

Checklists and *Circulation*: Cardiovascular Quality and Outcomes

Checklists seem to provide protection against such failures. They remind us of the minimum necessary steps and make them explicit. They not only offer the possibility of verification but also instill a kind of discipline of higher performance.

—Atul Gawande¹

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Unless research is properly reported, the work of investigators, subjects, and editors is ultimately wasted. And yet the ongoing problem of poor scientific reporting of research continues to be documented almost on a monthly basis,^{2,3} and this fact remains a major source of concern for the scientific community and public. Indeed, poor scientific reporting is thought to be a critical factor in the current crisis of irreproducibility described across multiple disciplines.⁴

In the medical fields, this problem has been long known and insufficiently tackled.⁵ A recent blog post by Doug Altman recalled a *Lancet* article from the 1970s that reported assignment of a cohort to treatments as being “more or less randomly allocated”.⁶ This clearly confusing and unhelpful phrase triggered Dr Altman’s crusading interest in improving the rigor of scientific reporting, such as his role in establishing the Enhancing the QUALity and Transparency Of health Research (EQUATOR) Network. This network collects and supplies researchers with >300 guidelines and extensions like the CONSORT (Consolidated Standards of Reporting Trials), PRISMA, STROBE, and RECORD.⁷ All were designed to improve scientific reporting across study designs ranging from clinical trials to secondary data analyses through checklists. Despite great interest in checklists like those from the EQUATOR Network, current evidence suggests that they are infrequently adopted by journals and authors and that they have had less impact than had been hoped for.⁸

This is unfortunate. Most would agree that scientific reports of research should clearly describe its essential elements. What research question was addressed and why? How was the study performed? What was found? And ultimately what do its findings mean? Yet a failure to describe any of these components can and does occur despite the best efforts of journals. Some editors in the American Heart Association family of journals have tried to tackle this problem head on. For several years now, the journal *Stroke* has made use of a basic science checklist as part of their review process, which they have recently expanded.⁹ More recently, *Circulation Research* has begun a similar process for their articles, including different types of checklists for various categories of research.¹⁰ The rest of the American Heart Association journals, including *Circulation*, will soon follow for their basic science articles. In the words of Roberto Bolli, the *Circulation Research* Editor-in-Chief: “There has been enough discussion; now it is time for action.”

We applaud these editors and have been inspired by them to take similar steps with our journal. Starting in this New Year with papers submitted after January 1,

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2018, we will now require checklists for manuscripts that fall into 4 categories that reflect the CONSORT, PRISMA, STROBE and RECORD: that is, (1) randomized clinical trials, (2) systematic reviews and meta-analyses, (3) observational studies in epidemiology, and (4) observational studies using routinely collected health data (ie, secondary data analyses). We have previously required randomized clinical trials to follow the CONSORT guidelines, but the policy will now be more uniformly applied.

We should note that our checklist process will not apply to the first submission of a paper but will be a required component of resubmission. After we have sent a decision letter requesting revisions to a paper, we will also ask the authors to complete the checklist as part of their resubmission material to the journal. We will use checklists available from the EQUATOR Network and publish the completed forms as an Appendix to their paper. Editorial staff will ensure at the time of a resubmission that the templates are adequately completed.

The remarkable resources at the EQUATOR Network and prior experiences by other journals make it a wonderful place for us to start. Of course, we will explore whether it makes sense for us to fine-tune these checklists for our journal over time. We will also look at ways to possibly incorporate the checklists into the online submission site (rather than as a standalone document). Clearly, this process will evolve over time, and as with everything involved with *Circulation: Cardiovascular Quality and Outcomes*, we want to hear from you—our readers and authors—about how we can make it better.

We recognize there are potential downsides to this approach. Some may point out the burden of instituting a checklist. The submission process is already viewed as overly taxing. By instituting a checklist, we could even dissuade some from submitting to our journal. We hope not. But even if so, we feel this is a risk we need to take that will be of long-term benefit to our authors and readers. To address this important concern, we will only require the checklist for papers that we have expressed interest in as described above (ie, during resubmission). We have also selected guidelines by the EQUATOR Network that we feel are straightforward and clear—as well as relevant to our journal. We anticipate filling out these checklists should take no longer than half an hour in a majority of cases.

The second concern frequently raised is that checklists will not be really tackling fundamental problems plaguing the scientific community. Published studies suggest the impact of journals using checklists on the quality of their articles is minimal.¹¹ Checklists likely have their greatest effect when used at the time in which studies are being designed and

Table. Example of Key Performance Indicators to Track After Instituting Checklists

Total submissions
Time to resubmission
Time to final acceptance
Associate editor experiences with checklists
Author experiences with checklists (including estimated time for completion)
Quality of scientific reporting in published articles (random sample of eligible studies before and after)

conducted—not at the end game. The aphorism of putting lipstick on a pig rings true—a checklist will not make bad science better.

But to us, that is actually the point. Of course, checklists will provide us with the ability to more carefully and comprehensively consider the papers we receive each week. We already receive more studies to evaluate than we could ever hope to publish. We think this process will help us do a better job with these tough editorial decisions. Yet in a larger sense, we hope instituting checklists can help in a small way to change the culture of our scientific community. As Gawande notes, it offers not just the possibility of verification, but the discipline of higher performance.

As outcomes researchers, we strongly think in the importance of measuring the impact of this new initiative. We plan to examine how this policy changes several metrics that we already closely track each month at our journal. We also plan to formally evaluate how well this approach influences scientific reporting at *Circulation: Cardiovascular Quality and Outcomes* by examining articles before and after implementation using a prepost study of the effect of checklists on the quality of our articles. To start we have proposed the following metrics as initial key performance indicators to consider (Table). As always, please share any thoughts or suggestions you have for us.

DISCLOSURES

None.

AFFILIATIONS

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FOOTNOTES

Circ Cardiovasc Qual Outcomes is available at <http://circoutcomes.ahajournals.org>.

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