Implementation of editorial interventions

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Declarations

- Clinical Epidemiologist/Journalalologist/Methodologist
- Associate Editor
- Reporting Guideline developer (PRISMA-P[rotocols], CONSORT extension for N-of-1 trials, 8 others)
“Implementation”

≠ dissemination
≠ endorsement

- Integrating knowledge (i.e., standards/guidelines/processes) into practice, taking account of barriers
Guideline developers: Measuring uptake of reporting guidelines

- Typically..
  - # of citations to guidelines
  - # of journals endorsing guidelines or with certain policies

- ...but reporting is complex issue
  - What is “best practice”?  
    - Adhering to effective guidelines and standards
    - How do we measure uptake/adherence to best practice?
The basic SR process

**Research Question**
- **Guideline:** • PRISMA-P • MECIR
- **Action:** • Search for existing SRs • Engage contributors with relevant expertise (methods, search, stats, content)

**Design Review**
- **Guideline:** • PRISMA-P • MECIR • Funder policies
- **Action:** • Search for existing SRs • Engage contributors with relevant expertise (methods, search, stats, content)

**Collect & analyse data**
- **Guideline:** • MECIR
- **Action:** • PRISMA, extensions, MOOSE, ROSES, others • MECIR

**Write up review**
- **Guideline:** • PRISMA-P • MECIR
- **Action:** • Follow a priori protocol • Update PROSPERO/registry review status

**Report/publish review**
- **Guideline:** • Journal’s editorial policies
- **Action:** • Update PROSPERO/registry review status • Share/deposit all data • Registered reports

PRISMA-P: Preferred Reporting Items for Systematic Review and Meta-analysis Protocols; MECIR: Methodological Expectations of Cochrane Intervention Reviews; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-analyses; OSF: Open Science Framework
PROSPERO

https://www.crd.york.ac.uk/PROSPERO/

Welcome to PROSPERO
International prospective register of systematic reviews
PROSPERO Registration data set

23 required items, 18 optional items

Review title and timescale

1. Review title *
2. Original language title
3. Anticipated or actual start date *
4. Anticipated completion date *
5. Stage of review at time of registration *

Review methods

15. Review question(s) *
16. Searches *
17. URL to search strategy
18. Condition or domain being studied *
19. Participants/ population *
20. Intervention(s), exposure(s) *
21. Comparator(s)/ control *
22. Types of study to be included *
23. Context
24. Primary outcome(s) *
25. Secondary outcomes *
26. Data extraction (selection and coding)
27. Risk of bias (quality) assessment *
28. Strategy for data synthesis *
29. Analysis of subgroups or subsets *

Review team details

6. Named contact *
7. Named contact email *
8. Named contact address
9. Named contact phone number
10. Review team members and their organisational affiliations
11. Organisational affiliation of the review *
12. Funding sources/ sponsors *
13. Conflicts of interest *
14. Collaborators

* Mandatory items
## Review methods

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>15. <strong>Review question(s)</strong></td>
<td>State the question(s) to be addressed / review objectives. Please complete a separate box for each question.</td>
</tr>
<tr>
<td>16. <strong>Searches</strong></td>
<td>Give details of the sources to be searched, and any restrictions (e.g. language or publication period). The full search strategy is not required, but may be supplied as a link or attachment.</td>
</tr>
<tr>
<td>17. <strong>URL to search strategy</strong></td>
<td>If you have one, give the link to your search strategy here. Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.</td>
</tr>
<tr>
<td>18. <strong>Condition or domain being studied</strong></td>
<td>Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.</td>
</tr>
<tr>
<td>19. <strong>Participants/population</strong></td>
<td>Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.</td>
</tr>
<tr>
<td>20. <strong>Intervention(s), exposure(s)</strong></td>
<td>Give full and clear descriptions of the nature of the interventions or the exposures to be reviewed. The preferred format includes details of both inclusion and exclusion criteria.</td>
</tr>
<tr>
<td>21. <strong>Comparator(s)/control</strong></td>
<td>Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.</td>
</tr>
<tr>
<td>22. <strong>Types of study to include</strong></td>
<td>Give details of the study designs to be included in the review. If there are no specific restrictions, then do not complete this box.</td>
</tr>
</tbody>
</table>

[https://www.crd.york.ac.uk/prospero/aboutreg.php?reg=registrationdataset](https://www.crd.york.ac.uk/prospero/aboutreg.php?reg=registrationdataset)
### General information

30. Type and method of review *
31. Language
32. Country
33. Other registration details
34. Reference and/or URL for published protocol
35. Dissemination plans
36. Keywords
37. Details of any existing review of the same topic by the same authors
38. Review status *
39. Any other information
40. Link to publication of final report
Why haven’t we achieved best practice?

Dissemination
- Passive
- exposure ≠ Uptake into practice
- active
- intervention

- Improving reporting = changing current practice
- Changing practice = changing behaviour of multiple people
What are the desired outcomes?

- Adherence to guidelines/standards/policies
- Behaviour Change
  - Use Psychological theory to develop an “implementation intervention” or knowledge translation strategy

- Bonus: there is an established science on how to do this!
Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework

Simon D French¹,²*, Sally E Green¹, Denise A O'Connor¹, Joanne E McKenzie¹, Jill J Francis³, Susan Michie⁴, Rachelle Buchbinder¹,⁵,⁹, Peter Schattner⁶, Neil Spike⁶ and Jeremy M Grimshaw⁷,⁸

Abstract
Background: There is little systematic operational guidance about how best to develop complex interventions to reduce the gap between practice and evidence. This article is one in a Series of articles documenting the development and use of the Theoretical Domains Framework (TDF) to enhance the science of implementation.
Who needs to do what differently?

Using a theoretical framework, which barriers and enablers need to be addressed?

Which intervention components could overcome the modifiable barriers and enhance the enablers?

How will we measure behaviour change?

- Define best practice
  - Identify who is involved/stakeholders
    - Identify gaps

- Among stakeholders...
  - What helps?
  - What hinders?

- Strategies to overcome psychological barriers
  - Evidence-based

- Define outcome(s)
  - Determine how measured
Who
- Who needs to do what differently?
- Define best practice
- Identify who is involved
- Identify practice gaps

What
- Using a theoretical framework, which barriers and facilitators need to be addressed?
  - Diagnose the problem among stakeholders...
  - What helps?
  - What hinders?

How
- Which intervention components could overcome modifiable barriers?
  - Evidence-based established strategies to overcome barriers
  - Who will carry out interventions
  - Consider resources, practicalities, logistics

Measuring change
- How will we measure behaviour change?
  - Define outcomes
  - Set up monitoring system
The «Swiss Cheese » Model

- An organization's defenses against failure are modeled as a series of barriers, represented as slices of cheese.

- The system produces failures when a hole in each slice momentarily aligns.

Who

Authors

Reviewers

Editors

Funders/regulators/institutions

POOR Reporting

Slide courtesy of Philippe Ravaud
Who

- Who needs to do what differently?
- Define best practice
- Identify who is involved
- Identify practice gaps

What

- Using a theoretical framework, which barriers and facilitators need to be addressed?
- Diagnose the problem among stakeholders...
  - What helps?
  - What hinders?

How

- Which intervention components could overcome modifiable barriers?
  - Evidence-based established strategies to overcome barriers
  - Who will carry out interventions
  - Consider resources, practicalities, logistics

Measuring change

- How will we measure behaviour change?
  - Define outcomes
  - Set up monitoring system
What

• DIAGNOSE THE PROBLEM
  • Identify barriers and facilitators to reproducible systematic reviews
  • Interviews with representatives from target stakeholder groups
  • Re: factors influencing the development/reporting/availability/assessment of systematic reviews

• USE PSYCHOLOGICAL THEORY to:
  • understand potential mechanisms of change
  • understand which behaviours are associated with each identified barrier

Theoretical Domains Framework (Michie 2005, Cane 2012)

• Knowledge
• Skills
• Social/professional role and identity
• Beliefs about capabilities
• Optimism
• Beliefs about consequences
• Reinforcement
• Intentions
• Goals
• Memory, attention and decision processes
• Environmental context and resources
• Social influences
• Emotion
• Behavioural regulation
E.g., Barriers/Facilitators to CONSORT

- Elicit thoughts, understanding, and use of CONSORT to identify barriers/facilitators

1. Editor surveys (n=79)
2. Editor interviews (6 endorsers, 1 non-endorser)
3. Author Interviews (n=10, CMAJ & Imp Sci)
Editor Survey Results – descriptive characteristics of journals

- 79 editors completed survey (response rate: 29.8%)
  - 76.7% - Editor-in-Chief
  - 11.6% - Managing Editors
  - 11.7% - Other

- >50% of editors from US, followed by Europe, Canada

- ~50% of journals published ≥10 trials in 2009

- ≥50% journals with 3+ IF
Endorsement characteristics

- In endorsing journals (70%):
  - 84.6% refer to CONSORT in ITA
  - 62.3% do not require checklist prior to peer review
  - 86.5% do not mandate use of CONSORT during peer review
  - Only 35.3% considered CONSORT when making publication decision
- CONSORT adherence is responsibility of: editors (70%), authors (42%), editorial staff (38%) or someone else (60%).
Editors Survey Results

- What would (further) facilitate the endorsement of CONSORT in your journal? (select all that apply)

- Web-enabled applications (e.g., programs to connect CONSORT submission with other documents at peer-review): 81.0%

- Links to educational tutorials about CONSORT items (e.g., webinars): 59.5%

- Other (please specify) 14.3%
Editors Survey Results

Which of the following, if any, do you feel are disadvantages to using the CONSORT statement within the editorial process? (select all that apply)

- Strict endorsement of CONSORT can lead to formulaic writing: 34.7%
- Strict endorsement of CONSORT can diminish the importance of clinical content: 18.4%
- I do not feel there are any drawbacks to using the CONSORT statement within the editorial process: 55.1%
- Other (please specify): 16.3%
Editor interviews

• “You know, we don’t need that, we are so smart we know better”

• “Even though that’s what you recommend, it’s not all that practical for us, for our particular readers”

• “…we need submissions right now, we felt it may be a barrier...authors might submit it [manuscript] to a journal that doesn’t require it [CONSORT]”
Editor Responses (cont’d)

• “In the past we’ve had discussion about, you know, requiring it at initial submission and holding it back if they don’t have it at initial submission, but we’ve decided to keep it the way things are….it would be seen as too onerous”

• “Our instructions to authors does ask them to include a completed CONSORT checklist with the submitted manuscript….They [peer reviewers] would not see it… it slows down the review process”
**Summary of Author Responses**

- **Non-authors** (research associates or administrative assistants) **submit manuscripts to journals**, including completion of **CONSORT**
- Journal submission is often first encounter with **CONSORT**

- Authors didn’t recall or know how journals required its use or how its use was enforced
  - Not reading instructions to authors
  - Ambiguity and inconsistencies across journals
**Who**
- Who needs to do what differently?
  - Define best practice
  - Identify who is involved
  - Identify practice gaps

**What**
- Using a theoretical framework, which barriers and facilitators need to be addressed?
  - Diagnose the problem among stakeholders...
    - What helps?
    - What hinders?

**How**
- Which intervention components could overcome modifiable barriers?
  - Evidence-based established strategies to overcome barriers
  - Who will carry out interventions
  - Consider resources, practicalities, logistics

**Measuring change**
- How will we measure behaviour change?
  - Define outcomes
  - Set up monitoring system
• For identified behaviour ‘domains’ likely associated with change, identify evidence-based behaviour change techniques
• Tailor and implement strategies among different stakeholder groups
Which intervention components could overcome the modifiable barriers?

- Scheduled consequences
- Reward and threat
- Repetition and substitution
- Antecedents
- Associations
- Covert learning
- Natural consequences
- Health consequences
- Feedback and monitoring
- Goals and planning
- Social support
- Comparison of behaviour
- Self belief
- Comparison of outcomes
- Identity
- Shaping knowledge
- Regulation
<table>
<thead>
<tr>
<th>Behaviour change technique</th>
<th>Social/Professional role &amp; identity</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Beliefs about capabilities</th>
<th>Beliefs about consequences</th>
<th>Motivation and goals</th>
<th>Memory, attention, decision processes</th>
<th>Environmental context and resources</th>
<th>Social influences</th>
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<td>Monitoring</td>
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<td>Stress management</td>
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<td>Coping skills</td>
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<tr>
<td>Rehearsal of relevant skills</td>
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</table>

**Identified Barriers**
- Unsure of purpose
  - Unsure of importance
  - Unsure of effectiveness

**Behaviour domain**
- Lack of methodological expertise
- Knowledge

**Intervention**
- Development of training materials and webinars about how to use CONSORT
- Provision of CONSORT publication and evidence of impact (CONSORT SR)
- Audit & feedback AND use experienced opinion leaders to convince otherwise

- Will decrease submissions
- Will delay publication
- Will detract from important content
Identified Barriers

- Time consuming and expensive to implement
- Belief that current process is sufficient
- Not my responsibility

Behaviour domain

- ENVIRONMENTAL CONTEXT AND RESOURCES
- MOTIVATIONS AND GOALS
- SOCIAL INFLUENCES

Intervention

- Develop electronic tool to facilitate journal/author use of CONSORT
- Audit & feedback: providing journals with reporting assessments of published trials
- Opinion leaders to disseminate message
- Use social media to directly connect with
Who
- Who needs to do what differently?
  - Define best practice
  - Identify who is involved
  - Identify practice gaps

What
- Using a theoretical framework, which barriers and facilitators need to be addressed?
  - Diagnose the problem among stakeholders...
    - What helps?
    - What hinders?

How
- Which intervention components could overcome modifiable barriers?
  - Evidence-based established strategies to overcome barriers
  - Who will carry out interventions
  - Consider resources, practicalities, logistics

Measuring change
- How will we measure behaviour change?
  - Define outcomes
  - Set up monitoring system
How will change be measured?

• Identify endpoints that are sensitive to change
  • Journal and other stakeholder endorsement/adoptions of solutions (Preregistration, PROSPERO, PRISMA-P, PRISMA, Registered reports)
  • Registration and reporting quality of SRs (using relevant reporting guideline)

• Identify mediators/gatekeepers of behaviour
  • i.e. policies from journals or funders

• Implement and study the effectiveness of strategies (e.g. randomized controlled trial, interrupted time series, before-after control study, stepped-wedge)
# PRISMA-P Stakeholder table

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Proposed Action</th>
<th>Potential Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funders</strong></td>
<td>Promote or mandate adherence to PRISMA-P or use PRISMA-P as a template for systematic review proposals for grant applications</td>
<td>Improved quality, completeness, and consistency of systematic review proposal submissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standardized protocol content will improve peer review efficiency and investigator understanding of requirements</td>
</tr>
<tr>
<td><strong>Systematic Reviewers/groups/organizations</strong></td>
<td>Use/adhere to PRISMA-P during protocol development</td>
<td>Improved quality, completeness, and consistency of protocol content</td>
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<td></td>
<td></td>
<td>Enables reviewers to anticipate and avoid future changes to review methods (i.e. outcomes)</td>
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<td>Increased awareness of minimum content for protocol reporting</td>
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<td></td>
<td></td>
<td>Improved completeness of reporting of completed reviews</td>
</tr>
<tr>
<td><strong>PROSPERO (and other review registries)</strong></td>
<td>Encourage the development of PRISMA-P-based protocols</td>
<td>Improved quality of registry entries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improved consistency across registry entries, protocols, and systematic reviews</td>
</tr>
<tr>
<td><strong>Practice Guideline Developers</strong></td>
<td>Use PRISMA-P to gauge the completeness of protocols and facilitate detection of selective reporting when considering reviews for guideline</td>
<td>Enables easy comparison across protocols, registry entries, and completed systematic reviews</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>Proposed Actions</td>
<td>Proposed benefits</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Policymakers</td>
<td>Advocate use of PRISMA-P by those funding and carrying out systematic reviews</td>
<td>May yield better quality, more complete, and more consistent reviews to inform decision-making</td>
</tr>
<tr>
<td>Journal editors</td>
<td>Encourage compliance to PRISMA-P for authors submitting protocols for publication</td>
<td>Improved quality, completeness, and consistency of protocols over those published in journals not endorsing PRISMA-P</td>
</tr>
<tr>
<td></td>
<td>Offer PRISMA-P as a template to assist in protocol writing for publication</td>
<td>Increased efficiency in protocol peer and author understanding of journal requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improved transparency, and interpretation of reviews by readers</td>
</tr>
<tr>
<td>Educators</td>
<td>Use PRISMA-P as a training tool</td>
<td>Simplified teaching and grading of protocols</td>
</tr>
<tr>
<td></td>
<td>Encourage adherence in students submitting protocols for coursework</td>
<td>Improved quality, completeness, and consistency of protocol content</td>
</tr>
<tr>
<td>Students</td>
<td>Develop protocols for coursework or research using PRISMA-P</td>
<td>Improved understanding of the minimum protocol content</td>
</tr>
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<td></td>
<td></td>
<td>Well-trained systematic reviewer going into the workforce</td>
</tr>
</tbody>
</table>
Editors cannot fix reporting alone
Upstream incentives can eliminate downstream barriers

**Editors/Journals**
Higher quality/more citations?

**Funders**
Reduced waste of research publication

**Publishers**
Better reputation, publication/citation & $$

**Public**
Reduced waste of tax-payer $$

**Reporting Guideline**

**Typical outcome:** complete reporting

**Usable (Uptake into policies/guidelines)**

**Better evidence-based practice**

**Improve pt health care & management**

**Authors**
Increased chances of publication (promotion/tenure)

**Institutions**
Productivity/reputation

**Readers** (researchers/clinicians)
Increased usability & assessment of validity

Reduced waste of tax-payer $$
Editorial Interventions

Different purposes:

- To improve peer review (e.g., recruitment, quality of review, time spent)
- To improve manuscript quality (e.g., adherence to standards, reporting transparency)
- To improve author experience (e.g., increase submissions, facilitate submission process)
- Others
A promising treatment is the larval stage of a disappointing one.

Bastian
Evaluating editorial interventions

Designs of trials assessing interventions to improve the peer review process: a vignette-based survey

Amytis Heim¹,², Philippe Ravaud¹,²,³, Gabriel Baron¹,²,³ and Isabelle Boutron¹,²,³*

Abstract

Background: We aimed to determine the best study designs for assessing interventions to improve the peer review process according to experts’ opinions. Furthermore, for interventions previously evaluated, we determined whether the study designs actually used were rated as the best study designs.

Methods: Study design: A series of six vignette-based surveys exploring the best study designs for six different interventions (training peer reviewers, adding an expert to the peer review process, use of reporting guidelines checklists, blinding peer reviewers to the results (i.e., results-free peer review), giving incentives to peer reviewers
Fig. 1 Interventions for peer review identified and classified. Interventions selected to be explored in the vignette-based survey are highlighted in a white box.
### Designs supported by expert methodologists

<table>
<thead>
<tr>
<th>Study type</th>
<th>Estimate [95% CI]</th>
<th>Estimate [95% CI]</th>
<th>Estimate [95% CI]</th>
<th>Estimate [95% CI]</th>
<th>Estimate [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCT with randomization of manuscripts</td>
<td>0.92 [-0.50; 2.41]</td>
<td>2.03 [0.51; 3.49]</td>
<td>2.69 [1.39; 3.95]</td>
<td>2.53 [1.27; 3.76]</td>
<td>1.00 [-0.21; 2.16]</td>
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<tr>
<td>RCT with randomization of peer reviewers</td>
<td>1.45 [0.14; 2.78]</td>
<td>N/A</td>
<td>1.99 [0.69; 3.37]</td>
<td>2.24 [0.98; 3.50]</td>
<td>2.25 [0.94; 3.49]</td>
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<tr>
<td>Cluster RCT with randomization of journals</td>
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<td>0.76 [-0.90; 2.43]</td>
<td>0.34 [-1.25; 1.93]</td>
<td>0.63 [-0.56; 1.88]</td>
<td>-0.16 [-1.49; 1.18]</td>
</tr>
<tr>
<td>Interrupted time series analysis</td>
<td>-0.10 [-1.48; 1.38]</td>
<td>-0.19 [-1.74; 1.39]</td>
<td>0.10 [-1.21; 1.44]</td>
<td>0.07 [-1.28; 1.40]</td>
<td>0.73 [-0.51; 2.02]</td>
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<tr>
<td>Pairwise comparison</td>
<td>0.83 [-0.49; 2.18]</td>
<td>N/A</td>
<td>N/A</td>
<td>1.61 [0.35; 2.86]</td>
<td>N/A</td>
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<tr>
<td>Stepped wedge cluster RCT with randomization of journals***</td>
<td>0.00 [-]</td>
<td>0.00 [-]</td>
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<td>0.00 [-]</td>
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</table>
Interventions supported expert methodologists

<table>
<thead>
<tr>
<th>Studies identified</th>
<th>Setting</th>
<th>Type of manuscript</th>
<th>Ranking according to experts*</th>
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</thead>
<tbody>
<tr>
<td>No. of studies</td>
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<td>Preference</td>
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<tr>
<td>Training</td>
<td>6</td>
<td>- 5 randomized controlled trial of peer reviewers</td>
<td>8/24 (4 RCTs)</td>
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<tr>
<td></td>
<td></td>
<td>- 1 cross-sectional study</td>
<td>21/24 (1 RCT)</td>
</tr>
<tr>
<td>Use of reporting</td>
<td>Randomized</td>
<td>Single journal</td>
<td>5/13</td>
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<tr>
<td>guidelines checklist</td>
<td>controlled trial of manuscripts</td>
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<tr>
<td>Adding an expert</td>
<td>Randomized</td>
<td>Single journal</td>
<td>8/10</td>
</tr>
<tr>
<td></td>
<td>controlled trial of manuscripts</td>
<td></td>
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</tbody>
</table>

*The cross-sectional design was not included in the vignette study
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Comments on the best study design according to experts</th>
</tr>
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<tbody>
<tr>
<td>Training intervention</td>
<td>The design recommended by the experts was an RCT with randomization of peer reviewers, set in several biomedical journals from different publishers, using actual manuscripts submitted to the journal. The choice of an RCT with randomization of peer reviewers has the advantage of being close to the real-life procedures of the peer review process, with the benefit of using randomization. The issue with the training intervention is its length in time. This raises issues related to poor adherence and missing outcome when peer reviewers randomized never assess a manuscript. The pairwise comparison was the second-ranked design. This design has the advantage of addressing the issue of manuscript variability, thus increasing statistical power, and avoiding the loss to follow-up problem, because no long-term follow up is needed. Such design has never been used to our knowledge. The cluster RCT and stepped wedge cluster RCT were not often chosen by the participants because of the risk of contamination, because peers can review for more than one journal at a time.</td>
</tr>
<tr>
<td>Addition of an expert (methodologist or statistician)</td>
<td>The addition of an expert to the peer review process was preferably assessed with an RCT of manuscripts, set in several journals from different publishers, using the actual manuscripts submitted to the journal. The cluster RCT was the second preferred design for all three of the outcomes. This design has the advantage of including a large variety of reviewers and manuscripts, and it is logistically easy for the editors who do not have to change process for each manuscript. It is nevertheless a difficult design to put in place, as shown by its systematically low score in the feasibility rankings, and a very large number of clusters would be needed to compensate for the high variability between journals (publisher, editorial policies, subject area, quality of reviewers etc.). The interrupted time series set in a single journal was the preferred design in terms of feasibility. This study type is not randomized, which could potentially create bias.</td>
</tr>
<tr>
<td>Use of reporting guidelines checklist</td>
<td>The favored designs to assess the use of reporting guidelines checklist was an RCT of manuscripts, set in several biomedical journals from several or a single publisher, using actual manuscripts. The choice to randomize manuscripts rather than peer reviewers is interesting in terms of logistics, because manuscripts receiving the intervention can be...</td>
</tr>
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</table>
Impact of interventions to improve the quality of peer review of biomedical journals: a systematic review and meta-analysis

Rachel Bruce¹,²,³†, Anthony Chauvin²,³,⁴†, Ludovic Trinquart²,³,⁵, Philippe Ravaud¹,²,³,⁵ and Isabelle Boutron²,³,⁵∗

Abstract

Background: The peer review process is a cornerstone of biomedical research. We aimed to evaluate the impact of interventions to improve the quality of peer review for biomedical publications.

Methods: We performed a systematic review and meta-analysis. We searched CENTRAL, MEDLINE (PubMed), Embase, Cochrane Database of Systematic Reviews, and WHO ICTRP databases, for all randomized controlled trials (RCTs) and quasi-randomized trials interventions aimed at improving the quality of peer review of biomedical publications.
Full-text articles included (n=21)
22 RCTs / 25 comparisons

- Training/mentoring/feedback: 5 comparisons
- Addition of a statistical peer reviewer: 2 comparisons
- Use of a checklist: 2 comparisons
- Open peer review: 7 comparisons
- Blinded peer review: 6 comparisons
- Interventions to accelerate the peer review process: 3 comparisons
Use of statistical reviewer

Statistical Reviewers Improve Reporting in Biomedical Articles: A Randomized Trial

Erik Cobo, Albert Selva-O’Callaghan, Josep-Maria Ribera, Francesco Cardellach, Ruth Dominguez, Miquel Viardell

Published: March 28, 2007 • https://doi.org/10.1371/journal.pone.0000332

Abstract

Background

Although peer review is widely considered to be the most credible way of selecting manuscripts and improving the quality of accepted papers in scientific journals, there is little evidence to support its use. Our aim was to estimate the effects on manuscript quality of either adding a statistical peer reviewer or suggesting the use of checklists such as CONSORT or STARD to clinical reviewers or both.
2x2 factorial design
The mean (SD) global score for completeness of reporting was higher with than without writing tool: mean difference (95 % CI): 2.1 (1.5–2.7; P <0.01).
Legislation on registration

- Funders and journals can require registration
  - E.g. UK NIHR

All NIHR-funded projects that include a systematic review as part of their protocol (even if embedded within a trial) are required to register their protocols on the PROSPERO database (an international database of prospectively registered systematic reviews in health and social care). Registration advice is provided in the documentation supplied by your programme as part of the application, contracting and start-up processes.

- Journals
  - E.g., protocols

| Protocol and registration | Indicate if a review protocol exists, if and where it can be accessed (such as web address), and, if available, provide registration information including registration number | 5 |
e.g., Clinical Trials

Annual numbers of registered clinical trials on the International Clinical Trials Registry Platform (ICTRP) and annual numbers of publications about clinical trials on PubMed from 1998 to 2013.
Meeting Outputs

- Collaborative paper

- What else?

Develop a systematic, purposeful implementation plan to improve reproducibility of SRs?

- Highest impact journals in field
- Funders
- Largest government/Regulators
- Academic institutions
- Societies

What are the barriers? What could help?

- Carry out surveys followed by interviews across relevant stakeholder groups
- Identify key behaviour domains

What actions/interventions are appropriate?

- Match behaviour domains to agreed on intervention

How should we evaluate/test what works?

- System of evaluation & monitoring for adherence/compliance to standards
- Automation (Statereviewer)