Starting the paper

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First considerations

- You have decided to write a scientific paper on your research
- You have to start – and finish – the writing task
- You are clear *why* you want to publish
- Publication(s) are necessary to advance your career – this is fact of contemporary life
- There may be other motives to publish

- Have realistic writing goals
- You need time – set fixed time slots for your writing tasks – establish writing objectives for the next sixth months
- You have to be absolutely clear why you want to write, how you can achieve it
- Write it down

- You need clear message for your writing – take enough time to think about and decide on what you are writing
- Make decisions “setting the brief” in five key areas: the message, the market, the length, the deadline, the authors
- Research has ended and writing has started
- Writing is the master, data is servant

The message

- Only one message per article
- Before starting to write define this one simple message (one short sentence with verb)
- Decide during “rumination time” with clear head and use simple language
- Do not confuse the message with a title
- Message should be like a news item

- Title: Randomised controlled trial of exercise for low back pain: clinical outcomes, costs and preferences
- Message: Community exercise classes help people with back pain

Choosing market

- In which journal do you intend to have your message published?
- Match message to journal at very early stage
- Once journal is decided you have published evidence guiding your writing
- Information for authors of selected journal will be your companion from now on

Choice of journal

- General medical (NEJM or Lancet) or science journal (Nature, Science) have the highest impact factor, but being accepted is not easy
- Subspecialty journals in groups eg reproductive biology or obstetrics and gynecology; ESHRE journals are in these categories

Information for authors Human Reproduction

- Scope
- Review procedure
- Ethics of scientific publications
- Ethics of studies involving humans and animals
- Registration of clinical trials
- Statistics

- To accompany manuscript at submission
- Open Access for Authors
- Guidelines for preparation of manuscript
- Proofs
- Offprints

The Length

- How long should your article be?
- Is usually mentioned in Information for Authors
- Better than number of words count paragraphs
- You always feel you need more space to do yourself justice

- Remember the following story: “I apologise for such a long letter; I didn’t have time to write a short one”
- There is an important truth: all writing can be shortened
- This will make it harder for you but easier for the readers

Deadlines

- Having a plan of what and for whom to write is not sufficient, you need a deadline
- Set different deadlines for the different tasks involved in writing the article
- First deadline is decision on your message
- Be honest to yourself, all kinds of excuses only fool yourself

Co-authors

- Writing is a personal activity: thinking, planning, writing, rewriting and arbitrating between opposing views are solitary tasks
- This is the task of the first author, the team leader, the manager of the project
- Resist notion of writing in committee, emphasis would switch from pleasing the reader to pleasing members of committee sitting around the table

- Who should be named by first author as co-authors?
- Potential conflict between you and your colleagues but also between you and future editor
- All authors have examples of ethical issues regarding authorship (COPE)

- Editors have taken a tough line: authorship should be based only on “substantial” contributions
- Authorship disputes are a political question not a writing one
- First authors have to compromise particularly because of requests of authorship by colleagues higher up the hierarchy

- Be aware not to become ridiculous as to have 12 authors reporting tests on three dogs – you diminish your chances of publication
- Reduce this strain by negotiating question of authorship before you start writing
- Work-out who will be your co-authors and define the role of each of them

- If during writing process co-authors want to write different paper than yours, send them your written proposal and ask for their agreement
- If relevant involve the statistician you involved before the study started
- Clarify any ethical requirement that will be needed

Authorship: the editors' view

- International Committee of Medical Journals Editors (ICMJE – "Vancouver group") has made Uniform Requirements for Manuscripts (URM)
- All authors designated as authors should qualify for authorship
- Each author should have participated sufficiently in the work to take public responsibility for the content

- Authorship credit should be based only on substantial contribution on
- A. Conception and design, or analysis and interpretation of data, and on
- B. Drafting the article or revising it critically for important intellectual content, and on
- C. Final approval of the version to be published
- Condition A, B and C must all be met

- Acquisition of funding or collection of data does not justify authorship
- General supervision of research group is not sufficient for authorship
- Editors may ask authors to describe what each contributed
- TIME SPENT ON SETTING A SENSIBLE BRIEF WILL PAY HUGE BENEFITS LATER

Essentials and Inessentials of the ‘Methods’ Section

Introduction

- The Methods should be reported in sufficient detail to permit a competent researcher to repeat the study and reproduce the results
- As part of the outline of the manuscript one has to briefly state the population in which you worked, the sampling method you used, and most importantly, the methods you used to carry out the study
- The technical details of an article are essential to the science but not to the narrative of the article; these technical details should be in Methods section
- In the Materials and Methods section one has to answer the previously posed questions: What did you do? How did you do it?
- Each Journal may have specific requirements for M&M which are mentioned in the Information for Authors (IFAs)

What do Human Reproduction's IFAs mention?

- In Methods section the design, setting, patients, interventions and main outcome measures should be described
- Names, town and country of origin of all suppliers
- Randomized controlled trials (RCT) should be reported in accordance with CONSORT statement: 1) flow chart showing progress of participants through the trial; 2) check list for editors and reviewers showing that 22 key points are in the report.
- For ESHRE journals all RCTs are reviewed by a team of journal-appointed statisticians
- Systematic reviews with or without meta-analysis should be reported in accordance with QUOROM (Quality of Reporting of Meta-analyses): flow chart and checklist are needed

General requirements for M&M section

- Order of procedures can be chronological or by type of procedure
- Use sub-headings
- Use the past tense and the third person to describe what was done. Instead of “I incubate the sample at 37° C for 3 days” it should be “The sample was incubated at 37° C for 3 days”
- Describe experimental design clearly, including the hypotheses you tested, variables measured, how many replicates you had, controls, treatments, etc
- Explain why each procedure was done. Provide reference to published paper instead of lengthy description

General requirements for M&M section

- Identify equipment, reagents, medications used
- Only modifications to already published equipment or procedures must be described. For example “controlled ovarian stimulation was done as described in detail in – reference;” should not be followed by a lengthy repetition of the protocol sometimes reported as “in brief the protocol includes ……” and then the stimulation protocol is repeated in detail
- Measurements should be correctly quantified including errors of measurement
- Approval of the study by local or national ethics committee and informed consent of the subjects must be clearly mentioned

General requirements for M&M section

- A section of M&M will include statistics: which tests were used
- Ordinary statistical methods can be used without comments
- Advanced or unusual methods may require brief description and literature citation
- When the M&M section is written, show the text to a colleague and ask whether they would have difficulty in repeating the study
- Do not mix Results with M&M
- Avoid irrelevant information for the reader for instance the colour of the ice bucket used

Purpose of M&M section

- Cornerstone of scientific method implies that experiment can be repeated
- It is irrelevant that experiments will, most likely, not be repeated
- Were correct methods used? If this is not the case, the findings are not valid
- Most readers skip this section; general reader has no interest in details
- Good reviewer will read M&M carefully and in case of doubt, rejection of manuscript will be recommended

Materials

- Provide exact technical specifications and quantities and source or method of preparation
- Avoid use of trade names (advertising), use generic or chemical names which are likely to be known worldwide
- For experimental animals include genus, species and strain and special characteristics (age, sex, genetic and physiological status)
- For human subjects describe in detail all inclusion and exclusion criteria
- The Journal's IFAs may have specific requirements regarding for instance cell lines and reagent data – ensure you've read them

Methods

- The usual order for presentation is chronological
- Related methods should be described together precluding sometimes following straight chronological order
- If a particular assay was not done until late in research, the assay method should be described along with the other assay methods

Headings

- M&M section often has subheadings. Consult analogous papers in the selected journal to see whether subheadings are appropriate

- If possible construct subheadings that will "match" the subheadings in the Results section

- Writing of the manuscript will be easier if you strive for internal consistency; the reader will grasp quickly the relationship of a particular methodology to the related results

Measurements and analysis

- Be precise. Methods are similar to cookbook recipes. If a reaction mixture was heated, give the temperature. Questions such as “how” and “how much” should be precisely answered by the author and not left to be found out by reviewer or reader

- Statistical analyses are usually necessary, but feature and data should be discussed, not the statistics. Ordinary statistics should be used without comment; advanced or unusual methods may require a literature quotation

- Be careful with your syntax.

Are references needed in M&M?

- All methodological details are required if the technique is new and unpublished
- If a method has been published in a journal the literature reference should be given. A few words of description may be necessary for a method with which readers may not be familiar
- If several alternative methods are commonly employed it is essential to identify your method and the reference. It is better to state: “cells were broken down by ultrasonic treatment as previously described (ref)” than to state “cells were broken down as previously described (ref)”

Tables and figures

- For certain methods it may be better to present the information in tabular form. Typical examples are the probes used in PCR for different gene fragments

- A diagram can sometimes make it easier to understand a procedure

- A flow chart of experimental protocols and diagrams of experimental apparatus can be useful

Grammar and correct form

- Do not make the common error of mixing some of the Results in this section
- A good test is to provide a copy to a colleague and ask whether he or she can follow the methodology. Glaring errors are sometimes picked up
- Correct use of English grammar and punctuation should be strived for. Something as simple as a missing comma could lead to serious misunderstandings
- In contrast to other sections of the manuscript the passive voice can be used validly. What was done must be specified, who did it is irrelevant

Grammar and correct form

- Section provides short, discrete bits of information but the writing becomes sometimes telescopic
- Most comon error is to state the action without, when necessary, stating the agent of the action.
- “Having completed the study, the bacteria were of no further interest”
- “Blood samples were taken from 48 informed and consenting patients….the subjects ranged in age from 6 months to 22 years” (Pediatric Research 6:26,1972). There is no grammatical error with that sentence but what about 6 months old children, can they give informed consent?
- Always watch for spelling errors both in manuscripts and PDF proofs

Reporting Randomized Trials

- CONSORT statement: *C*onsolidated *S*tandards *o*f *R*eporting *T*rials
- Who, what, when and where are good reminders for the methods section of trials and cohort studies
- Primary outcome and sample size assumptions should be part of the statistics session

Results

- Answers the question: what did you find?
- For most papers heart of this section is the data, presented as tables and figures
- Authors find it often difficult to decide what goes in a table and what in the text
- URM says text should “emphasise or summarise only important observations”

- It is a narrative to tell the main elements of the story and to draw the reader’s attention to some of the main features of the tables and figures
- Put a logical sequence in the text, tables and illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasise or summarise only important observations

Effective Tables and Figures

Should you use a table or a figure?

- More information can be summarized in a table
- Readers can abstract exact data from a table

But

- Tables do not portray trends
- Tables hide visual information

Effective Tables

- Compact tables are easier to read
- Only one page: larger tables on web site
- Formulate in Excel, move to Word
- Try to have a single line in each row
- Use landscape orientation if necessary

Effective table detail

Table 2. Percentages of Obstetric Complications by Maternal Age

Outcome	Age < 35 y (n = 28,398)	Age 35–39 y (n = 6,294)	Age ≥ 40 y (n = 1,364)	P
Threatened abortion	13.9	15.4	19.3	< .001
Miscarriage	0.8	1.5	2.2	< .001
Chromosomal abnormality	0.2	0.8	1.9	< .001
Congenital anomaly	1.7	2.8	2.9	< .001
Gestational hypertension	4.7	4.1	5.5	.034
Preeclampsia	2.4	2.3	3.0	.422
Gestational diabetes	2.9	5.3	7.3	< .001
Placenta previa	0.5	0.9	1.9	< .001
Placental abruption	0.7	0.8	1.6	< .001
Preterm labor	5.3	5.2	5.3	.883
PPROM	1.5	1.8	2.3	.238
Preterm delivery	7.8	8.6	11.8	.002
Low birth weight	5.2	5.1	7.5	< .001
Macrosomia > 4,500 g	1.1	1.8	1.2	< .001
Operative vaginal delivery	7.5	7.1	6.3	.111
Cesarean delivery	21.7	31.4	40.5	< .001
Perinatal loss	0.3	0.3	0.7	.079

PPROM, preterm premature rupture of membranes.
Data are presented as percentage of cases.

Cleary-Goldman et al. Obstet Gynecol 2005; 105:983-90

Mankowski et al, Obstet Gynecol 2009; 113:1052-1057

Table 2. Procedure Data and Adverse Events by Treatment Arm

	Paracervical (n=66)	Intracervical (n=66)	P
Dilation (cm)	9.5±1.8	9.5±1.7	.80*
Cannula (cm)	8.7±1.6	8.8±1.6	.83*
Estimated blood loss (mL)	26±8	27±7	.56*
Time (min)	6.6±2.9	7.2±2.6	.30*
Provider			.32†
Resident	3 (5)	7 (11)	
Attending	63 (95)	59 (89)	
Complications	1 (2)	1 (2)	1.00†

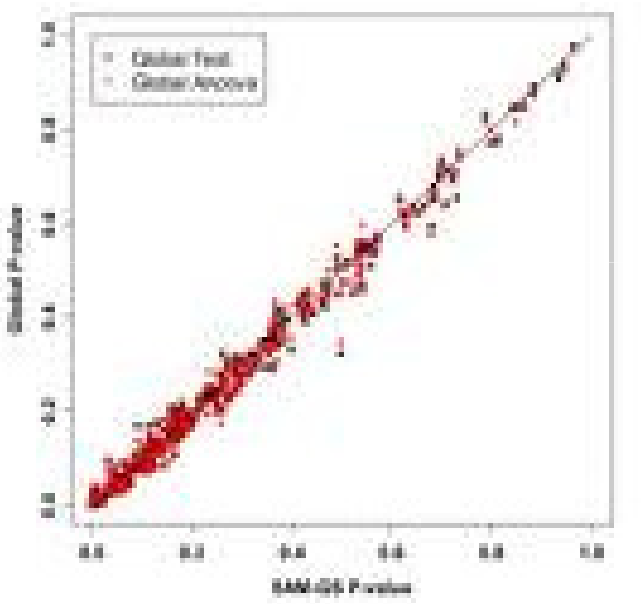
Data are mean±standard deviation or n (%).
* *t* test.
† Fisher exact test.

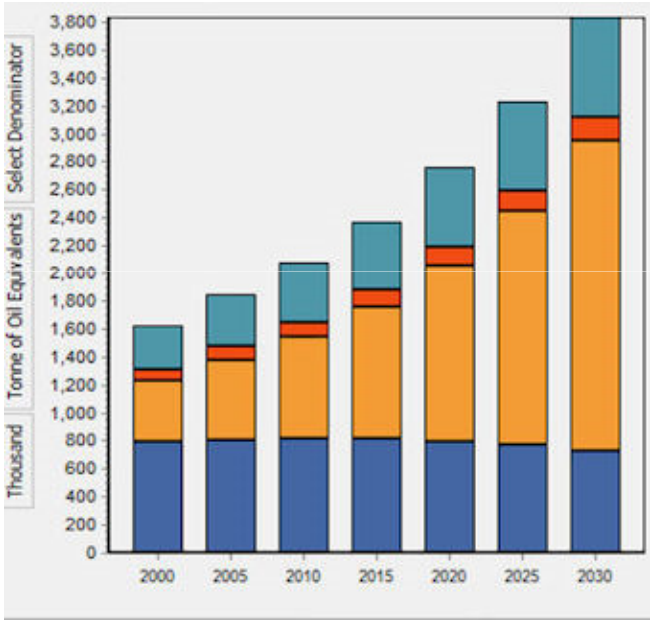
Use a two-by-two table

	Success	**Failure**	**Total**
Group 1	n_{11}	n_{12}	n_{1+}
Group 2	n_{21}	n_{22}	n_{2+}
Total	n_{+1}	n_{+2}	N

Diagnostic studies
Case control studies
Cohort studies
Randomized controlled trials

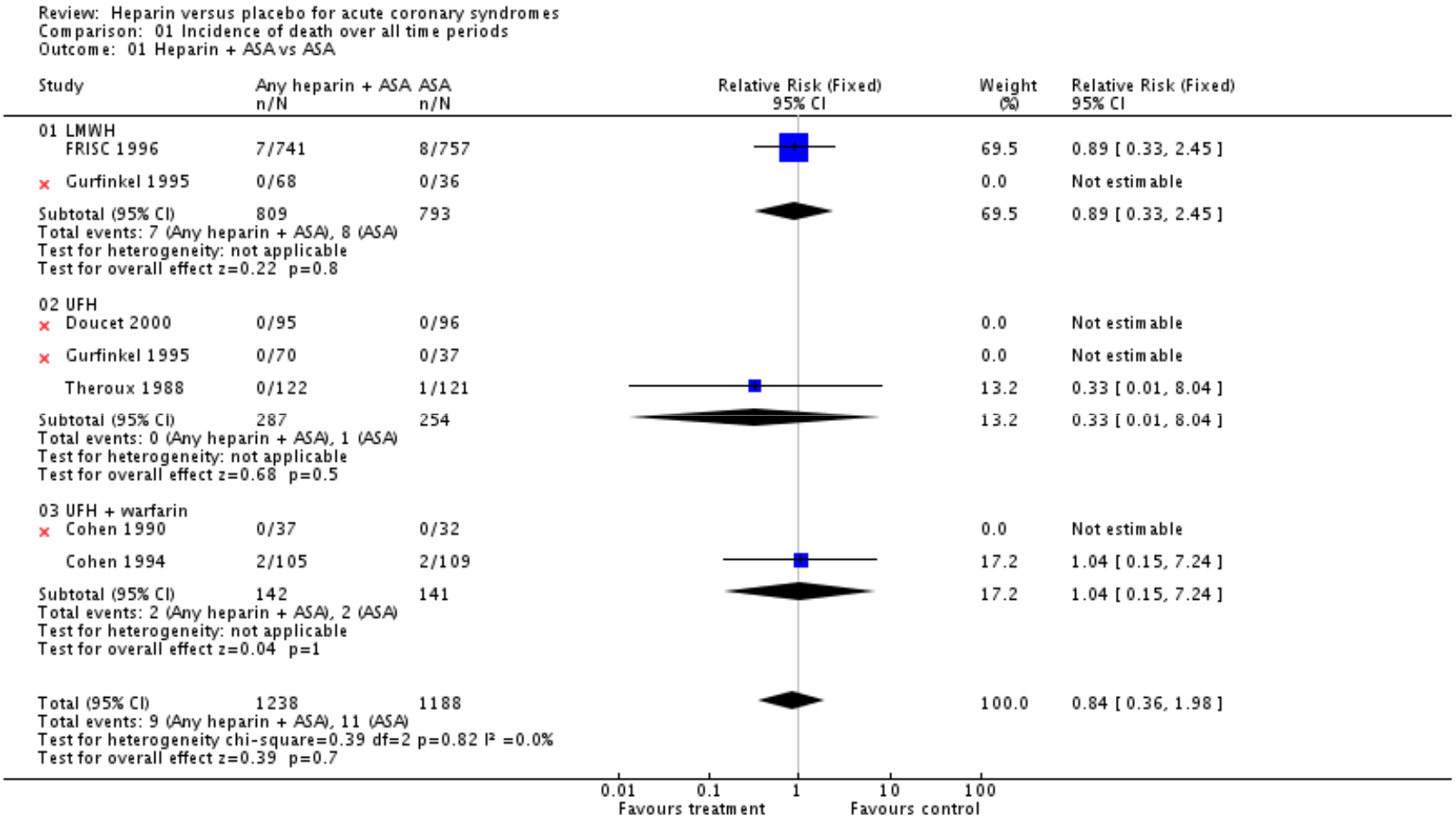
Effective figures





Edward R. Tufte. The Display of Quantitative Information, 2nd Ed. Graphics Press, Cheshire, Connecticut, 2001.

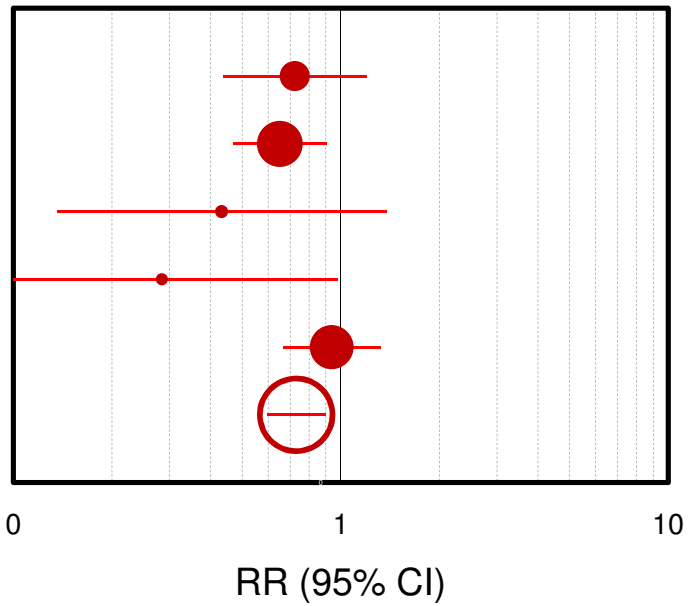
Forest plots



Magee et al. Heparin versus placebo for acute coronary syndromes. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD003462. DOI: 10.1002/14651858.CD003462.pub2.

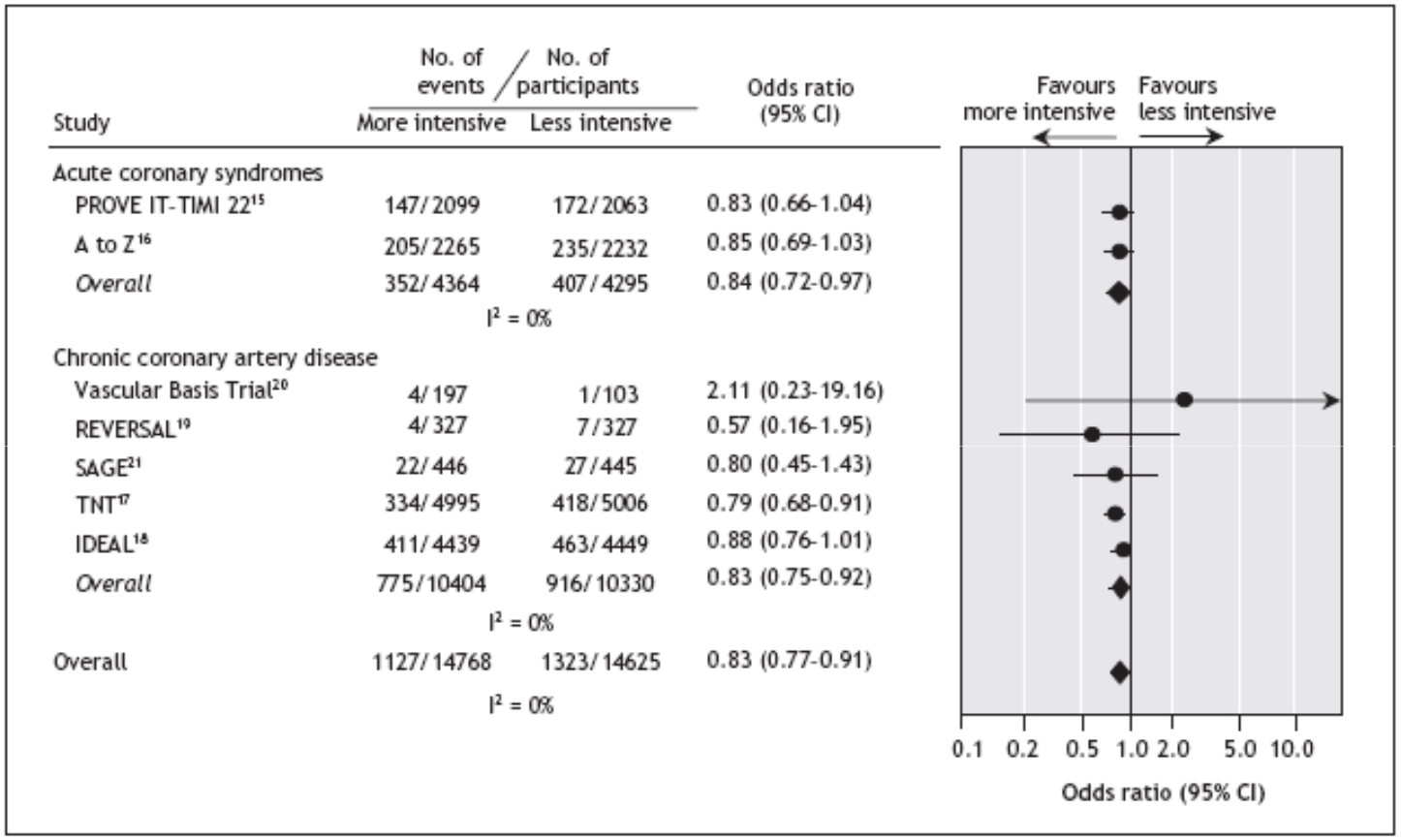
Aim for visibility (1)

Authors	Pregnancy / Total	
	PGS	Control
Staessen et al, 2004	22 / 148	29 / 141
Maastenbroek et al, 2007	52 / 434	74 / 402
DeBrock et al, 2007	4 / 37	6 / 24
Hardarson et al, 2008	3 / 56	10 / 53
Schoolcraft et al, 2008	21 / 32	21 / 30
Average RR	102 / 707	140 / 650



ASRM Practice Committee

Aim for visibility (2)



Study	No. of events / No. of participants: More intensive	Less intensive	Odds ratio (95% CI)
Acute coronary syndromes			
PROVE IT-TIMI 22[15]	147/2099	172/2063	0.83 (0.66-1.04)
A to Z[16]	205/2265	235/2232	0.85 (0.69-1.03)
Overall	352/4364	407/4295	0.84 (0.72-0.97)
	I^2 = 0%		
Chronic coronary artery disease			
Vascular Basis Trial[20]	4/197	1/103	2.11 (0.23-19.16)
REVERSAL[19]	4/327	7/327	0.57 (0.16-1.95)
SAGE[21]	22/446	27/445	0.80 (0.45-1.43)
TNT[17]	334/4995	418/5006	0.79 (0.68-0.91)
IDEAL[18]	411/4439	463/4449	0.88 (0.76-1.01)
Overall	775/10404	916/10330	0.83 (0.75-0.92)
	I^2 = 0%		
Overall	1127/14768	1323/14625	0.83 (0.77-0.91)
	I^2 = 0%		

Figure 2: Risk of myocardial infarction or coronary death among patients with acute coronary syndromes or chronic coronary artery disease in 7 studies of statin therapy intensity.

Josan et al, 2008. The efficacy and safety of intensive statin therapy: a meta-analysis of randomized trials. CMAJ 2008;178(5):576-84.

Technical assistance

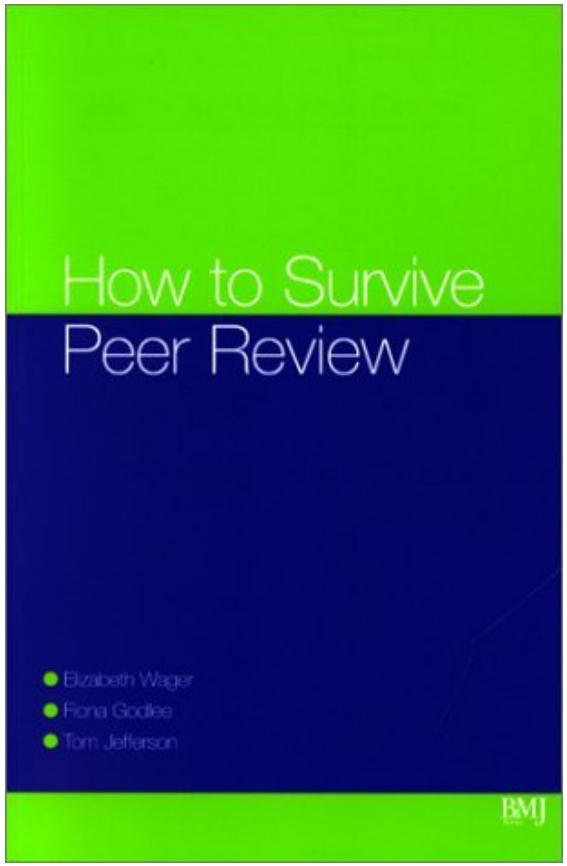
CONSORT	Treatment study, RCT
STARD	Diagnostic test study
STROBE	Observational study
QUOROM	Systematic review, meta-analysis of RCT's
MOOSE	Systematic review, meta-analysis of observational studies

http://www.consort-statement.org/

What journal?

Human Reproduction	Human Reproduction Update	MHR: Molecular Human Reproduction
André Van Steirteghem	John Collins	Stephen Hillier
Clinical, basic science	Reviews	Molecular
Impact factor 3.5	7.3	2.9
Monthly	Bimonthly	Monthly in six issues
1st decision: 30 days	42 days	14 days

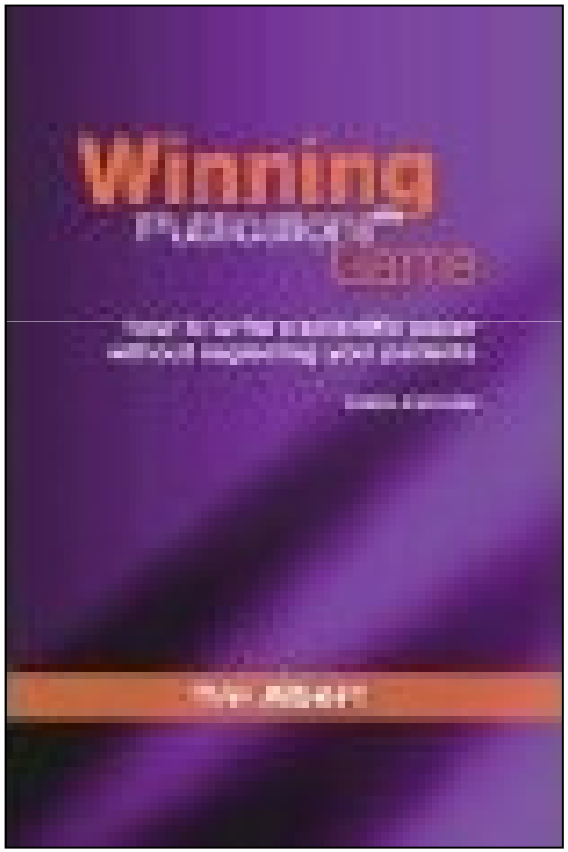
How to survive peer review



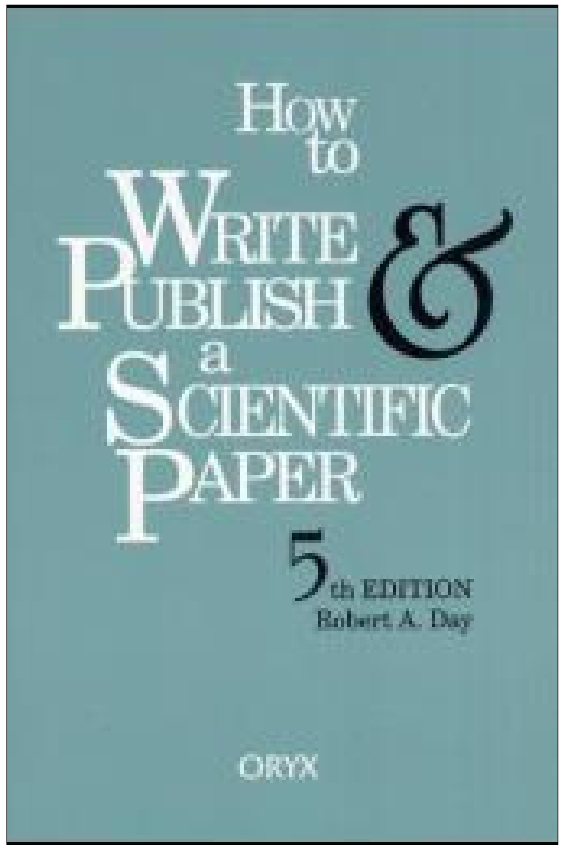
How to ensure that your paper is rejected

Wager, Godlee, Jefferson. 2002

What Tim Albert and other writers say



Tim Albert



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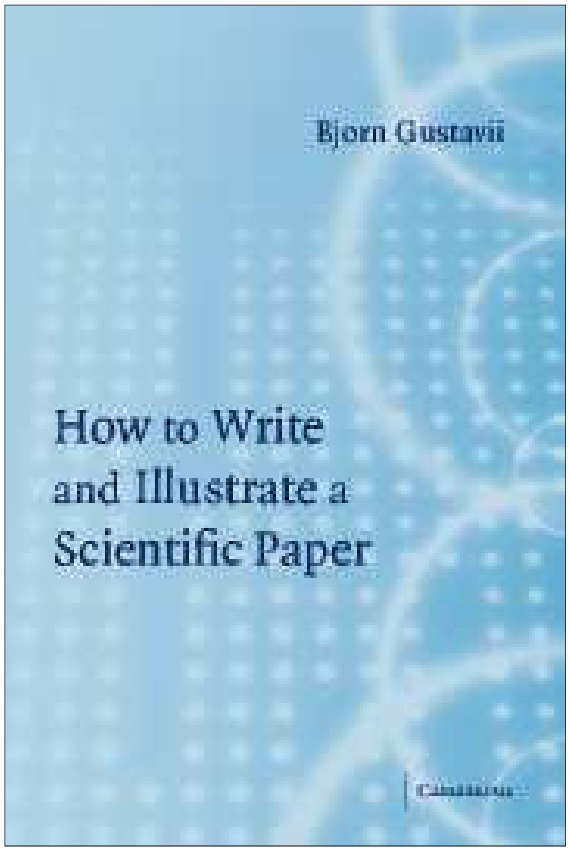
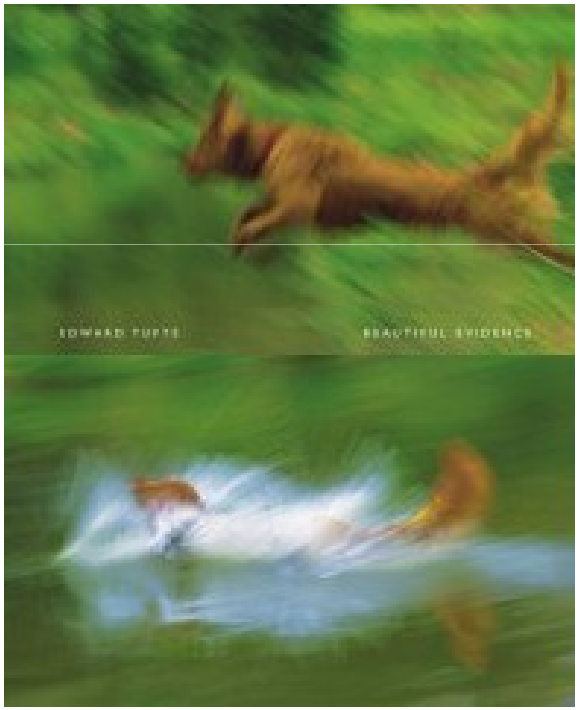
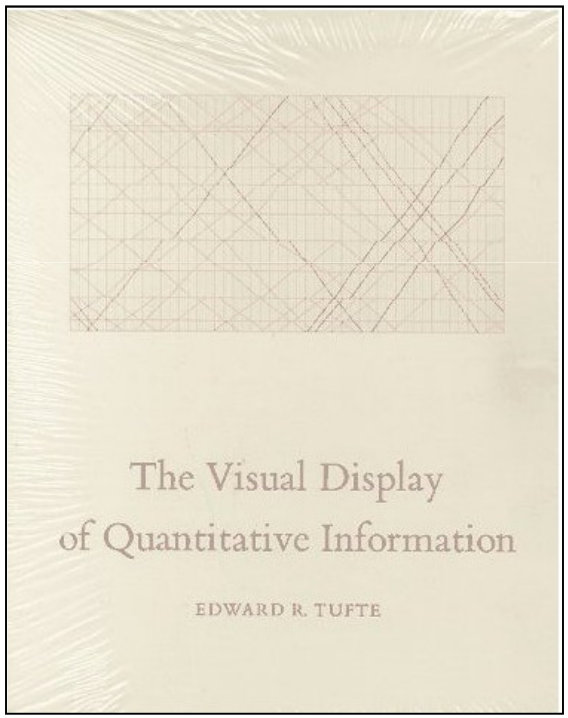


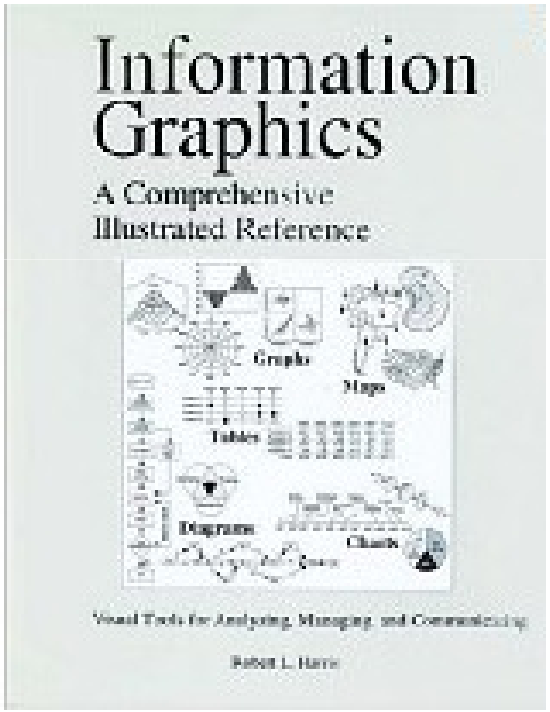
Björn Gustavii

More on figures

Beautiful Evidence







Edward Tufte

Robert Harris

Keep the
language
simple
and direct