Scientific journal editor core competencies

David Moher

My disclosures

- Founding editor-in-chief, *Systematic Reviews*
- On the editorial board of several biomedical journals
  - BMC Medicine
- Advisory member International Congress on Peer Review and Biomedical Publication
- PLoS ONE's Human Research Advisory Committee
- University of Ottawa Medical Journal Faculty Advisory Board member
- Member of the EQUATOR Network's executive group
- Developing core competencies for scientific editors of biomedical journal

Outline of talk

- Some context about the publications industrial complex
- Assessing the quality of the published literature
- Developing core competencies for scientific editors of biomedical journals

Context

- Massive publications-industrial complex
- About 6,000 publishers
- About 30,000 journals
- Produces about 3 millions manuscripts, annually, of which 50% are published

Authors cannot adequately describe basic essential information for readers

- 10 essential elements about intervention
  - e.g., drug name, dose, route....
- examined 262 reports of randomized trials from most prominent oncology journals
- overall, only 11% of articles reported all 10 essential items

Duff JM et al. JNCI 2010 102:702-705

Delivering the best care to patients

- “Thoughtful consideration of reporting trial-related procedures that could assist with turning “best evidence” to “best Practice” would be worthwhile”
- “Careful and consistent reporting would help to promote safe and effective clinical application of oncology therapeutics ...”

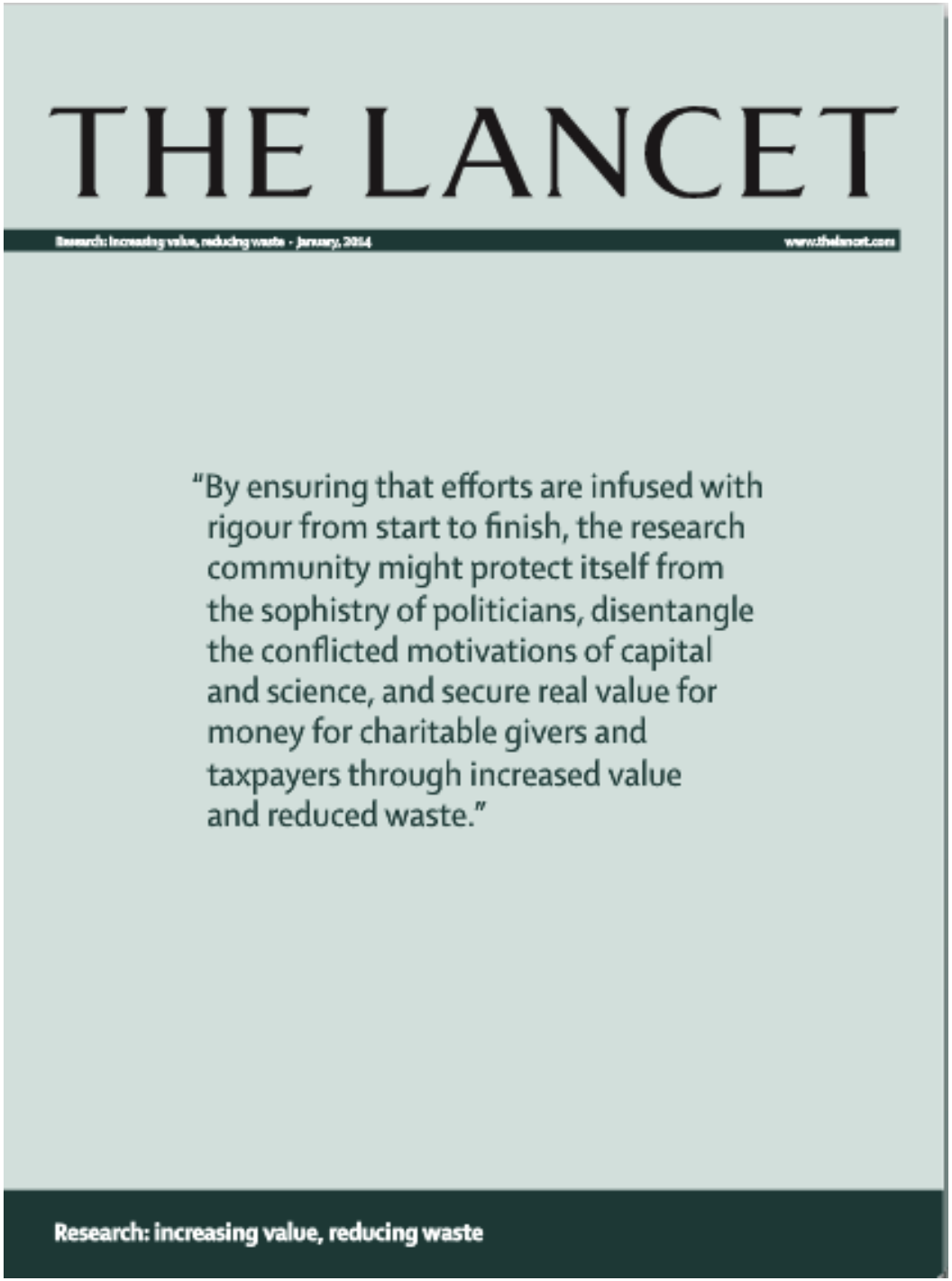
Dancey JNCI 2010; 102:670-671

http://compare-trials.org/

67	9	301	357
TRIALS CHECKED TO DATE	TRIALS WERE PERFECT	OUTCOMES NOT REPORTED	NEW OUTCOMES SILENTLY ADDED

)n average, each trial reported just 62.0% of its specified outcomes. And on average, each trial ilently added 5.3 new outcomes.

58	6	31	16
LETTERS SENT	LETTERS PUBLISHED	LETTERS UNPUBLISHED AFTER 4 WEEKS	LETTERS REJECTED BY EDITOR



"Our belief is that research funders, scientific societies, school and university teachers, professional medical associations, and scientific publishers (and their editors) can use this Series as an opportunity to examine more forensically why they are doing what they do...and whether they are getting the most value for the time and money invested in science."

ALL HAVE PASSED PEER REVIEW AND EDITORIAL APPROVAL

All is not well with biomedical journal editors

- How well trained are scientific editors?
- COMPARE project
  - Changing primary outcomes without attribution
  - Little understanding of CONSORT
  - Little institutional memory of CONSORT endorsement
- WAME listserv
- A trial result
- parasites

- Scientific editors (and ultimately editors-in-chief) are accountable for all published material in their journals
- Readers should expect them to have processes in place to assure the quality of the papers they publish and to strive constantly to improve their journals

- Unlike airline pilots and many other professional groups, however, many medical editors operate their journals largely untrained and certainly uncertified
- This is not the optimal way to instil confidence in readers, provide value for money to funders, or ensure the public can trust the research record

Core competencies for medical journal editors

Moher D, Altman DG. PLoS Medicine 2015 Sep 22;12(9):e1001864

Available resources

- Some organizations, for example, the World Association of Medical Editors (WAME), provide resources for editors.
- There are some good websites, such as Committee on Publication Ethics (COPE) that provide important information for editors,
- Blogs, such as Journalology (http://journalology.blogspot.ca/).
- Several short courses on being an editor offered by commercial groups http://www.pspconsulting.org/medical-short.shtm)
- A few large well resourced journals offer in-house training for editors (e.g., BMJ)

Developing core competencies for medical journal editors

- Stakeholder engagement
  - WAME
  - CSE
  - COPE
  - EASE
  - Journal editors
  - Cochrane Collaboration editors

The process

- Environmental scan
- Needs assessment
- Scoping review
- Delphi
- Face to face meeting

- A minimum set of evidence-based core competencies

Environmental scan

2 Google searches using relevant key words/terms:

- Collected research and non research-based literature

- Searched results of a previous environmental scan of health-related training programs for authors, peer reviewers, and editors.
  - Used combinations of 3 keywords/terms (e.g., “training” and “editor” and “academic”)
- Conducted a new scan using new keywords
  - Used combinations of 2 keywords/terms (e.g., “knowledge” and “scientific editor”)

Needs assessment

- 149 participants
- Duration (6 weeks)
- Advertised through: Cochrane, COPE, WAME, CSE, EASE, PLoS One, EMAME and others
- 15 Demographic Questions
- 5 Questions regarding training (editing, methods, stats)
- 2 items on perceptions of importance of specific knowledge (18 items) and skills (20 items) as an editor
- 2 items on degree to which participants feel they possess specific knowledge (18 items) and skills (20 items) as an editor
- Top 10 (ranked) training needs

Scoping Review

- Searches:
  - MEDLINE®, Cochrane Library, Embase®, CINAHL, PsycINFO, and ERIC databases
  - Grey literature (research and non-research articles)
  - Websites of existing networks, major biomedical journal publishers, and organizations that offer resources for editors.
- Environmental Scans:
  - Conducted an environmental scan
  - Searched results of a previous scan

Delphi

- 3 rounds
- Participants invited after needs assessment
- Based on findings from:
  - Scoping Review (203 items)
  - Needs Assessment (11 items)
- Seeking 80% consensus:
  - Inclusion (rating of 4 out of 5 or above)
  - Exclusion (rating of 2 out of 5 or below)

Developing core competencies for medical journal editors

- Environmental scan
- Needs assessment
- Scoping review
- Delphi

- Face to face meeting

Galipeau *et al. BMC Medicine* (2016) 14:16
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BMC Medicine

RESEARCH ARTICLE Open Access

A scoping review of competencies for scientific editors of biomedical journals

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Abstract

Background: Biomedical journals are the main route for disseminating the results of health-related research. Despite this, their editors operate largely without formal training or certification. To our knowledge, no body of literature systematically identifying core competencies for scientific editors of biomedical journals exists. Therefore, we aimed to conduct a scoping review to determine what is known on the competency requirements for scientific editors of biomedical journals.

A MINIMUM SET OF EVIDENCE-BASED CORE COMPETENCIES

Developing training programs

- Training programs can then be tailored to ensure all editors meet some basic globally agreed upon standards

Core competencies for editors?

- Graduate course in journalology (publication science)
- Graduate courses in epidemiology
- At least two graduate courses in biostatistics
- Training in diplomacy/interpersonal relations
- Training in research integrity
- Knowledge of switched outcomes
- Understanding the difference between being an investigator and editor
- Extensive knowledge of reporting guidelines

Extensive knowledge of reporting guidelines

- What are reporting guidelines?
  - Checklist
  - Flow diagram
  - Explicit text to guide authors in reporting a specific type of research, developed using explicit methodology

CONSORT Statement 2010

Table. CONSORT 2010 Checklist of Information to Include When Reporting a Randomized Trial*

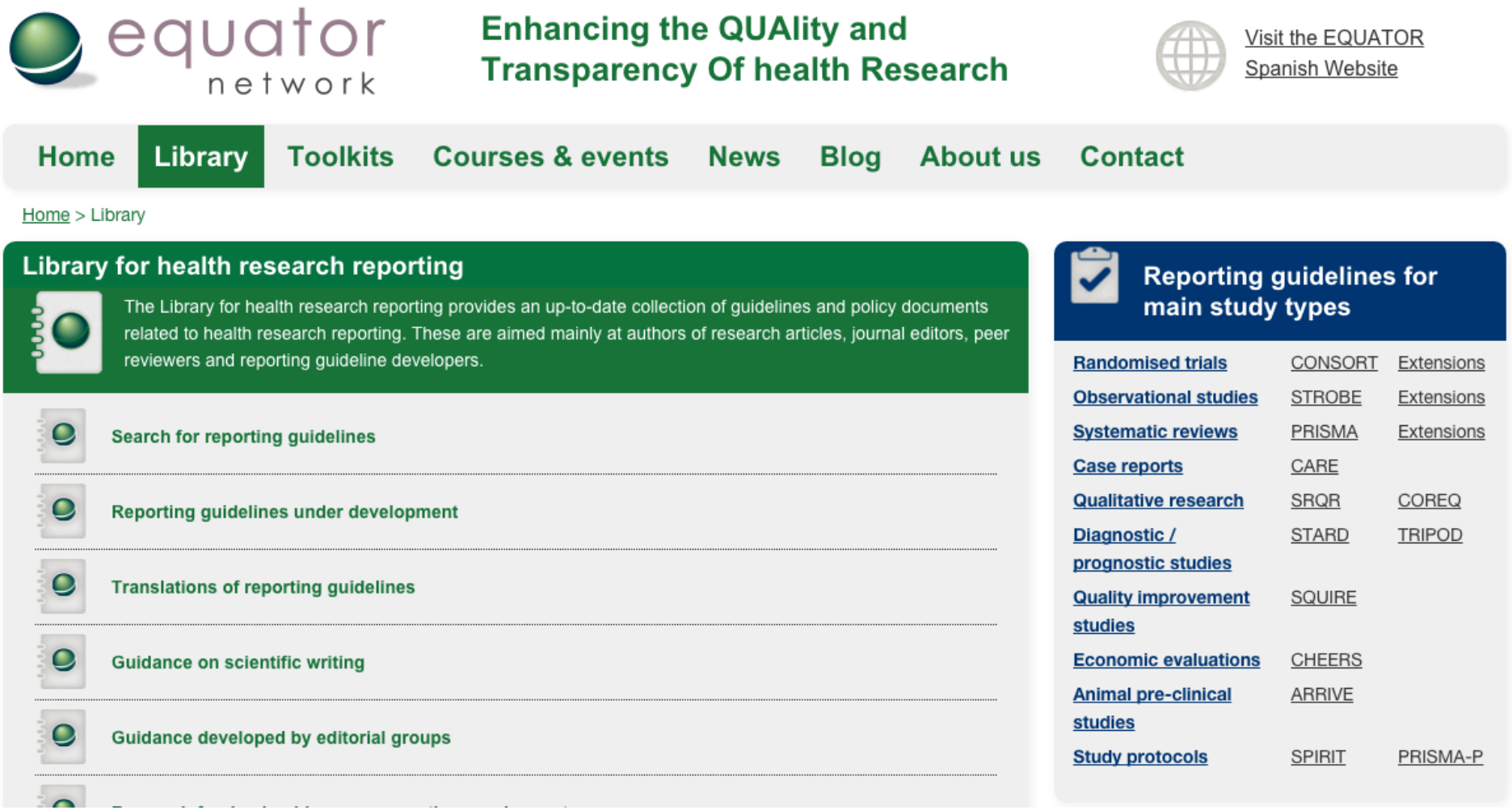
Section/Topic	Item Number	Checklist Item	Reported on Page Number
Title and abstract	1a	Identification as a randomized trial in the title	
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance, see CONSORT for abstracts [21, 31])	
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	
	2b	Specific objectives or hypotheses	
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial), including allocation ratio	
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	
Participants	4a	Eligibility criteria for participants	
	4b	Settings and locations where the data were collected	
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	
Outcomes	6a	Completely defined prespecified primary and secondary outcome measures, including how and when they were assessed	
	6b	Any changes to trial outcomes after the trial commenced, with reasons	
Sample size	7a	How sample size was determined	
	7b	When applicable, explanation of any interim analyses and stopping guidelines	
Randomization			
Sequence generation	8a	Method used to generate the random allocation sequence	
	8b	Type of randomization; details of any restriction (such as blocking and block size)	
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	
	11b	If relevant, description of the similarity of interventions	
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	
	12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses	
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome	
	13b	For each group, losses and exclusions after randomization, together with reasons	
Recruitment	14a	Dates defining the periods of recruitment and follow-up	
	14b	Why the trial ended or was stopped	
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	
Numbers analyzed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing prespecified from exploratory	
Harms	19	All important harms or unintended effects in each group (for specific guidance, see CONSORT for harms [28])	
Discussion			
Limitations	20	Trial limitations; addressing sources of potential bias; imprecision; and, if relevant, multiplicity of analyses	
Generalizability	21	Generalizability (external validity, applicability) of the trial findings	
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	
Other Information			
Registration	23	Registration number and name of trial registry	
Protocol	24	Where the full trial protocol can be accessed, if available	
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	

Schulz KF, et al. BMJ 2010;340:c332; Moher D, et al. BMJ 2010;340:c869. www.consort-statement.org

Extensive knowledge of reporting guidelines

- Where can editors identify reporting guidelines?
- Are reporting guidelines effective?
- Should editors recommend to their peer reviewers and prospective authors to use reporting guidelines?

Where can editors identify reporting guidelines?



http://www.equator-network.org/library/

Are reporting guidelines effective?

"My question is: Are we making an impact?"

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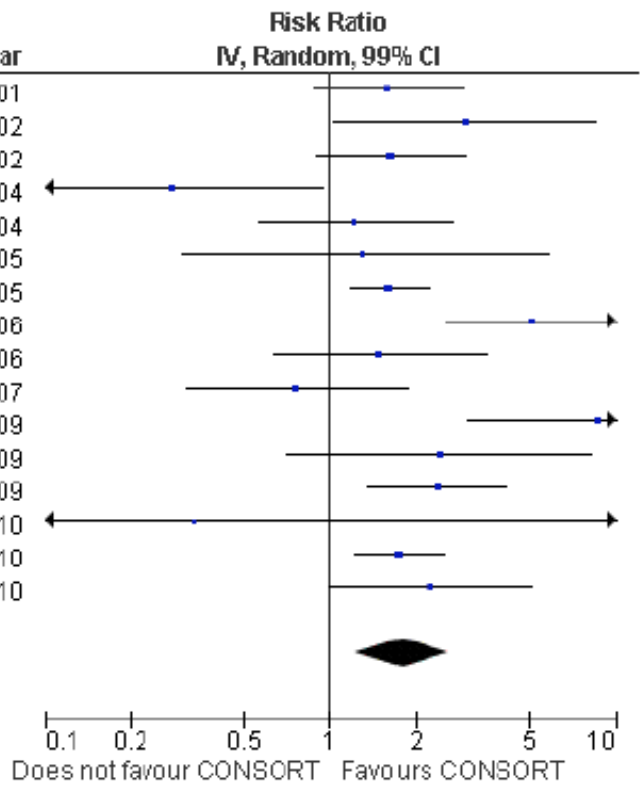
Allocation concealment

Figure 5. Forest plot of comparison: 1 CONSORT-endorsing journals versus CONSORT non-endorsing journals, outcome: 1.9 Allocation concealment.

Study or Subgroup	Endorsers Events	Endorsers Total	Non-Endorsers Events	Non-Endorsers Total	Weight	Risk Ratio IV, Random, 99% CI	Year
Moher 2001	47	77	14	37	7.8%	1.61 [0.89, 2.91]	2001
Hill 2002	4	8	19	113	5.4%	2.97 [1.03, 8.57]	2002
Devereaux 2002	28	49	17	49	7.8%	1.65 [0.91, 2.99]	2002
Llorca 2004	5	37	11	23	4.8%	0.28 [0.08, 0.95]	2004
Halpern 2004	4	6	51	94	6.8%	1.23 [0.56, 2.69]	2004
Greenfield 2005	5	98	7	182	3.8%	1.33 [0.30, 5.79]	2005
Hewitt 2005	138	166	35	68	9.1%	1.62 [1.18, 2.22]	2005
Kober 2006	7	7	12	67	7.2%	5.10 [2.54, 10.26]	2006
Dias 2006	9	19	13	41	6.4%	1.49 [0.63, 3.52]	2006
Lai 2007	17	51	7	16	6.2%	0.76 [0.31, 1.86]	2007
Wei 2009	13	35	8	188	5.4%	8.73 [3.04, 25.09]	2009
Uetani 2009	4	11	13	87	4.7%	2.43 [0.72, 8.25]	2009
Ethgen 2009	12	17	34	115	8.0%	2.39 [1.38, 4.13]	2009
Areia 2010	0	2	4	8	1.0%	0.33 [0.01, 10.34]	2010
Hopewell 2010	91	274	65	342	8.9%	1.75 [1.22, 2.51]	2010
Ladd 2010	9	19	19	90	6.6%	2.24 [0.99, 5.07]	2010
Total (99% CI)		**876**		**1520**	**100.0%**	**1.81 [1.25, 2.61]**	
Total events	393		329				

Heterogeneity: Tau² = 0.21; Chi² = 60.42, df = 15 (P < 0.00001); I² = 75%

Test for overall effect: Z = 4.14 (P < 0.0001)

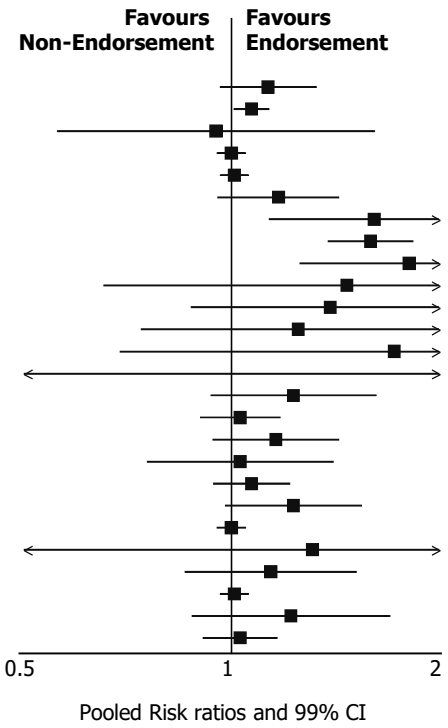


Relative vs. absolute? Only 393/867 (45%) completeness within endorsers

Turner et al. Sys Revs 2012; 1(1):60

Endorsers versus non-endorsers

CONSORT Checklist Item	# of Evaluations	# of RCTs	RR	99% CI
Title and Abstract	7	1,233	1.13	(0.96, 1.33)
Introduction	5	513	1.07	(1.01, 1.14)
Participants	6	683	0.95	(0.56, 1.62)
Interventions	6	638	1.00	(0.95, 1.05)
Objectives	5	540	1.01	(0.96, 1.06)
Outcomes	8	1,302	1.17	(0.95, 1.44)
Sample Size	11	1,843	1.61	(1.13, 2.29)
Sequence Generation	14	2,231	1.59	(1.38, 1.84)
Allocation Concealment	16	2,396	1.81	(1.25, 2.62)
Implementation	5	498	1.47	(0.65, 3.32)
Blinding of Paticipants	5	711	1.39	(0.87, 2.22)
Blinding of Intervention	5	710	1.25	(0.74, 2.12)
Blinding of Outcome Assessor	5	719	1.72	(0.69, 4.30)
Blinding of Data Analyst	3	497	3.56	(0.40, 31.8)
Blinding Any description	8	1,851	1.23	(0.93, 1.62)
Statistical Methods	9	894	1.03	(0.90, 1.18)
Participant Flow	16	2,461	1.16	(0.94, 1.44)
Recruitment	6	959	1.03	(0.75, 1.41)
Baseline Data	5	529	1.07	(0.94, 1.22)
Numbers Analysed	13	2,145	1.23	(0.98, 1.55)
Outcomes and Estimation	6	617	1.00	(0.95, 1.05
Ancillary Analyses	4	378	1.31	(0.48, 3.58)
Adverse Events	8	911	1.14	(0.86, 1.52)
Interpretation	5	540	1.01	(0.96, 1.06)
Generalisability	5	540	1.22	(0.88, 1.70)
Overall Evidence	4	317	1.03	(0.91, 1.17)



Turner et al. Sys Revs 2012; 1(1):60

Are reporting guidelines effective?

BMJ

BMJ 2011;343:d6783 doi: 10.1136/bmj.d6783 (Published 22 November 2011)

RESEARCH

Effect of using reporting guidelines during peer review on quality of final manuscripts submitted to a biomedical journal: masked randomised trial

OPEN ACCESS

E Cobo *senior statistics editor and senior statistical lecturer*[1 2], J Cortés *statistical researcher*[2], J M Ribera *general secretary and chief of clinical haematology department*[1 3 4 5], F Cardellach *general secretary and professor of internal medicine*[1 6], A Selva-O'Callaghan *editorial committee member and senior lecturer in internal medicine*[1 3 7], B Kostov *statistical researcher* [8], L García *statistical researcher*[2], L Cirugeda *statistical researcher*[9], D G Altman *professor of statistics in medicine*[10], J A González *senior statistical lecturer*[2], J A Sànchez *senior statistical lecturer*[2], F Miras *statistical researcher*[2], A Urrutia *editorial committee member and senior lecturer in internal medicine*[1 3 4], V Fonollosa *editorial committee member and professor of internal medicine*[1 3 7], C Rey-Joly *current editor and professor of internal medicine*[1 3 4], M Vilardell *editor in chief and professor of internal medicine*[1 3 7]

Extensive knowledge of reporting guidelines

- Should editors recommend to their peer reviewers and prospective authors to use reporting guidelines?

OPEN ACCESS Freely available online

PLoS one

Are Peer Reviewers Encouraged to Use Reporting Guidelines? A Survey of 116 Health Research Journals

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Abstract

Background: Pre-publication peer review of manuscripts should enhance the value of research publications to readers who may wish to utilize findings in clinical care or health policy-making. Much published research across all medical specialties is not useful, may be misleading, wasteful and even harmful. Reporting guidelines are tools that in addition to helping authors prepare better manuscripts may help peer reviewers in assessing them. We examined journals' instructions to peer reviewers to see if and how reviewers are encouraged to use them.

Methods: We surveyed websites of 116 journals from the McMaster list. Main outcomes were 1) identification of online instructions to peer reviewers and 2) presence or absence of key domains within instructions: on journal logistics, reviewer etiquette and addressing manuscript content (11 domains).

Findings: Only 41/116 journals (35%) provided online instructions. All 41 guided reviewers about the logistics of their review processes, 38 (93%) outlined standards of behaviour expected and 39 (95%) contained instruction about evaluating the manuscript content. There was great variation in explicit instruction for reviewers about how to evaluate manuscript content. Almost half of the online instructions 19/41 (46%) mentioned reporting guidelines usually as general statements suggesting they may be useful or asking whether authors had followed them rather than clear instructions about how to use them. All 19 named CONSORT for reporting randomized trials but there was little mention of CONSORT extensions. PRISMA, QUOROM (forerunner of PRISMA), STARD, STROBE and MOOSE were mentioned by several journals. No other reporting guideline was mentioned by more than two journals.

Conclusions: Although almost half of instructions mentioned reporting guidelines, their value in improving research publications is not being fully realised. Journals have a responsibility to support peer reviewers. We make several recommendations including wider reference to the EQUATOR Network online library (www.equator-network.org/).

Next steps

- Need to finish the current program
- Need to develop training
- Need to extend our outreach
- need to evaluate the program

Thank you ☺