

The first and best known set of reporting guidelines was CONSORT (www.consort-statement.org), for randomised controlled trials, with its now familiar flow diagram. Its success was due to a focus on reporting rather than conduct, as well as its multidisciplinary approach, support from high-profile publications, and a lack of competition. Many CONSORT extensions have been developed, and CONSORT has inspired other guidelines, but their impact has often been limited by poor adherence.

Many journals have endorsed CONSORT and other reporting guidelines, but adherence is more complex, with a lack of incentives. Altman noted that career incentives are not helping, with explicit linkage of careers to publication and perceptions about negative findings. Meta-analysis can highlight excluded studies, but that's too late in the process.

How can EQUATOR help?

Iveta Simera explained how the EQUATOR network (www.equator-network.org) was set up to make sense of reporting guidelines. When it was set up in 2006 there were about 50 guidelines, and there are now more than 200. Guidelines can be classified by the study type (eg CONSORT for randomised controlled trials; STROBE for observational studies; CARE for case studies; COREQ for qualitative studies; PRISMA and ENTREQ for systematic reviews; TRIPOD for prognostic studies; STAR for diagnostic studies). There is also more specific guidance (eg SPIRIT for abstracts and harms). There are also some content-specific guidelines; speciality journals have a key role to play in supporting these. As well as a guidance library, EQUATOR also maintains a list of toolkits for editors at www.equator-network.org/toolkits/editors.

How to implement reporting guidelines

Jason Roberts discussed his experience of implementing reporting guidelines at his journal *Headache*. He advised that simply adding a policy on adherence to reporting guidelines to a journal's instructions for authors would be unlikely to have any impact, and he went on to list the steps a journal could take to raise awareness, overcome resistance, and ultimately increase adherence.

The first stage is to work with authors and others to identify the scale and nature of reporting problems and any barriers to overcoming them. Then, gain support from editors, board members and 'champions' to help change policy. Once you've identified the appropriate reporting guidelines from the EQUATOR website, you need to decide on a level of enforcement (mandatory or strongly recommended) and timing (phased or one-off). The final steps are to write a proposal, gain approval, and prepare for launch (update instructions and guidelines, write an editorial, and ensure systems and processes are configured). After launch, you need to keep reminding people and measure the impact.

Improving adherence

In his plenary presentation, Altman shared a quote from Frank Davidoff, ex-editor of *Annals of Internal Medicine*: "Accurate and transparent reporting is like turning on the light before you clean up a room: it doesn't clean it for you but does tell you where the problems are." Recent research shows that the problem of poor reporting remains widespread, despite increased awareness of reporting guidelines and the involvement of peer review and editorial scrutiny. In medical research, a further problem involves discrepancies between the trial registry, the protocol, and the report.

Endorsement of guidelines by journals is associated with better reporting but completeness of reporting remains suboptimal, resulting in seriously inadequate research reports and slow improvement in reporting. Adherence is poor even in endorsing journals. Altman urged a shared approach to the problem, quoting the *PLoS Medicine* editors: "it is the responsibility of everyone involved to ensure that the published record is an unbiased and accurate representation of the research." This collaboration could involve scientists, organisations, funders, regulators, journals, editors, peer reviewers, institutions, and others. While there is work towards agreement, it's too slow. Altman identified five ways to get things moving faster: clearly defined policies and expectations, provision of tools, education and training, incentives and motivation, and the application of checks.

What should editors do?

Altman advised editors to be aware of the needs of readers, reviewers, and support the registration of studies and the publication of protocols. He also urged journals to collaborate in setting out requirements for reporting, noting that in general this doesn't happen. An exception is a recent collaboration between a group of rehabilitation journals, which now all have exactly the same policies.

Looking beyond health care

The principles of good reporting apply to all subjects. Altman noted that the CONSORT guidelines were cited in journals across a range of disciplines, even business economics. Other fields are adopting reporting guidelines, especially the 'omics' disciplines, psychology, veterinary science, animal research, forensic science, and software engineering.

To sum up, it's worth repeating Professor Altman's central message: all research reports in all disciplines should present sufficient information to allow full evaluation of the represented data and further use of these findings. Good reporting is an essential part of doing good research.

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Highlights of the 2014 Annual Meeting of the Society for Scholarly Publishing

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The 36th Annual Meeting of the Society for Scholarly Publishing took place from the 28th to the 30th of May this year in Boston. The theme of the meeting was "Who's at Stake and What's at Stake? Looking Outward at the Future of Scholarly Publishing" and the major focal point was innovation in scholarly publishing from the perspective of publishers, librarians, researchers, and most importantly the audience. The keynote and session speakers had diverse backgrounds ranging from public science and humanities projects to scientific research and trade publishing, and each of them introduced a new perspective on how scholarly publishing can change to cater better to its increasingly diverse audience.

The conference was preceded by a series of pre-meeting seminars on a wide range of topics, such as open access mandates, globalization, technological developments in publication, publication strategies, and journal publishing. In the opening keynote of the main conference, Rick Joyce, Chief Marketing Officer for Perseus Books Group set the tone for the talks that were to follow, by stressing that scholarly publishing 'must' be innovative because 'we can'. He discussed how a combination of creativity and strategic thought are required to take scholarly publishing forward, and reiterated that 'it does not necessarily take lots of cash'. Joyce went on to talk about how digitization has made products far more accessible to consumers, who in turn are more open to experimenting (with new media) than before. He then described the first 'Publishing Hackathon', where a group of individuals from various backgrounds gathered to pitch their ideas on innovation, and concluded that the best way forward for publishing businesses would require cooperation, collaboration, and experimentation.

The topic of experimentation was expanded on in the second keynote by Chris Lintott, Astronomer at the University of Oxford, co-presenter of BBC's *Sky at Night*, and Citizen Science Project Lead at Adler Planetarium. Lintott introduced the concept of 'citizen science' to attract and engage wider audiences, and talked about Galaxy Zoo, and Planet Hunters—initiatives where non-expert internet users contributed to relatively complex science. In his talk filled with quotable quotes, like "...it's not the universe that's odd. It's us", Lintott outlined the advantages of involving internet users in labour-intensive scientific work (like classifying galaxies). He joked that "there's no succeeding slowly on the internet", and went on to say that citizen science initiatives would allow non-expert 'science attentive' enthusiasts all over the world to engage with science, and would probably increase the number of serendipitous discoveries made. He then spoke about 'threshold fear' - the point beyond which non-experts are hesitant to venture, and suggested that involving and acknowledging them in scientific literature

might be a way to overcome this. This concept tied into the question of how best to present scientific literature so that it is not intimidating or boring to a non-expert audience.

The concurrent sessions (far too many for one person to attend!) were classified into five 'tracks'—Data, Innovation, Solutions, Stakeholder Perspectives, and Publishing 101—and featured talks by experts from journal and trade publishing, scientific societies, and libraries. One of the sessions that I attended was titled "The Continuum from Publishers to Data Repositories: Models to Support Seamless Scholarship", where the speakers (Chris Biemdesderfer, American Astronomical Society; Laurie Goodman, Gigascience; Susanna-Assunta Sansone, Nature Publishing Group and Oxford University; Mercé Crosas, Harvard University; and Todd J. Vison, Dryad, University of North Carolina at Chapel Hill) each talked about strategies and systems for data archiving and sharing, and how published data can be reused not only to verify results, but also to aid new scientific discoveries. I found Gigascience's concept of assigning DOIs to data particularly interesting, and this would allow researchers to access and cite data without having to search through the corresponding articles.

The last keynote had an interesting format: Dan Cohen, Director of the Digital Public Library of America (DPLA), and Jill Cousins, Executive Director of the Europeana Foundation, did a relay presentation about their organizations and the cooperation between them. The focus was on collaboration and data flow to disseminate content from various sources through easy-to-use visual tools. Their points were illustrated by examples of how media from smaller societies could be digitized by a regional DPLA service hub or partner and appear on the DPLA's main site, allowing the DPLA's collection to have a local focus and international impact. The DPLA's metadata application profile is a modified version of the Europeana Data Model, facilitating 'communication' between the two. Both speakers reiterated that effective collaboration is not merely technical, but should be social as well as political.

The closing plenary saw all the 'chefs' of Scholarly Kitchen present their views on the meeting. In summary, all the keynotes, and indeed the entire meeting had these two common threads: 'innovation' and 'collaboration'—clearly the watchwords of the scholarly publishing community for the foreseeable future!

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