Ottawa Hospital Research Institute

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The EQUATOR Network: a global initiative to improve the quality of reporting research

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Author behaviour concerning publishing health research (1)

- A journal received a submission it had already rejected twice after peer-review:
  - in the first submission the study was comparative
  - in the second submission the study was cut to a one-arm description
  - in the third submission the study had become again comparative
- The authors made no allusion to the previous submissions and reviewer comments

Author behaviour concerning publishing health research (2)

- Omit submitting for publication a substantial amount of their research
- In a recent systematic review update of 79 studies examining research initially presented at scientific meetings and followed forward to publication
  - Only 53% of the meeting presentations were subsequently published after nine years

Author behaviour concerning publishing health research (3)

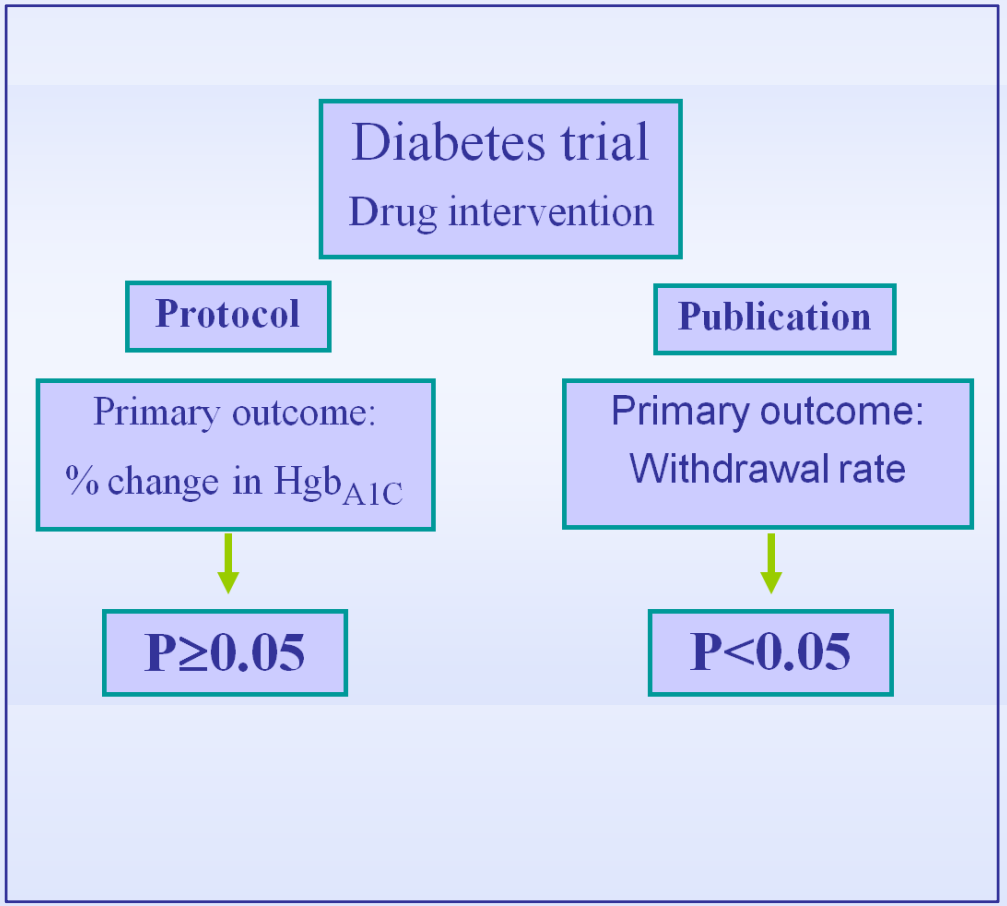
- 80 consecutive studies
  - subsequently published in Evidence Based Medicine (Oct 05 for 12 months)
  - 55 RCTs; 25 SRs
- Usable information about the intervention missing from 41/80
-

Author behaviour concerning publishing health research (4)

- 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

Author behaviour concerning publishing health research (5)

- Selecting specific outcomes to tell readers about
  - the selection – based on the results



Net effect

- "This *research* investment should be protected from the avoidable waste of inadequately producing and reporting research"
  - Chalmers and Glasziou
- "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

Reasons authors behave like this

- Don’t know completely
  - Publish of peril
- Needs to be studied

Changing author behaviour

- The EQUATOR Network
  - www.equator-network.org
- An international initiative set up to improve reliability of health research publications

Seven major goals of the EQUATOR Network

1. Develop and maintain a comprehensive internet based resource centre providing up-to-date information, tools and other materials related to health research reporting
2. Assist in the development, dissemination and implementation of robust reporting guidelines
3. Actively promote the use of reporting guidelines and good research reporting practices through an education and training program
4. Conduct regular assessments of how journals implement and use reporting guidelines
5. Conduct regular audits of the reporting quality across the whole spectrum of health research literature
6. *Set up a global network of local EQUATOR collaborating centres in order to facilitate the improvement of health research reporting on a worldwide scale*
7. Develop a general strategy for translating the principles of responsible research reporting into practice

Steps to support and practice accurate and transparent reporting of health research

- Find out about reporting requirements **early** when planning your research study
- When writing up your research, check the EQUATOR website for any new relevant reporting guidelines in order to help improve the quality of your manuscript

EQUATOR resources

equator network

Search: Go

Enhancing the QUAlity and Transparency Of health Research

Home | About EQUATOR | Resource Centre | Courses Events | Research Projects | Contact | News | Forum

Resource Centre

- Library for health research reporting
  - Reporting Guidelines
  - Reporting guidelines under development
  - Reporting guidelines in other research fields
  - Guidance on scientific writing
  - Guidance developed by editorial groups
  - Medical writers – additional resources
  - Research ethics, publication ethics and good practice guidelines
  - Development and maintenance of reporting guidelines
  - Editorials introducing RGs
  - Examples of guidelines for peer reviewers

Library for health research reporting

The EQUATOR Network library currently contains:

- An introduction to reporting guidelines
- Comprehensive lists of the available reporting guidelines, listed by study type:
  - Experimental studies
  - Observational studies
  - Diagnostic accuracy studies
  - Systematic reviews
  - Qualitative research
  - Economic evaluations
  - Quality improvement studies
  - Other reporting guidelines
  - Reporting data
  - Sections of research reports
  - Specific conditions or procedures.
- Reporting guidelines under development
- Reporting guidelines in other research fields
- Guidance on scientific writing
- Guidance developed by editorial groups
- Medical writers – additional resources
- Research ethics, publication ethics and good practice guidelines
- Resources related to development and maintenance of reporting guidelines
- Editorials introducing reporting guidelines
- Guidelines for peer reviewers
- Case studies: How journals implement reporting guidelines
- Examples of good research reporting
- Useful and interesting presentations
- EQUATOR 'pick' – comments, discussion and other thought provoking articles and interesting quotes

Download the most frequently-used reporting guidelines:

- CONSORT checklist
- CONSORT flowchart
- CONSORT extensions
- STARD checklist & flowchart
- STROBE checklists
- PRISMA checklist
- PRISMA flow diagram

Download:

- Catalogue of reporting guidelines (2010)

Resource Centre

- Library for health research reporting
  - Reporting Guidelines
    - Experimental studies
    - Observational studies
    - Diagnostic accuracy studies
    - Systematic reviews and meta-analysis
    - Qualitative research
    - Economic evaluations
    - Quality improvement studies
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    - Sections of research reports
    - Specific conditions or procedures
  - Reporting guidelines under development
  - Reporting guidelines in other research fields
  - Guidance on scientific writing
  - Guidance

Guidelines for reporting systematic reviews and meta-analysis

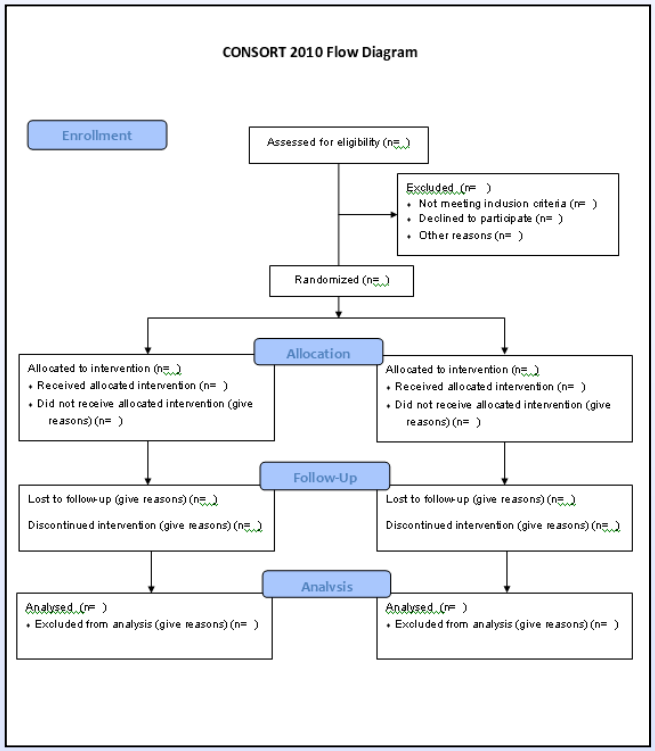
Reporting guidance provided for:	Name of guideline website (where available)	References including PMID
Systematic reviews and meta-analyses	PRISMA Using PRISMA (talk)	Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 2009; 6(7): e1000097. PMID: 19621072 BMJ 2009; 339:b2535. PMID: 19622551 Ann Intern Med 2009; 151(4):264-9, W64. PMID: 19622511 J Clin Epidemiol 2009; 62(10):1006-12. PMID: 19631508 Open Med 2009; 3(3);123-130 Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, et al. The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. PLoS Med 2009; 6(7): e1000100. PMID: 19621070 BMJ 2009; 339:b2700. PMID: 19622552 Ann Intern Med 2009; 151(4):W65-94. PMID: 19622512 **PRISMA Statement replaces the QUOROM guideline** (PMID: 10584742)
Meta-analysis of individual participant data		Riley RD, Lambert PC, bo-Zaid G. Meta-analysis of individual participant data: rationale, conduct, and reporting. BMJ 2010;340:c221. PMID: 20139215
Meta-analyses of observational studies	MOOSE	Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, Moher D, Becker BJ, Sipe TA, Thacker SB. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group. JAMA 2000; 283(15):2008-2012. PMID: 10789670

Other resources that include guidance on reporting

1. Cochrane Handbook for Systematic Reviews of Interventions, Cochrane Collaboration.

Reporting guidelines

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



CONSORT 2010 checklist of information to include when reporting a randomised trial*

Section/Topic	Item No	Checklist item
Title and abstract		
	1a	Identification as a randomised trial in the title
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts[21,35])
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 pre-specified 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
Randomisation:		
Sequence generation	8a	Method used to generate the random allocation sequence
	8b	Type of randomisation; 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 analysed for the primary outcome
	13b	For each group, losses and exclusions after randomisation, 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 analysed	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 pre-specified 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
Generalisability	21	Generalisability (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

A surgical safety checklist

Table 1. Elements of the Surgical Safety Checklist.*

Sign in

Before induction of anesthesia, members of the team (at least the nurse and an anesthesia professional) orally confirm that:

- The patient has verified his or her identity, the surgical site and procedure, and consent
- The surgical site is marked or site marking is not applicable
- The pulse oximeter is on the patient and functioning
- All members of the team are aware of whether the patient has a known allergy
- The patient's airway and risk of aspiration have been evaluated and appropriate equipment and assistance are available
- If there is a risk of blood loss of at least 500 ml (or 7 ml/kg of body weight, in children), appropriate access and fluids are available

Time out

Before skin incision, the entire team (nurses, surgeons, anesthesia professionals, and any others participating in the care of the patient) orally:

- Confirms that all team members have been introduced by name and role
- Confirms the patient's identity, surgical site, and procedure
- Reviews the anticipated critical events
  - Surgeon reviews critical and unexpected steps, operative duration, and anticipated blood loss
  - Anesthesia staff review concerns specific to the patient
  - Nursing staff review confirmation of sterility, equipment availability, and other concerns
- Confirms that prophylactic antibiotics have been administered ≤60 min before incision is made or that antibiotics are not indicated
- Confirms that all essential imaging results for the correct patient are displayed in the operating room

Sign out

Before the patient leaves the operating room:

- Nurse reviews items aloud with the team
  - Name of the procedure as recorded
  - That the needle, sponge, and instrument counts are complete (or not applicable)
  - That the specimen (if any) is correctly labeled, including with the patient's name
  - Whether there are any issues with equipment to be addressed
- The surgeon, nurse, and anesthesia professional review aloud the key concerns for the recovery and care of the patient

"The rate of death was 1.5% before the checklist was introduced and declined to 0.8% afterward (P = 0.003). Inpatient complications occurred in 11.0% of patients at baseline and in 7.0% after introduction of the checklist (P<0.001"

Haynes AB, et al. NEJM 2009;360:491-499

Differences in reporting of methodological items between CONSORT endorsing and non-endorsing journals in 2006

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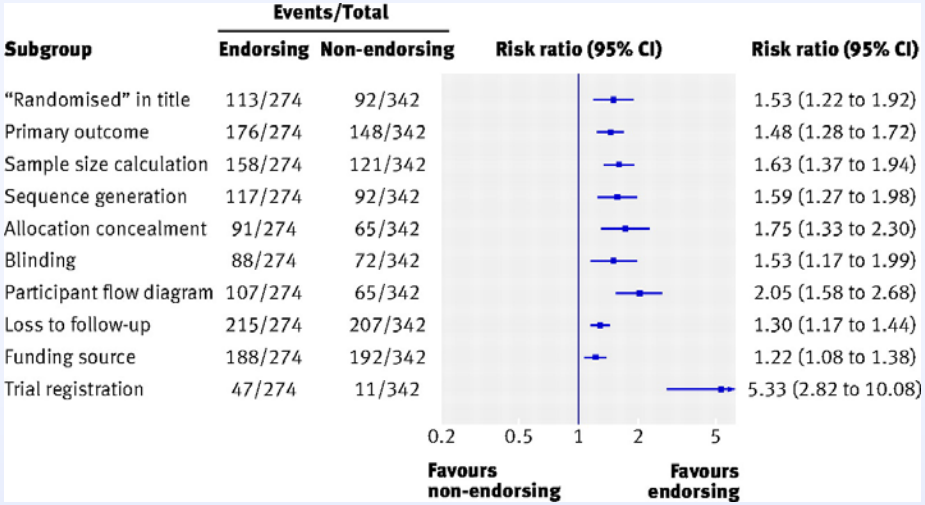

EQUATOR resources

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Enhancing the QUAlity and Transparency Of health Research

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- Resource Centre
- Library for health research reporting
- Authors of research reports
- Editors and peer reviewers
- Reporting guidelines developers
- Promote responsible reporting
- Monitoring use of our resources
- Links

Resources for authors

The following resources will help you to produce high quality research publications:

- Planning and conducting your research
- Writing up your research
- Medical writers – additional resources
- Ethical guidelines and considerations
- Other resources

- What can I do to support the EQUATOR Network's effort

Planning and conducting your research

It is important to be aware of reporting requirements and think about reporting when you are planning and conducting your research study:

- UK National Health System Research Flowchart (tool providing resources and points for consideration for all stages of the research process: from formulating a research question to the reporting and dissemination of new findings)
- UK MRC Route Map (Medical Research Council guidance through the legal and good practice requirements when designing conducting and disseminating experimental medicine studies)

Writing up your research

A good scientific article combines clear writing style with a high standard of reporting of the research content:

- Guidance on scientific writing
- Reporting guidelines (comprehensive lists of the available guidelines appropriate to each study type)
- Examples of good research reporting (specific examples showing why and how to correctly describe important aspects of your trial or other types of research studies)

Tip: **When you finish your writing ...**
When published, your article will start a new independent life – it will be read and critically appraised, and it may contribute to systematic reviews, inform clinical guidelines, and influence clinical practice, etc. So, before you submit your paper to a journal, try to consider whether the article is 'fit for purpose' and able to pass this future scrutiny, e.g. will a Cochrane reviewer be able to identify your study's methods to assess risk of bias (Cochrane handbook, Table 8.5.a); can numerical results be extracted from your paper without any ambiguity; have you provided enough details about your intervention to allow its use in clinical practice; etc.

EQUATOR resources

- Developing a comprehensive educational program
- Webinar
  - Crystal clear reporting of systematic reviews and EQUATOR Network
    - http://www.youtube.com/watch?v=TVFYenon1Jo&feature=player_embedded
- Developing short courses
  - Editors and peer reviewers
  - Young research professionals and research students

What can you do to help improve the quality of reporting health research?

Author

- Adhere to the relevant reporting guideline(s)
  - when not reporting on certain items explain the reason why
- Reporting guidelines provide a minimum set of items
  - other details specific to your particular study might be relevant for a clear and complete account of what was done and found.

Institution

- Ensure your workplace:
- Implements a policy whereby
  - research from the institution must use reporting guidelines
  - insist upon populating a reporting guideline checklist for each journal submission
- Ask your institution leadership to set aside resources to develop courses on reporting research and peer review

“GOOD REPORTING IS A MANDATORY COMPONENT OF GOOD SCIENCE, NOT AN OPTIONAL EXTRA”

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Thank you!