

# Guidelines for reporting health research: How to promote their use in your journal

Written by the EQUATOR Network Group; December 2011

## Key points:

Reporting guidelines help to improve the accuracy, transparency and completeness of health research publications and increase the value of published research

EQUATOR provides free online resources in English at [www.equator-network.org](http://www.equator-network.org) and in Spanish at [www.espanol.equator-network.org](http://www.espanol.equator-network.org) including a comprehensive collection of reporting guidelines for health research studies

EQUATOR recommends that editors: explore the available reporting guidelines; select well developed guidelines appropriate for the reporting of research studies published by their journal; ask authors to adhere to these guidelines and ask peer reviewers to use them when assessing manuscripts

## In this document you will find information on:

- How your journal can support better reporting of health research
  - How to introduce reporting guidelines into your journal
  - How to select reporting guidelines for your journal
  - How and where to use reporting guidelines in a journal
- How to refer to the EQUATOR Network and reporting guidelines in your Instructions to Authors and Instructions for Peer Reviewers
- How to describe the EQUATOR Network; text that might be inserted into your Instructions to Authors; examples of how some journals encourage the use of reporting guidelines and refer to EQUATOR

## Introduction

Although the ultimate responsibility for the design, conduct and accurate publication of research studies lies with the researchers, editors "should take all reasonable steps to ensure the quality of the material they publish"(1).

Guidelines for reporting health research are important tools to facilitate this task. They specify a minimum set of items needed for a complete and clear account of study methods and subsequent findings. Adherence to reporting guidelines improves the accuracy and transparency of publications (2-5). Examples of the most frequently used reporting guidelines include:

**CONSORT Statement** for reporting randomised controlled trials (RCTs) (6)

**PRISMA Statement** for reporting systematic reviews and meta-analyses evaluating health care interventions (7)

**STARD Statement** for reporting diagnostic accuracy studies (8)

**STROBE Statement** for reporting observational studies in epidemiology (9)

As part of their endorsement strategy, many journals publishing health research refer to such reporting guidelines in their Instructions to Authors and some require authors to adhere to them (e.g. *BMJ*, *PLoS Medicine*, *BJOG*, *Annals of Emergency Medicine*). Recent surveys of Instructions to Authors (10,11) noted that the uptake of reporting guidelines by journals is still inadequate although there has been some improvement over time (10). Use of ambiguous language on how to use relevant guidelines was also highlighted as a particular problem.

Recent years have seen a proliferation of new reporting guidelines motivated mainly by the insufficient quality of published reports. However, there are important differences in the scope, format, and development methodologies of those guidelines (12). This creates a rather confusing situation for editors who need to know which guidelines exist and decide which to support and recommend to authors to follow.

The **EQUATOR Network** is an international initiative that works towards improving this situation. The EQUATOR team collates resources facilitating the reporting of health research, provides education about the available guidelines, and supports the development of new reporting guidelines. The EQUATOR website ([www.equator-network.org](http://www.equator-network.org)) aims to be a valuable source of information for authors, journal editors, peer reviewers, and guideline developers. The site currently provides links to over 190 reporting guidelines and a major upgrade is in process that will enhance the site with more background information about the guidelines and new educational materials. The online resources were also translated into Spanish (<http://www.espanol.equator-network.org/>) as part of the collaboration between EQUATOR and Pan American Health Organization aimed at raising standards of research reporting in American regions.

## How your journal can support better reporting of health research

Here we provide some suggestions on how to bring into your organisations the knowledge of good research reporting practice acquired from the EQUATOR website and workshops.

### A. How to introduce reporting guidelines into your journal

Well developed reporting guidelines provide important information on how to report research studies. Their efficient use represents important knowledge vital for journals striving for excellence in health research publishing and can give a journal an important competitive advantage. To ensure the best use of this knowledge it needs to be managed effectively within journals.

In order to maximise the benefits of information and workshops provided by EQUATOR you might consider some of the following actions in your own journal:

1. Incorporate an explicit philosophy of transparent and accurate reporting and the use of reporting guidelines into your publishing strategy
2. Assess how (and if at all) are reporting guidelines used in your journal
3. Think about the best ways to include reporting guidelines in your working practices, pilot and introduce 'best practice'
4. Consider how to maintain sufficient knowledge of principles of 'good reporting' and reporting guidelines (e.g. through training or dedicating a member of staff as an expert/mentor)

### B. How to select reporting guidelines for your journal

There is a growing number of reporting guidelines, but they were not all created with the same rigour. When considering endorsing a reporting guideline for your journal consider its relevance to the articles you publish, and also seek affirmative answers to the following five questions:

1. Is the guideline development process sufficiently transparent, so that it could be repeated by interested readers?
2. Did the guideline development involve systematic searching for and consideration of all the available evidence relating to the guideline recommendations?
3. Was any consensus process used as part of the guideline development?
4. Has the guideline been evaluated or is there a plan to do so (does it have its intended effect)?

The EQUATOR Network has initiated work on methodological guidance for developers of reporting guidelines, investigation of barriers and facilitators to implementing reporting guidelines within journals, and on creating a tool for the critical appraisal of available reporting guidelines. The results of these projects should facilitate the process of identifying which guidelines are suitable to be supported by a journal.

## C. How and where to use reporting guidelines in a journal

Reporting guidelines complement journals' Instructions to Authors so journals should take advantage of their existence. Here are a few suggestions of what you can do in your journal:

- Refer to the EQUATOR Network website in your 'Instructions to Authors'
  - This has the advantage of ensuring that readers will have access to up-to-date versions of available reporting guidelines
- Alert authors to selected reporting guidelines and motivate their use:
  - Clearly describe the purpose of reporting guidelines – they are to help authors to include all important information about their research, which can increase the probability of their manuscript being published and enhance the value of their research to clinicians and other researchers
  - Link to the appropriate guidelines, through the EQUATOR or guideline website, as these provide the current version, and make checklists available to download
  - Provide clear instructions how you expect authors to use appropriate guidelines, including a clear statement of the degree of compliance with relevant guidelines that is expected; ambiguous instructions won't encourage adherence
- Alert your peer reviewers to the importance of good reporting and ask them to use selected guidelines / checklists during their manuscript assessment
- Share your knowledge about reporting guidelines and EQUATOR Network with your editorial colleagues, and consider subscribing to the EQUATOR Newsletter alerting you to new developments in health research reporting and available education and training courses
- Consider writing an editorial supporting transparent research reporting and the use of selected reporting guidelines in your journal

## How to refer to the EQUATOR Network and reporting guidelines in your 'Instructions to Authors'

We do not think there is a 'correct' way to inform readers about the EQUATOR Network. Perhaps a useful start is to include a brief description of the Network with a focus on the reporting guidelines resource centre for authors and give reasons why authors should adhere to the recommended guidelines.

### For example, the following text can be used to describe the EQUATOR Network:

'The EQUATOR Network is an international initiative that seeks to improve the reliability and value of published health research by promoting transparent, accurate and complete reporting. The EQUATOR website provides a central repository of up-to-date reporting guidelines and other resources assisting in a preparation of good research manuscript (English: [www.equator-network.org](http://www.equator-network.org); Spanish: [www.espanol.equator-network.org](http://www.espanol.equator-network.org)).'

Here is an example of text that might be inserted into your Instructions to Authors:

"Responsible reporting of research studies, which includes a complete, transparent, accurate and timely account of what was done and what was found during a research study, is an integral part of good research and publication practice and not an optional extra. The [*journal name*] supports initiatives aimed at improving the reporting of health research. We ask authors to use the following guidelines when drafting their manuscripts:

XXX [list each guideline's name and scope, link to the guideline website or to the reference on the EQUATOR website, and clearly indicate the degree of requested compliance with the guidelines. For some guidelines you can ask authors to confirm adherence through submitting a copy of the checklist indicating page number where the required information is provided (e.g. CONSORT Checklist)]

We ask authors to address all items recommended by the guidelines (as a minimum); where this is not possible please provide an explanation in the text to give a transparent account of your study.

Adherence to recommended reporting guidelines will facilitate review of your manuscript, increase the probability of its successful publication, and improve the usability of research findings from your study in further research and clinical practice."

## Examples of how some journals encourage the use of reporting guidelines and refer to EQUATOR

### Editorials:

**Kuhn JE.** Levels of evidence and standardizing the reporting of research. *J Shoulder Elbow Surg.* 2010 Mar;19(2):165. PMID: [20185071](#)

**Loder EW, Penzien DB.** (2009), Improving the Quality of Research Reporting: *Headache* Steps Up to the Plate. *Headache: The Journal of Head and Face Pain*, 49: 335–340. doi: 10.1111/j.1526-4610.2009.01356.x Not listed on Pubmed.

This paper is freely available from Wiley at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1526-4610.2009.01356.x/abstract>

**Mäkelä M, Kaila M, Stein K.** Mind sharpeners for scientists: the EQUATOR Network. *Int J Technol Assess Health Care.* 2011 Apr;27(2):99-100. PMID: [21429289](#)

**Tate RL, Douglas J.** Use of reporting guidelines in scientific writing: PRISMA, CONSORT, STROBE, STARD and other resources. *Brain Impairment.* 2011 May;12(1):1-21.

This paper is not listed on Pubmed and is not freely available from the publisher. The abstract can be accessed at: <http://www.atypon-link.com/AAP/doi/abs/10.1375/brim.12.1.1>

### Instructions to Authors:

#### BioMed Central journals publishing health research

<http://www.biomedcentral.com/bmcmed/ifora/> (accessed 16 September 2011)

"*BMC Medicine* also supports initiatives aimed at improving the reporting of biomedical research. Checklists have been developed for a number of study designs, including randomized controlled trials ([CONSORT](#)), systematic reviews ([PRISMA](#)), meta-analyses of observational studies ([MOOSE](#)), diagnostic accuracy studies ([STARD](#)) and qualitative studies ([RATS](#)). We recommend authors refer to the [EQUATOR](#) network website for further information on the available reporting guidelines for health research, and the [MIBBI](#) Portal for prescriptive checklists for reporting biological and biomedical research where applicable. Authors are requested to make use of these when drafting their manuscript and peer reviewers will also be asked to refer to these checklists when evaluating these studies. For authors of systematic reviews, a supplementary file, linked from the Methods section, should reproduce all details concerning the search strategy. For an example of how a search strategy should be presented, see the [Cochrane Reviewers' Handbook](#)."

#### BMJ

<http://resources.bmj.com/bmj/authors/article-submission/article-requirements> (accessed 16 September 2011)

##### "Article requirements

Please ensure that anything you submit to the BMJ conforms to the [uniform requirements](#) for manuscripts submitted to biomedical journals, drawn up by the International Committee of Medical Journal Editors (ICMJE).

The ICMJE requirements are long and comprehensive, and the BMJ also has specific requirements for different [types of articles](#) and particularly detailed ones for [research](#) articles: we urge you to look carefully at all of these.

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If you are submitting a report of a randomised controlled trial please send with your manuscript a completed checklist and flowchart in accordance with the appropriate [CONSORT](#) guidelines, the trial protocol, and the registration details of the trial. In accordance with ICMJE uniform requirements, trials commenced after July 2005 must have been registered prospectively before patient recruitment; for older trials retrospective registration will be acceptable but only if done before submission of the manuscript to the journal.

If you are submitting a report of a:

- a systematic review or meta-analysis of randomised trials and other evaluation studies please follow the [PRISMA](#) guidelines (these have superseded the QUOROM guidelines)

- a meta-analysis of observational studies please follow the [MOOSE](#) guidelines
- a study of diagnostic accuracy please follow the [STARD](#) guidelines
- an observational study please follow the [STROBE](#) guidelines
- a health economics paper please follow our [health economics checklist](#)
- a clinical guidelines paper we would encourage you to follow the [GRADE](#) guidance for grading evidence, but will not insist on this

Because we aim to improve *BMJ* papers' reporting and increase reviewers' understanding we ask our research authors to follow such reporting guidelines and to complete the appropriate reporting checklist before submission (or before external peer review if not done sooner). We do not, however, use reporting guidelines as critical appraisal tools to evaluate study quality or filter out articles.

These and other reporting guidelines are collected together in one place: the website of the [EQUATOR Network](#). This network seeks to improve the quality of scientific publications by promoting transparent and accurate reporting of health research."

## Scandinavian Journal of Work, Environment & Health

<http://www.sjweh.fi/instructions.php> (accessed 16 September 2011)

**"Reporting of original research articles.** The Journal requires authors to follow a pertinent guideline from the current existing guidelines on the reporting of various study types (presented in the table below). If a randomized controlled trial is reported, authors should complete a CONSORT checklist and flow-chart and be prepared to submit it if requested. The Equator network of reporting guidelines provides a more extensive list of links and topics at [www.equator-network.org](http://www.equator-network.org). The Journal instructions provide further advice on format and layout of the manuscript.

Table: Guidelines for reporting original research articles.	
Name of guideline	Topic of guideline
STROBE	Observational studies (1)
CONSORT	Randomized controlled trials (2, 3)
PRISMA	Systematic reviews and meta-analyses of intervention studies (4)
MOOSE	Systematic reviews and meta-analyses of observational studies (5)
TREND	Nonrandomized evaluations of behavioral and public health interventions (6)
STARD	Diagnostic studies (7)
MIAME	Microarray studies (8)
COREQ	Qualitative studies (9)

1. Vandenbroucke JP, von EE, Altman DG, Gotzsche PC, Mulrow CD, Pocock SJ, et al. Strengthening the reporting of observational studies in epidemiology (STROBE): explanation and elaboration. *PLoS Med*. 2007;4(10):e297.
2. Altman DG, Schulz KF, Moher D, Egger M, Davidoff F, Elbourne D, et al. The revised CONSORT statement for reporting randomized trials: explanation and elaboration. *Ann Intern Med*. 2001;134(8):663-94.
3. Consort Group. Consolidated standards of reporting trials [Internet]. Consort Group [cited 2 June 2008]. Available from: [www.consort-statement.org](http://www.consort-statement.org)
4. 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.
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8. Brazma A, Hingamp P, Quackenbush J, Sherlock G, Spellman P, Stoeckert C, et al. Minimum information about a microarray experiment (MIAME)-toward standards for microarray data. *Nat Genet*. 2001;29(4):365-71.
9. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-57.

**Reporting of reviews.** The Journal requires authors of systematic reviews on experimental studies to complete the PRISMA checklist and flowchart and be prepared to submit it if requested. When a meta-analysis of observational studies is carried out, authors should use the PRISMA checklist when possible, and, when not possible, the MOOSE checklist should be used."



## European Journal of Clinical Investigation

### "Reporting standards for research

The EJCI complies with main reporting standards for key types of research, including clinical trials (CONSORT and its extensions), meta-analyses (PRISMA), diagnostic tests (STARD), prognostic tumor markers (REMARK), microarrays (MIAME), observational studies (STROBE), genetic epidemiology (STREGA) and others as outlined in the EQUATOR website (<http://www.equator-network.org>) and in the EQUATOR article published in the first issue of January 2010 of EJCI (<http://www3.interscience.wiley.com/journal/123217461/abstract>). When a study is of a type that needs to adhere to such EQUATOR-listed standards, the authors should make appropriate citation to them to mention that the reporting is compliant with these standards.

### **Randomized Clinical Trials**

In this particular type of original study, individuals are randomly allocated to receive or not receive a preventive, therapeutic, or diagnostic intervention and then followed up to determine the effect of the intervention. All randomized clinical trials should include a flow diagram and authors should provide a completed randomized trial checklist (see CONSORT Flow Diagram and Checklist; <http://www.consort-statement.org>) and a trial protocol. Authors of randomized controlled trials are encouraged to submit trial protocols along with their manuscripts. All clinical trials must be registered (before recruitment of the first participant) at an appropriate online public that must be independent of for-profit interest (<http://www.clinicaltrials.gov>; <http://www.anzctr.org.au>; <http://www.umin.ac.jp/ctr>; <http://isrctn.org>; <http://www.trialregister.nl/trialreg/index.asp>). Each manuscript should clearly state an objective or hypothesis; the design and methods (including the study setting and dates, patients or participants with inclusion and exclusion criteria, or data sources, and how these were selected for the study); the essential features of any interventions; the main outcome measures; the main results of the study; a comment section placing the results in context with the published literature and addressing study limitations; and the conclusions. Data included in research reports must be original. A structured abstract not exceeding 250 words is required; for more information, see below instructions for preparing structured abstracts. Clinical trials are limited to 2700 words (not including abstract, tables, figures, and references), 40 references, and no more than 5 tables and figures.

### **Systematic reviews and meta-analyses**

Systematic reviews and meta-analyses are a particular type of original articles that perform systematic, critical assessment of literature and data sources pertaining to clinical topics, emphasizing factors such as cause, diagnosis, prognosis, therapy, or prevention. All articles or data sources should be searched for and selected systematically for inclusion and critically evaluated, and the search and selection process should be described in detail in the manuscript. The specific type of study or analysis, population, intervention, exposure, and tests or outcomes should be described for each article or data source. A structured abstract of less than 250 words is required; for more information, see instructions below for preparing structured abstracts. The text is limited to 3500 words (not including abstract, tables, figures, and references); about 4 tables (a flow diagram that depicts search and selection processes as well as evidence tables should be included) - and no reference limit."

## Physiotherapy

[http://www.elsevier.com/wps/find/journaldescription.cws\\_home/702542/authorinstructions](http://www.elsevier.com/wps/find/journaldescription.cws_home/702542/authorinstructions) (accessed 16 Sept 2011)

**"Abstracts.** A concise and factual abstract is required (maximum length 200 words for an unstructured abstract or 250 words for a structured abstract). An abstract is often presented separate from the article, so it must be able to stand alone. The abstract should be written using the following headings as appropriate:

**Objectives** : a clear statement of the purpose of the study

**Design** : describe aspects of the study: randomisation, prospective, blinding, placebo controlled, observational, survey

**Setting** : include the level of care eg primary, secondary; number of participating centres

**Participants** : numbers, selection criteria, numbers entering and completing study

**Interventions** : what were the interventions, how and for how long

**Main outcome measures** : identify primary outcome measure and any supporting secondary outcome measures

**Results** : including main finding, point estimate and degree of uncertainty eg: confidence interval, where appropriate

**Conclusions** : main conclusion based on results and objective of study, implications

**Clinical Trial Registration number**

For meta-analyses and systematic reviews, provide a structured summary in line with the PRISMA Statement, including as applicable:

**Background** or context

**Objectives**: the clinical question or purpose

**Data sources**: databases searched and other information sources

**Study selection or eligibility criteria**, (participants, and interventions)

**Study appraisal and synthesis methods** (or Data Extraction and Data Synthesis);

**Results**

**Limitations**

### **Conclusion and implications of key findings**

**Funding:** for the systematic review

### **Systematic review registration number**

OPEN ACCESS: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097.  
doi:10.1371/journal.pmed1000097

### **Randomised controlled trials**

All randomized controlled trials submitted for publication in Physiotherapy should include a complete Consolidated Standards of Reporting Trials (CONSORT) flow chart. Please refer to the CONSORT statement website at <http://www.consort-statement.org> for more information. Physiotherapy has adopted the proposal from the International Committee of Medical Journal Editors (ICMJE) which require, as a condition of consideration for publication of clinical trials, registration in a public trials registry. Trials must register at or before the onset of patient enrolment. The clinical trial registration number should be included at the end of the abstract of the article. For this purpose, a clinical trial is defined as any research project that prospectively assigns human subjects to intervention or comparison groups to study the cause and effect relationship between a medical intervention and a health outcome. Studies designed for other purposes, such as to study pharmacokinetics or major toxicity (e.g. phase I trials) would be exempt. Further information can be found at [www.icmje.org](http://www.icmje.org)

**Further initiatives** To improve the quality of reporting of other categories of research, Physiotherapy supports the initiatives available through the **EQUATOR Network** (Enhancing the QUality and Transparency Of health Research) which houses a database of all reporting guidelines for health research (<http://www.equator-network.org/>). These include:

**PRISMA:** For systematic reviews and meta-analyses.

**STARD:** For tests of diagnostic accuracy.

**MOOSE:** For meta-analysis of observational studies.

**COREQ:** Consolidated criteria for reporting qualitative research"

## **References**

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