supporting roles with community websites, with The Node² and Alzforum³ as key examples. Meant to bring a scientific community together for multiple functions (e.g., job advertisements, event listings, meeting reports, blog posts), such sites can also facilitate research through reviews of preprints.

Notably, the COVID-19 pandemic accelerated the development of what Schubert described as "...an entirely new ecosystem..." where preprints are shared and commented on via Twitter, creating new and informal (and sometimes poor) assessors of scientific information. Schubert envisions a future where journals serve as go-to aggregators and filters for a field: Science will emerge via preprints, undergo review through services such as Review Commons,⁴ and be discussed on publisher-supported community websites.

Emily Therese Cloyd, Director of the Center for Public Engagement with Science and Technology at the American Association for the Advancement of Science (AAAS), next provided an overview of the AAAS's efforts to help scientists engage with the public. While AAAS works to empower scientists and engineers to tell the stories behind their science, programs at the organization also work with journalists and public information officers in various capacities centered on science communication.

The Center for Public Engagement with Science and Technology⁵ is primarily focused on supporting scientists and engineers. The Center provides workshops and seminars (virtual and in person) focused on building communication skills and learning the fundamentals of science communication and public engagement. These sessions, available to institutions and individuals, help scientists and engineers to identify their engagement goals, audiences, and key messages. Additionally, fellowship and

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ambassadorship programs provided by the Center allow AAAS to work with scientists and engineers over a longer period of time, engaging in the promotion of women in STEM, supporting midcareer researchers focused on the intersection of science and society, and placing students and early career scientists in 10-week science journalism posts.

The Science Press Package team serves as the press office for the *Science* family of journals and seeks to directly support authors publishing with the journals. This support begins while research is embargoed (e.g., creating press packages with contextualized summaries, providing tips for video and infographic creation, etc.) and continues post embargo (e.g., social media events where authors can engage with the public, etc.). Lastly, Cloyd elaborated on two additional programs at the AAAS that seek to support scientists and science communication, EurekaAlert!⁶ and SciLine.⁷ EurekaAlert! is an editorially independent news release distribution service serving all publishers and institutions, and SciLine is a nonpartisan nonprofit connecting journalists with scientific experts. While both programs are distinct and offer unique services, they share a common goal of making the story of science accessible to the public.

Closing the session was a presentation by Ashley Ketelhut, Managing Editor with the American Society of Clinical Oncology (ASCO). Art of Oncology, an article type introduced in 2000 by the *Journal of Clinical Oncology*,⁸ seeks to pull back from scientific and clinical content to instead feature personal essays. These essays tell the difficult, informative, and uplifting stories experienced by those treating cancer patients, undergoing cancer treatment, or caring for people diagnosed with cancer.

While the article type was initially introduced to focus on end-of-life and symptom-directed clinical care, it has evolved to feature personal and emotional stories, often sharing authors' professional and private lives. Uniquely, these essays provide a platform for those other than scientists to tell their own stories of science. Authors include oncologists, patients, caregivers, and trainees, which has allowed the journal to expand its authorship, as Ketelhut noted. Topics of interest include reflections and emotions, patient experiences, communication and relationships, and morals and ethics, with recent articles focusing on talking to children with cancer and addressing racism in the workplace.

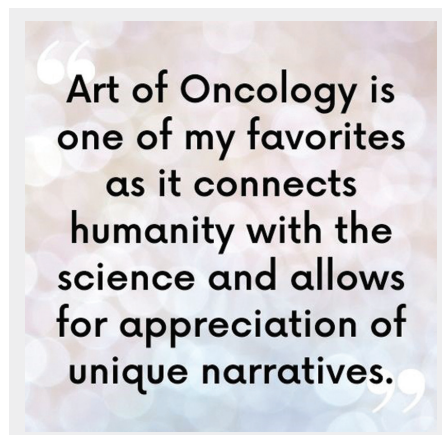


Figure. Art of Oncology reader reaction.

Just as the Art of Oncology article type enables stories from nonscientists, it also enables consumption of these stories by nonscientists due to their nontechnical nature. Furthermore, each essay is free to access immediately upon publication and some essays are transformed into audio, where the essays are read by professional actors, and interviews are conducted between the author and journal editor. As submissions for this article type have steadily increased over the years, so has their popularity (Figure). Considering this, Ketelhut noted that ASCO is actively seeking opportunities to transfer this type of storytelling content to other journals in the ASCO family.

Telling the story of science is increasingly not limited to those conducting scientific experiments, nor are those stories only consumed by other scientists, as evidenced in this session. As communication outlets continue to emerge and evolve, we can expect that the ways in which we tell the story of science will evolve as well.

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7. <https://www.sciline.org/>
8. <https://ascopubs.org/journal/jco/>

e5

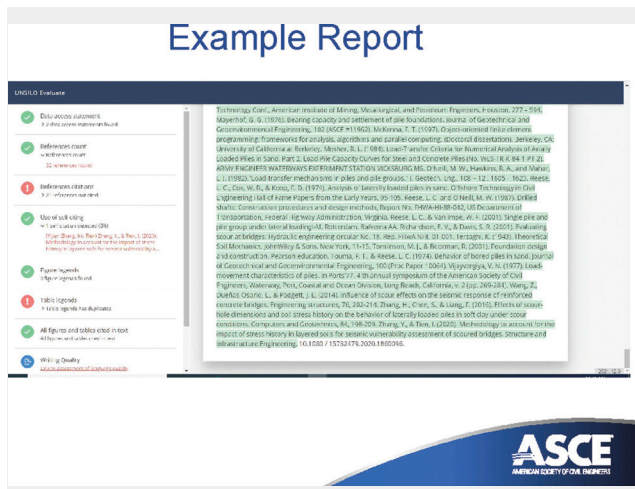


Figure 2. Example report.

Global State of Peer Review survey data from 2018 and found a decrease (to 15%) in the rate of peer review invitations declined for out-of-expertise after the introduction of AIRA suggestions. The comparison also showed that review reports were 10% longer than the global average, and reviewers who were matched using AIRA submitted quality reports 3 days sooner than the average global reviewer.

Case 2: Piloting a Pre-Peer Review AI Technical Check Tool

UNSILO Evaluate Technical Checks is a machine learning- and natural language processing-based assisted editorial tool. ASCE is currently testing UNSILO Evaluate with 4 of their engineering journals. The UNSILO technical check is performed only on new submissions. The technical check is reviewed and approved by an internal quality team, and then the manuscript is sent to the chief editor. The items ASCE decided to focus on for their pilot study are the following:

- Word count
- Language/writing quality
- Figures and tables (all are included in the manuscript, and all are cited)
- Self-citation
- References (count, none are missing, and all are cited)
- Presence of the data availability statement

Chapman showed an example report and demonstrated how clicking on the flagged item in the report directs the evaluator to the place in the manuscript where the issue is located (Figure 2). Only the internal teams and chief editors see the report, which is part of the pre-peer review evaluation.

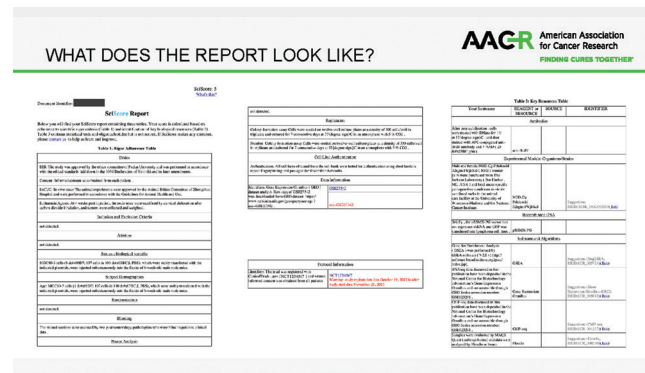


Figure 3. What does the report look like?

At this stage in the trial, the apparent benefits of the UNSILO tool are its utility for 1) providing guidance to editors for moving a manuscript through full review or referring the article for another disposition, 2) improving manuscript language, 3) citation checking, and 4) headlining/highlighting expedited editorial processes for article and journal promotion.

Chapman distilled the challenges ASCE has experienced with UNSILO Evaluate into the following general considerations for adopting AI-assisted editorial tools:

- Maintain good communication with the company that provides the tool. Working with them to identify and correct problems and improve the use of the tool benefits both the company and the client.
- Machine learning requires both positive and negative reinforcement to improve the tool's reliability. You must continually provide adequate data. "Have enough data in your system to allow the [AI] system to learn."
- Obtain editor feedback about the usability of the results and the helpfulness of the program. (What's working best? What's not working well? Is there something we should add to the program?)
- For efficient workflow, make sure the tool integrates well with the submission system in use.
- Budgeting for the AI system should include a cost/benefit analysis.

Case 3: Enabling Reproducible Reporting of Unique Resource Identifiers

One facet of scientific research reproducibility is the accurate and complete reporting of materials (such as antibodies, cell lines, organisms, software tools, and databases) with research resource identifiers (RRIDs). This was the target of the AACR SciScore pilot study.

SciScore is a machine learning-based public tool that analyzes the methods section of research articles. In the

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AACR SciScore pilot study, implemented across all 9 of the AACR journals, SciScore was integrated into the manuscript submission process. The authors receive the SciScore report within seconds of submitting their manuscript. They then have an opportunity to revise their methods section based on the results before their manuscript undergoes peer review (and they can use the results even if their report receives a desk rejection). Among other functions, SciScore identifies the reported resources and suggests appropriate RRIDs if the authors have provided sufficiently unique identifiers. The SciScore also includes, for clinical trials, a notification if the trial registration date is later than the study start date (Figure 3). Also, AACR includes instructions in their provisional acceptance letter asking the corresponding author to use the key resources table in the SciScore report to add RRIDs to their manuscript.

Preliminary results of the pilot study include that, with the implementation of the SciScore protocol, 10%–15% of authors revised the methods section of their manuscripts at least once during the submission, and those authors achieved a 1–2 point increase in their scores. The average daily SciScores increased quickly early in the study. Also, AACR observed consistent increases in the SciScore following peer review, which they attribute largely to the implementation of SciScore. To isolate the effect of the SciScore data from the effects of reviewer and editor comments, Evanko searched for correlated changes since AACR started the SciScore study. SciScore integration itself did not substantially affect the inclusion of RRIDs, but updating the provisional acceptance letter to prompt the

author to add RRIDs from the SciScore report resulted in an immediate increase in RRIDs in the published articles.

Postpresentation Discussion

At issue in any discussion of AI-assisted editorial tools are concerns about confidentiality, costs, fairness/correcting inequities, and bias. For all of the speakers, transparency was a keyword: They all emphasized that 1) a useful AI-assisted editorial tool provides easily evaluable data; 2) the quality reports undergo periodic quality assessment themselves; and 3) all decisions are made by a person (not by a machine).

The effectiveness of the tools for assessing language quality was discussed during and after the case study presentations. At *Frontiers*, the most recent check for the language quality assessment function showed approximately 90% accuracy. The postpresentation discussion also touched on other potential sources of bias that may arise when using AI-assisted editorial tools, such as when applying filters for reviewer expertise. For example, AIRA's software algorithms can be adjusted to select reviewers with a better expertise match, rather than filter for high *h*-indexes.

In response to Schultz's question about how to respond to the concerns about the automation or checking of editors' work, all speakers emphasized the limited, otherwise resource-intensive, technical nature of the tasks that AI-assisted editorial tools perform. Mugridge summarized this point by responding that the tools are designed to support editors, "not take over their jobs...Data-driven decision-making [by people]...is really key to any AI tool."

Society Publishing Guidelines Creation, Workflows, and Best Practices

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Michael A Friedman

Sr Manager for Publishing
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American Meteorological Society
Boston, Massachusetts

SPEAKERS:

Michael A Friedman**Shelley Stall**

Sr Director, Data Leadership
American Geophysical Union
Washington, DC

Heather Goodell

Vice President Scientific
Publishing
American Heart Association
Dallas, Texas

REPORTER:

Judy Connors

Do It Write Editorial, LLC

Things to remember

- Guidelines come from external/internal policies or internal initiatives
- In creating new or updated guidelines include as many key stakeholders as possible in the process
- Check for wider disciplinary or industry groups and publishers working on common approaches (e.g., COPDESS)
- In implementing the guidelines, communication before implementation is key
- Implement a well-vetted presentation online and include LOTS of examples
- Think through all potential complications and possible permutations



The consideration, development, and implementation of society publishing policies and guidelines is an area that varies greatly based on the culture of the workplace community and the vision of each individual organization. The past 18 months, however, have taught us the value of being flexible and creative, not only in scholarly publishing, but in life. Many associations have had to alter standard work protocols to accommodate a virtual workplace and, for some, that has meant adjusting the existing workflow. Now, with vaccinations readily available and offices reopening, it is a good time to revisit best practices for implementing an efficient and effective workflow and figuring out what will work and what to avoid. This session examined different approaches for the development of publishing guidelines, workflow, best practices, and the challenges around implementation from three perspectives: a small-to-midsize society (American Meteorological Society), a large umbrella society (American Heart Association), and a large society that has been very involved in promoting common approaches across multiple societies (American Geophysical Union).

Moderator Michael A Friedman, Sr Manager for Publishing Operations at the American Meteorological Society (AMS), a small-to-midsize society located in Boston, approaches this topic considering all the constituencies they serve—academia, the public, the private sector, weather enthusiasts—with the understanding that the society needs to support this broad community of 12,000+ in their programming. In creating new or updating existing guidelines from governing policies, AMS includes as many key stakeholders as possible in the planning process. External

sources, such as copyright laws, government mandates (i.e., Office of Science and Technology Policy, General Data Protection Regulation) and industry standards, as well as the society's goals, mission, and ongoing internal initiatives all need to be considered when crafting guidelines and shared workflow between the organization's 10 technical journals (mostly hybrid, two Open Access) and member magazine/journal.

The ultimate goal is to align their operations to standard industry practices while streamlining journal processes to shared workflows that implement the society's policy positions, such as the Statement on Full, Open and Timely Access to Data. To accomplish this, they include key stakeholders—editors and senior (and junior) staff, especially those who will be checking compliance. Once developed, implementation of the policies is critical. Final guidelines must be easily searchable and found in locations where authors/editors commonly are, such as submission sites and author instructions, and easily understood and enforceable by staff/editors/authors.

The American Heart Association's (AHA) journals, under the leadership of Vice President Heather Goodell, received over 28,000 papers in 2020. "If process and procedure are not documented, mistakes can happen," she says, which is why her current goal for this midsize publisher is to start "thinking like a big publisher." What exactly does that mean? Continual improvement. Like Friedman, she values outside investigation, asking questions such as: What happened? What variables were in place that allowed it to happen? What processes and procedures exist that are relevant? How do they need to be modified? Who will these changes

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affect? Goodell also leans heavily on continuous proactive internal improvement efforts to consider what happens after relevant data is gathered: Are others doing this differently? Can we get on the same page? Is there an industry best practice? Do we need/can we afford a consultant to help? This approach has helped Goodell and her team tackle problems like standardizing author correspondence so all the AHA journals are handling appeals the same way, refining the decision letter workflow, and commissioning a manuscript workflow across all journals and platforms. The end goal is to evaluate the results of investigations and process improvements and to determine an implementation strategy for recommendations and has three components: (1) approval (Who is the final arbiter?), (2) documentation (Who writes it? Where is it kept and how is it maintained?), and (3) distribution and training (How to ensure a smooth roll out to staff and editors?). Goodell stresses that if the team pays attention to the details, engages the correct stakeholders, and follows these steps, they will have a great foundation for future changes and not have to start from scratch each time they want to modify a process.

For Shelley Stall, Senior Director, Data Leadership, for the American Geophysical Union (AGU), an international, nonprofit scientific association whose mission is to promote discovery in Earth and space sciences, involvement in a community of like-minded researchers and journals is key to meeting their goals. AGU is a participating society in Coalition for Publishing Data in the Earth and Space Sciences

(COPDESS), which is a collaboration among research repositories, scholarly publishers, and other stakeholders focused on jointly developing, implementing, and promoting leading practices around the preservation and citation of data, software, and physical samples that lead toward credit and reuse in the Earth, space, and environmental sciences. Through this and other initiatives, AGU has been very involved in promoting common approaches across multiple societies. AGU is also one of 500+ stakeholders and 225 signatories of the Enabling FAIR Data Commitment Statement. A COPDESS project, it requires participating societies to develop specific guidance for data availability and citation that are available in a trusted data repository as well as have knowledge of leading practices and workflows around data citation. The ultimate goal of AGU in working with COPDESS is to provide membership and their journals with information and resources to help their communities be more knowledgeable and prepared to share data (and software) in a way that is relevant and meaningful for each discipline promoting transparency and credit.

While the 3 case studies presented here have very different scopes and approaches, they are united with the whole of scholarly publishing in the goal of arming their journals with information and resources to help their communities be more knowledgeable and prepared to share data in a way that is relevant, easily discoverable, equitable, and meaningful for each discipline promoting transparency and credit.

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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