How to write
From protocol to research paper

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The scope of medical writing

Research protocol

Grant submission

Original research paper

Cover(ing) letter

Letter to the editor

But also review article, case report, conference presentations, internal reports, regulatory reports, …

Fundamentals of style




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Have something to say and say it as clearly as you can. That is the essence of style.

Matthew Arnold

To write well is as hard as to be good.

Somerset Maugham

Short words

Short sentences

Short paragraphs

No (or few) abbreviations

Prefer Anglo Saxon over the Latin

Prefer nouns and verbs to adjectives and adverbs

Prefer active to passive

e.g. "we investigated" instead of "it was investigated"

Cut all clichés

e.g. at first glance; to all intents and purposes

Do not use jargon

e.g. "Abduction was done. Perfed appy evident, secondary hemiparesis noted. Complaints of chest pain, PQRST stat" = The patient needed to have a limb moved away from the midsection of their body. They have a burst appendix that's infected, partial paralysis is present. An evaluation of the chest pain will be done immediately.

Avoid figures of speech and idioms

> e.g. It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness. - *A Tale of Two Cities*, Charles Dickens

Prefer the concrete to the abstract

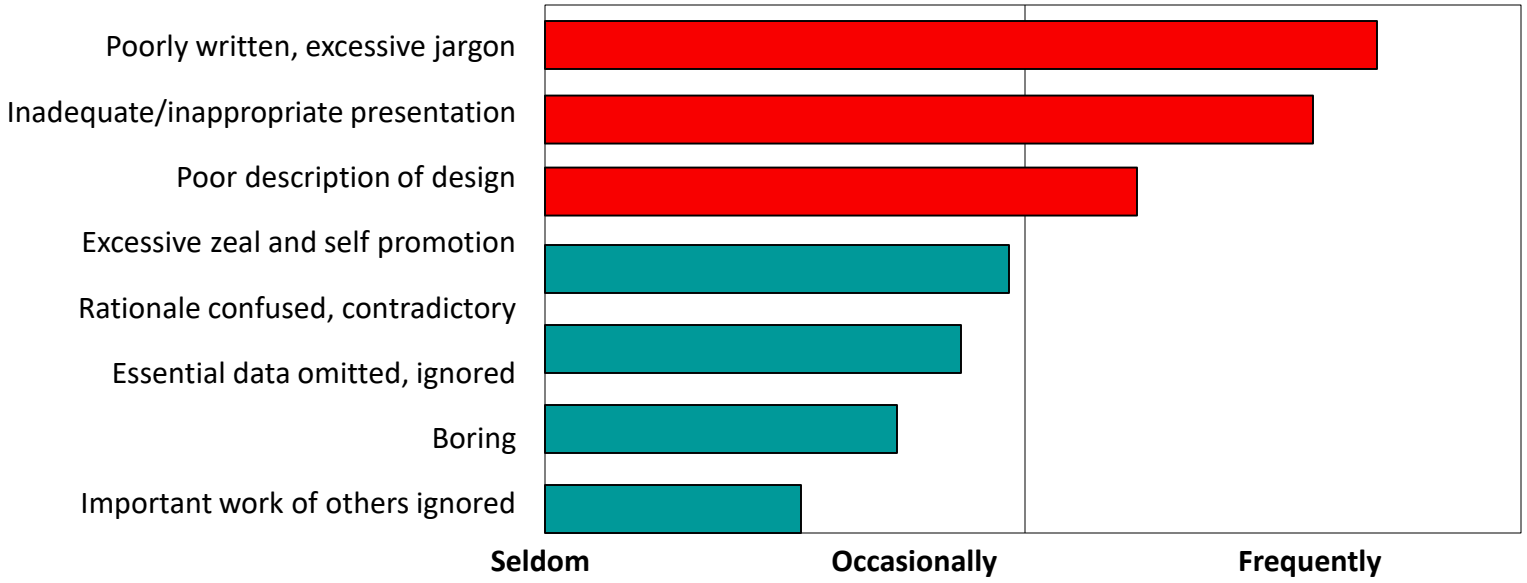
Avoid not unblack cat crossed the not unwide road

Don’t hector

Be unstuffy (not - don’t be stuffy)

But not (too) chatty

Most common reasons for manuscript rejection



Questionnaire to 50 JAMA reviewers and 67 editors in 1995.
Byrne DW, Publishing Medical Research Papers, Williams and Wilkins, 1998

Clearly present the whole of the research process so that editors and reviewers can critically appraise your study

Asking the question

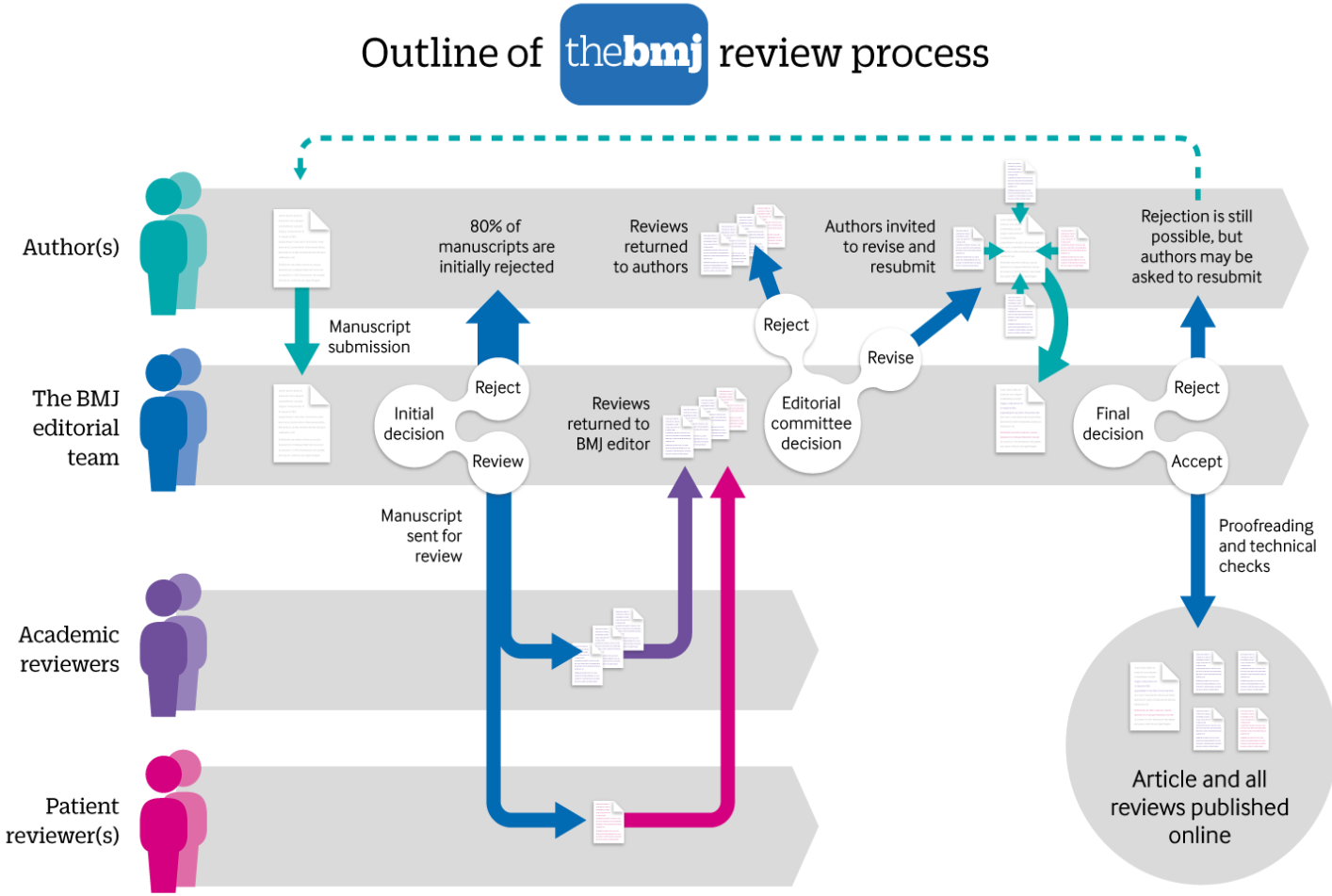
Setting up the study

Collecting/getting data

Analysing the data

Interpreting the results

Drawing conclusions



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The BMJ Today: On with the patient revolution

June 11, 2014

Can partnership with patients be improved to the benefit of healthcare? We think so, and today we launch a strategy to help make it happen. It's a delivery on a promise made last year, developed with the help of our international panel. We'll be including more on, and from, patients throughout the journal—in Research, Analysis and Comment, Clinical Reviews and other Education articles, including Editorials.

One thing we've already started doing is including patients as peer reviewers of Research papers we are considering for publication. We are extending this to other types of articles, and hope to soon include patients in our decision making Editorial committees. Non-doctors willing to get involved can do so by registering in our database of peer reviewers.

From now on, authors of all Research papers submitted to us should let us know if, and how, they included patients in designing, conducting, and reporting the study—as well as describing any plans of disseminating the findings to participants. Authors of randomised trials should, in addition, report if and how they've assessed the burden of the intervention on participants' quality of life and health, and what they found.

An Editorial explains more about our patient partnership strategy, including what kind of papers we are calling for, what we'll be campaigning for, and how this fits with our too much medicine and open data campaigns. A blog on patient leaders perhaps gives a taste of the challenges that lie ahead.

Kristina Fišter *is The BMJ's Associate editor.*

A ”woolly” paper

the research process did not go as it should have, and the paper reflects that

a fishing expedition?

making something out of nothing?

do the authors know what they’re doing?

Research proposal

Research proposal

Can be published in a peer reviewed journal

Provides ground for the Introduction and Methods of the main paper

Can get you money

Turning a research question into a proposal

Who are we collecting information from?

What kinds of information do we need?

How much information will we need?

How will we use the information?

How will we minimise chance/bias/confounding?

How will we collect the information ethically?

* include methodologists from the beginning

CONSORT: RCT

PRISMA: SR or MA

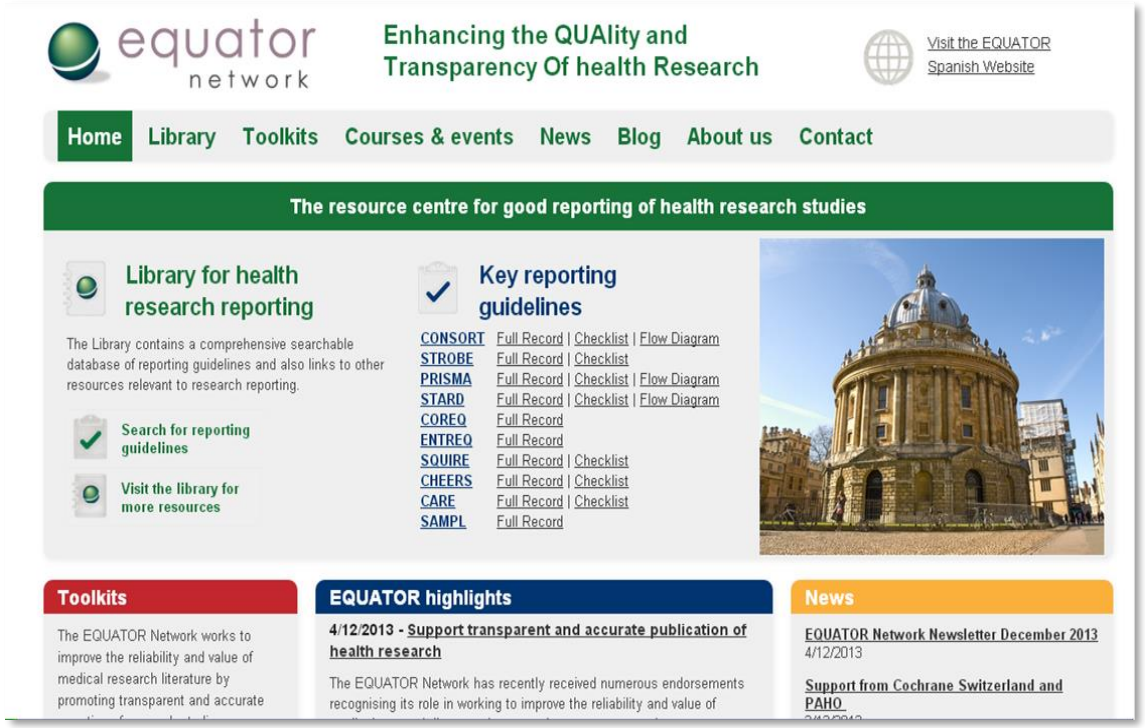
MOOSE: MA (obs)

STARDS: Dx accuracy

STROBE: Observational

GRADE: Guidelines

CHEERS: Economics



Guidelines for how to conduct studies, report them, or critically appraise reports of others

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Research paper

The IMRaD structure

Introduction: why ask this research question?

Methods: what did we do?

Results: what did we find?

and…

Discussion: what might it mean?

The Introduction

Brief background for this audience

- 3-4 paragraphs only
- Start with the wider context, then narrow down to the research question
- What is known, and what is not, about your research question
- Avoid boring readers, editors, reviewers
- Do not boast about how much you have read

The research question

- State it clearly in the last paragraph of the introduction
- Say why it matters

Methods

Like a recipe

Most important section for informed readers

Describe:

- inclusion and exclusion criteria
- outcome measures
- intervention or exposure

Give references for standard methods

Follow reporting guidelines www.equator-network.org/

Explain ethics issues

Additional information can be presented in online supplements (e.g. questionnaire)

Patient involvement statement

Patient and public involvement

The trial protocol was reviewed by representatives of the UK Nephrotic Syndrome Trust (NeST) and the UK Renal Patient Support Group, who provided valuable input about trial design, acceptability of trial visit frequency, and adverse event monitoring. A NeST representative participated on the trial steering committee. After publication, the trial results will be disseminated to all study collaborators. The plain English summary of the study results will be sent to the participants and/or their parents through their responsible clinician. The summary will also be available on the NeST website and the PREDNOS study website (www.birmingham.ac.uk/prednos).

Results

Basic descriptive data

Text for story, tables for evidence, figures for highlights

Essential summary statistics and confidence intervals

Leave out non-essential tables and figures

Do not start discussion here

Discussion

Do not simply repeat the introduction

Structured! Include (with or without subheadings):

statement of principal findings

strengths and weaknesses of the study

strengths and weaknesses in relation to other studies (especially systematic reviews), and key differences

meaning of the study: possible mechanisms and implications for clinicians or policymakers

unanswered questions and future research

(go easy on the last two)

The Abstract

Structured

Important

All authors must approve it

Editors may screen by abstract

Usually 300-400 words

Use active voice

P values need data too

%s need denominators

no references

trial registration details

The Title

Indicative title – preferred – only state the research question

Informative (or declarative) title – give up the answer

Always state study design

To ensure your paper's title is in the right style follow the journal's advice / instructions to authors (and have a look at other papers published by the journal)

Some common problems with reporting

Non-reporting of studies

Incomplete reporting

- Omission of crucial aspects (participants, interventions, randomisation)
- Incomplete results (cannot be included in meta-analyses)
- Inadequate harm reporting

Selective reporting (“spin”)

- Outcomes
- Analyses

Modified from Simera I.2013 in Science editor’s handbook. www.ease.org.uk

Some other common problems

Misleading reporting

- Misinterpretation of study findings, “spin”
- Misrepresentation of study design
- Unacknowledged discrepancies between sources of information (protocol, registration, manuscript)

Modified from Simera I.2013 in Science editor’s handbook. www.ease.org.uk

Ethics

Research ethics – declaration of Helsinki, ICH

Publication ethics

avoid misconduct
protect patients' identities
report clearly:
- informed consent
- any deviation from usual practice
- full burden imposed on participants
- total risks posed to participants or others
- benefits to participants, patients, society

It's not always enough to state that the study was approved by an ethics committee or IRB

Protect patients' confidentiality

Beware identifiers:

age, sex, location

clinical details, test results

unusual personal story or context

photo (even if of a body part or clinical image)

Submission

The manuscript

- IMRaD, tables, figure/s
- Authors' contributions
- Acknowledgements
- Competing interests
- Funding
- Patient involvement

Additional materials

- Online supplements
- Reporting guideline checklist (filled in with page numbers!)

Covering letter

Helen C Eborall, post-doctoral research fellow1, Simon J Griffin, programme leader2, A Toby Prevost, medical statistician1, Ann-Louise Kinmonth, professor of general practice1, David P French, reader in health behaviour interventions3, Stephen Sutton, professor of Behavioural science1

Contributors: SS, DPF, ATP, A-LK, and SJG conceived and designed the original protocol. All authors were involved in amending the protocol. HCE coordinated the study throughout. Data entry was carried out by Wyman Dillon Ltd, Lewis Moore, and HCE. HCE cleaned the data and ran preliminary analysis with input from Tom Fanshawe. ATP analysed the data. ADDITION trial data were supplied by Lincoln Sargeant and Kate Williams. HCE wrote the first draft of the manuscript with ATP and SS. All authors contributed to subsequent and final drafts. HCE is guarantor of the paper. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

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Covering letter

Crisp (short, clear, to the point, and informative)

Why is the research question important, relevant, and novel

What you found and what the implications are

Details of any closely related papers

redundant publication; salami slicing

Previous submissions

Statement of sole submission

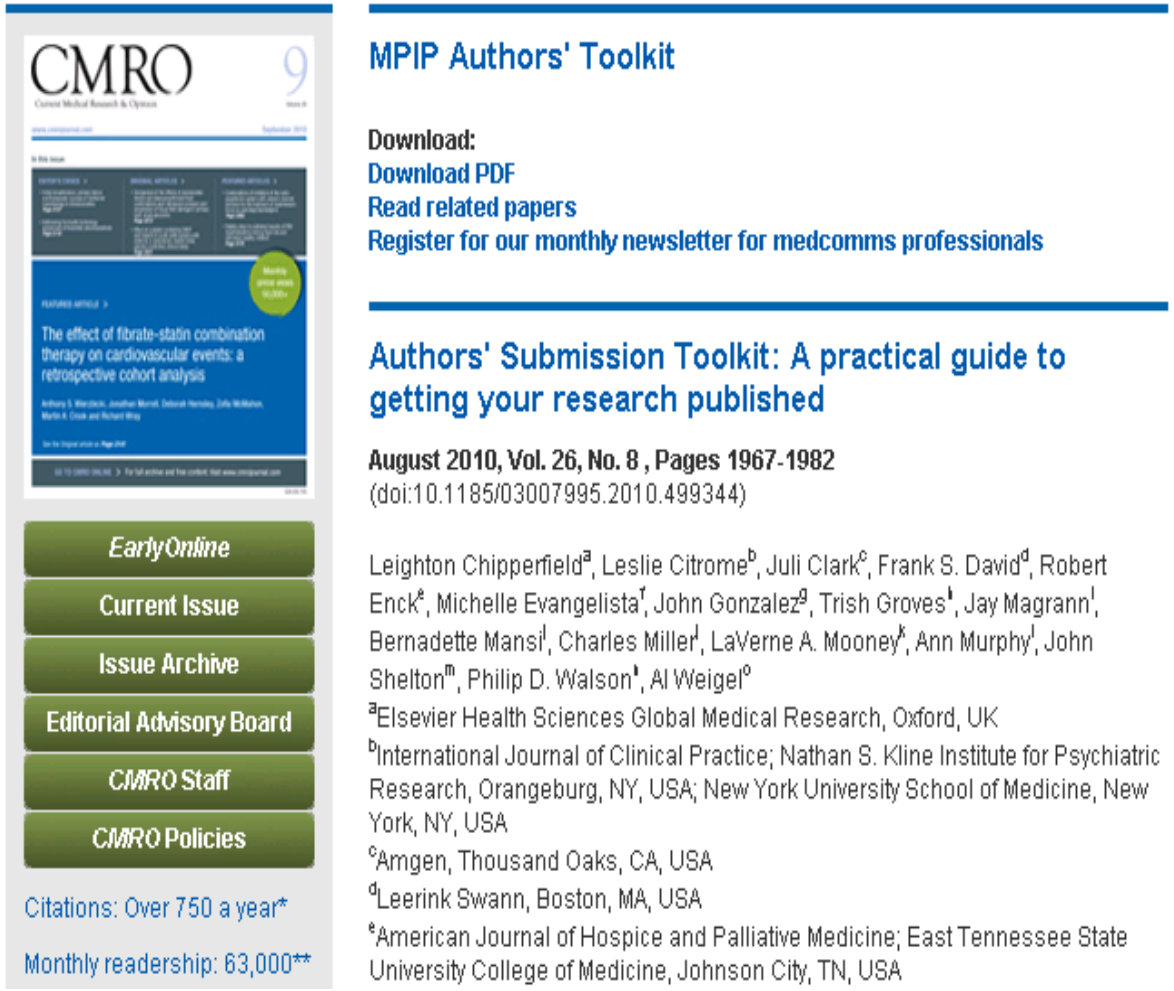
Some good resources

International Committee of Medical Journal Editors Uniform Requirements For Manuscripts submitted to Biomedical Journals
www.icmje.org

Reporting guidelines for research, at the EQUATOR network
www.equator-network.org

Centre for Evidence Based Medicine, Oxford
www.cebm.net

BMJ advice to authors
resources.bmj.com/bmj/authors



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Principles of good science

Communalism - common ownership of scientific discoveries

Universalism - evaluation using universal, unbiased criteria

Disinterestedness - scientists should act selflessly

Organised skepticism - ideas tested and subjected to rigorous, structured scrutiny by peers

US sociologist Robert Merton b1910

Thank you!