

Peer Review

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General Reminders

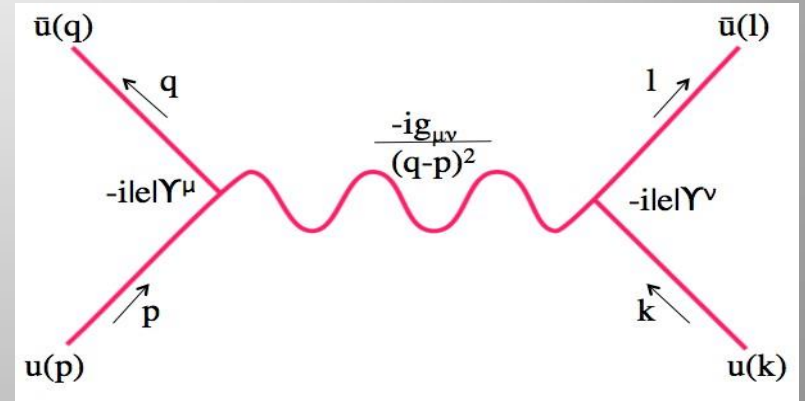
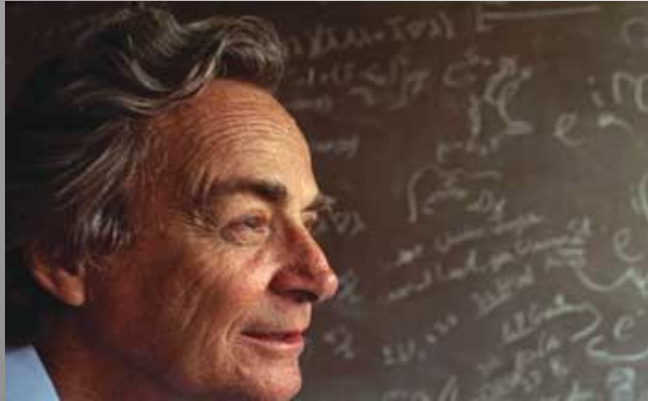
- This webinar will be recorded and archived on the ASTDD website;
- Questions will be addressed after the speakers are finished. Please type your question into the “chatbox” that will appear at the end of the webinar and then click on the bubble to the right of where you type your question to send it to the moderator;
- Please respond to the evaluation questions at the conclusion of the webinar.

How many on the call have....

- Published (author or co-author) a paper in the peer reviewed scientific literature?
- Conducted a review of a manuscript?

Science is what we do to keep from lying to ourselves.

Richard Feynman



The scientific methodology aims to neutralize the effects of these biases, thereby reducing error

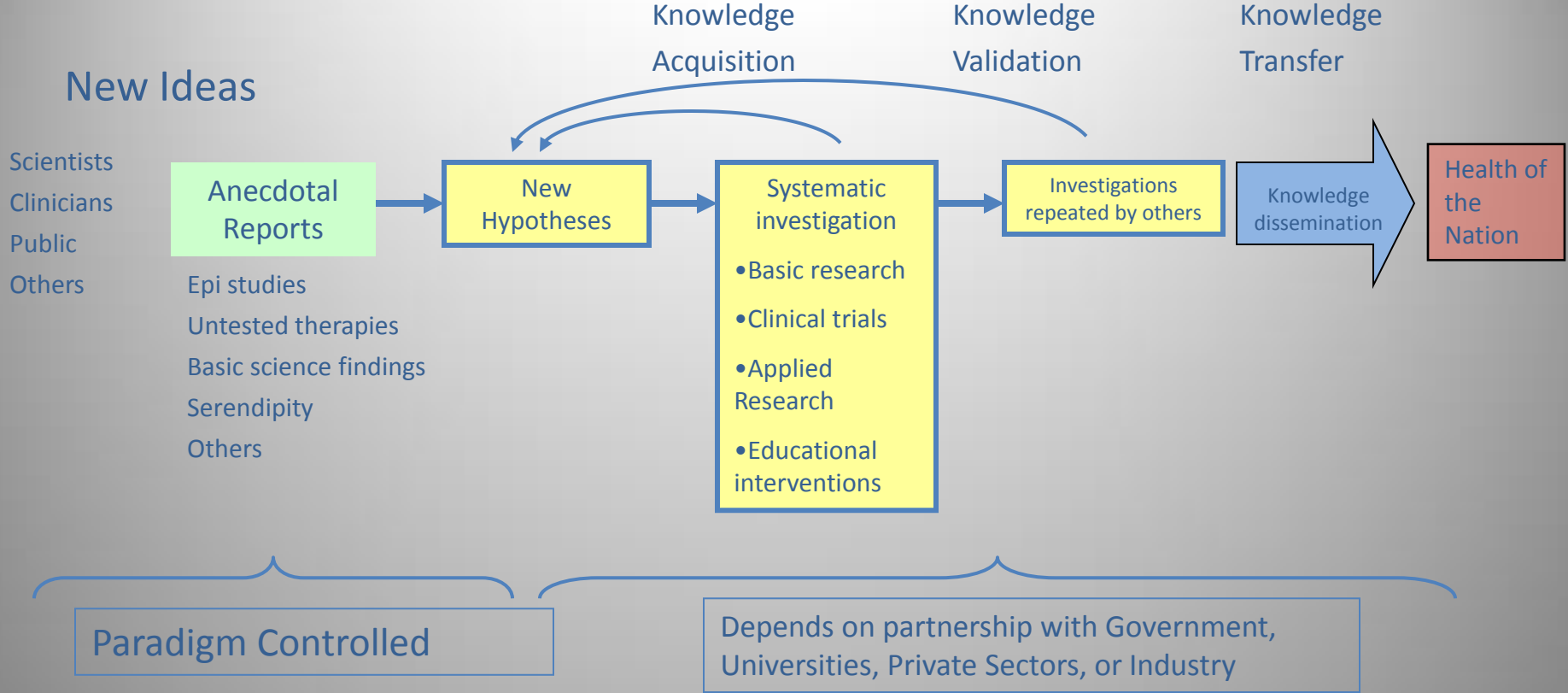
How science reduces bias

- Test hypothesis – (falsify)
- Scientific plausibility
- Transparent methods
- Control bias
- Public review and criticism (peer review)
- Replication

Essential part of the scientific process

PEER REVIEW

The Research Enterprise



Peer review is a process of self-regulation by a profession

- Qualified individuals
- Employed to maintain standards
- Improve performance
- Provide credibility



Where is Peer review?

- Examples

- Manuscripts



- Grants

- Promotions & tenure

- Clinical- revoking

- Clinical privileges

- Professional society membership

What is (isn't) Peer review?

- Different from jury
 - No consensus required
 - Not designed to detect fraud
- Underlying principles
 - Fairness- objectivity
 - Absence of COI
 - Anonymity (good or bad?)
 - What is it?
 - Competence
 - Confidentiality
 - Speed



Does peer review work?

- Prevent dissemination of irrelevant or inaccurate findings
 - Fact versus view
 - Without peer review- regarded with suspicion
 - With peer review?
- Two heads are better than one?
- Role of editor or granting agency
- Anonymous peer review
 - Single or double blind
 - Open

Does peer review work?- literature

- There seems to be no study too fragmented, no hypothesis too trivial, no literature too biased or too egotistical, no design too warped, no methodology too bungled, no presentation of results too inaccurate, too obscure, and too contradictory, no analysis too self-serving, no argument too circular, no conclusions too trifling or too unjustified, and no grammar and syntax too offensive for a paper to end up in print.
 - Drummond Rennie

Does peer review work?-in general

- The mistake, of course, is to have thought that peer review was any more than a crude means of discovering the acceptability—not the validity—of a new finding.
- we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.

— Richard Horton

Why should you do Peer review?

- Because it pays well?
 - Future grant or paper submissions
- Because it is good for promotion?
- Because you are asked?
- Because it is the ethical thing to do?
 - Respect or disrespect

What are your responsibilities as a peer reviewer?

- Recognize COI
 - Financial conflict
 - Competitor or competing idea
 - Personal or religious like/dislike for work/author
 - Personal integrity
 - Disagreement with scientific methodology
 - Circumvention – use of acknowledgements
- Do a good job?
 - Are you an expert?
 - Consulting with others
 - Do you spend the time?

Once you decide to review...what skills do you need

- Scientific skill
- Writing skill
- Mentoring skill
- You don't have to do the entire review (editor will pick appropriate people).

What editors expect

- Critical analysis of:

- Scientific rigor

Is it VALID

- Relevance

Is it RELEVANT

- Significance

Does it MATTER

What editors expect

- Critical analysis of:
 - Scientific rigor
 - Relevance
 - Significance

 - Does it “fit” with the journal’s aims and readership
 - Does it read well
 - Was it ethical (IRB)
 - Did they “bend” the literature or stretch the conclusions

Is it “Novel”?

- Does a study have to be “new” or novel to get published?
 - Isn’t replication important?

What the authors (and editor) expect

- If there is a fatal flaw – so be it. Let the editor know.
- If not, then comments that are specific, concrete and aimed to improve the manuscript.
- Be thorough and constructive
- Good or bad – tell them why.
- Write them in a numbered list (so authors can respond).

Some things to consider as you review

- Does the study answer an important question
- Clear rationale
- Hypotheses
- Is design appropriate (to the question)
- Are methods appropriate
- Statistics appropriate
- Bias controlled
- Ethics (IRB)
- COI
- Are conclusions supported
- Clear writing
- Table and Figures

Ethics

- Don't steal ideas.
- Don't nit pick if it doesn't affect the science
- Watch out for COI (reveal and decline)
- Commit to being “on time”

Valid Study

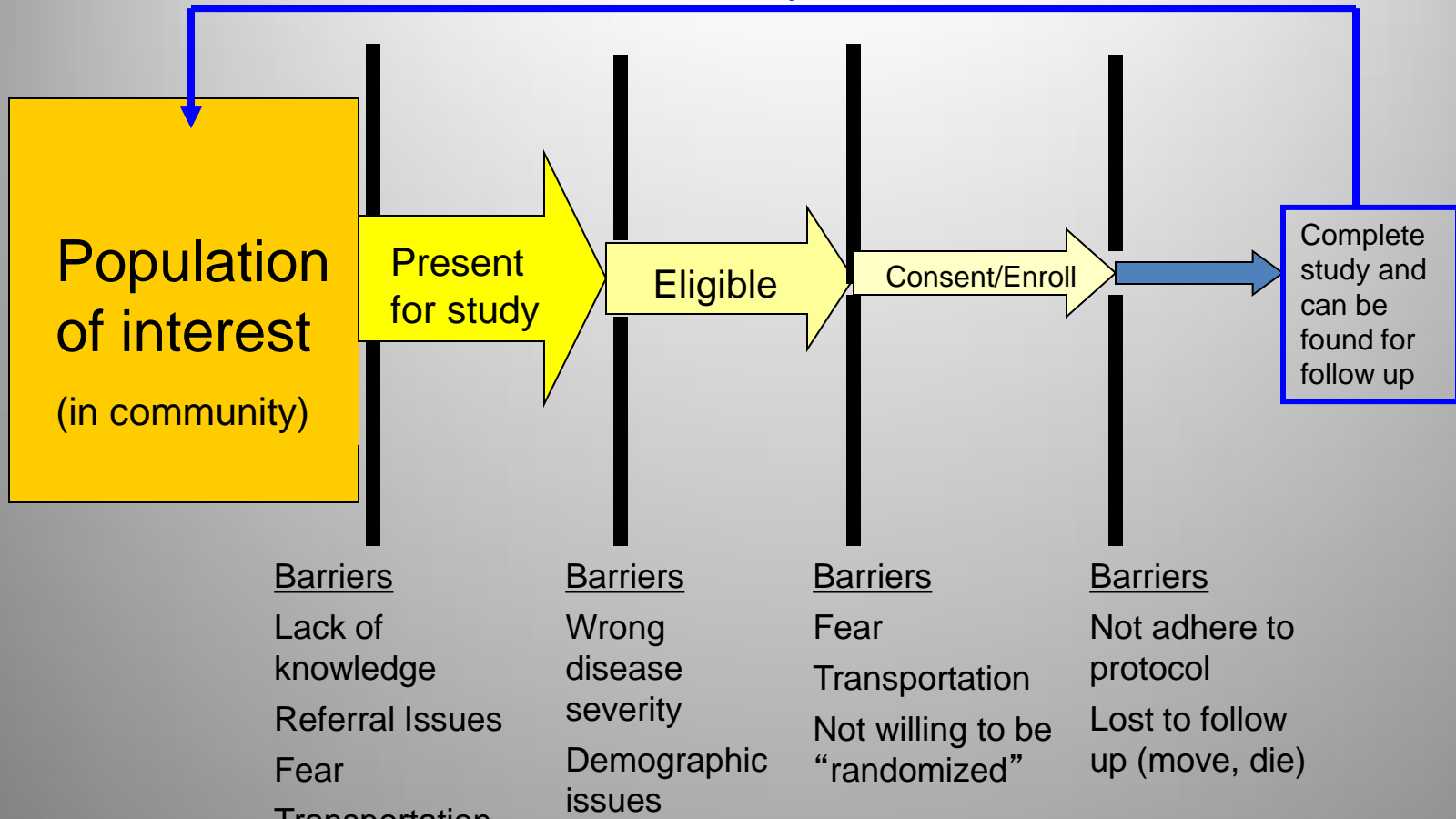
- Was the DESIGN appropriate to the question
- Did they do a good job developing the METHODS
- Did they do a good job ANALYZING the data
- Did they make reasonable CONCLUSIONS

Relevant

- To the journal
- To the reader
- Look at methods and recruitment

Where do research “subjects” come from?

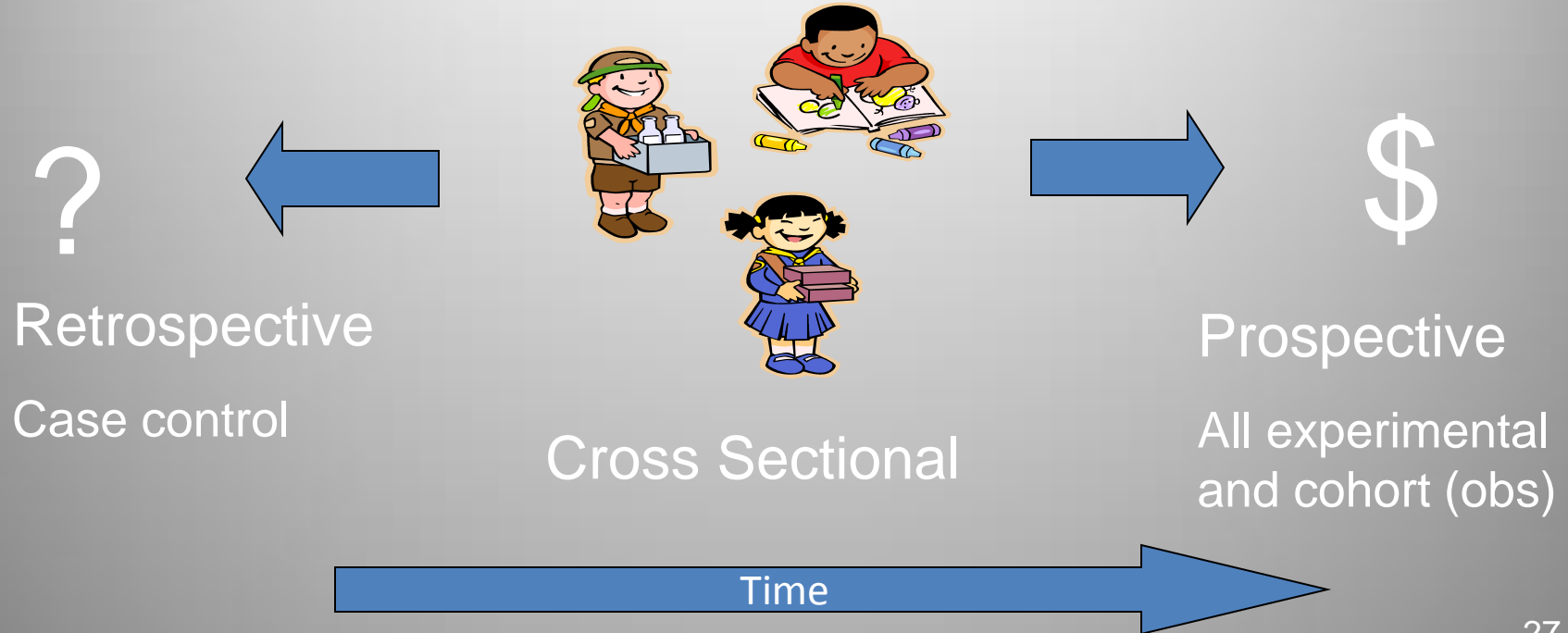
Generalizability of Results



Does it Matter

- Did they address an important question
- How big was the “effect”
- Can you use this information locally

Time



Confusing terms

Random Sample

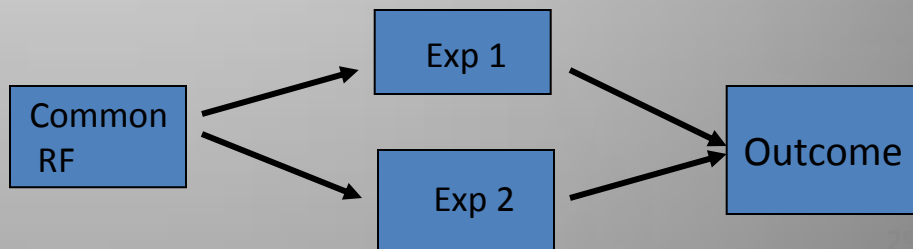
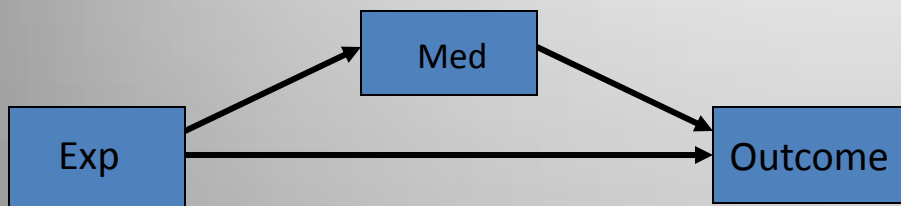
- Used in cross sectional studies to draw an representative sample for the study.
- Often requires sample weights.

Random Assignment

- Used in clinical trials to ensure that the treatment and “control” groups are the same.

Statistical Causality

- Observational studies (like counting cancer cases among smokers and among non-smokers and then comparing the two) can give hints, but can never *establish* cause and effect. Hypothesis generation.
- The gold standard for causation here is the *randomized experiment*:



Instruction to Authors

- General rules (English, Uniform Requirements)
- Submission process
- Formatting and style (Abstract, Intro, Methods...)
- Authorship
- Reporting Guidelines
- Copyright

Types of Articles

- Editorials
- Brief Report
- Original Research (regular length)
- Review (systematic)
- Community action report
- Letter
- Special Issue
- Book reviews

What happens to articles after submission

Editor reviews and decides to reject or send to review

Heading for publication (20%)

- Publish “as is” (<5%)
- Minor revision (10%-20%)
- Major Revision (70%)

Heading for rejection (80%)

- Immediate rejection (40%)
- Reject after review (60%)

CRITICAL REVIEW OF THE LITERATURE

Statistics.....ugh!

Doug Altman, perhaps the leading expert on statistics in medical journals, sums it up thus: ‘What should we think about researchers who

- use the wrong techniques (either willfully or in ignorance),
- use the right techniques wrongly,
- misinterpret their results,
- report their results selectively,
- cite the literature selectively,
- and draw unjustified conclusions?’

Economic Term	Meaning	Analogy in Scientific Publication
Winner's curse	The winner in an auction tends on average to have overpaid, especially when no participant is sure exactly how valuable the item is.	Scientific studies try to find true relationships, but none are certain of what these relationships are exactly. Published articles, especially in very competitive journals, have on average exaggerated results.
Oligopoly	A market where a few traders have the major share and each oligopolist has significant power to influence the market.	Very few journals with limited publication slots (compared with geometrically increasing scientific data that seek publication) determine highly visible science.
Herding	"Follow-the-leader" behaviour: the actions of the first or dominant player supersede the individual information and actions of all the players in a market.	Scientists may uncritically follow paths of investigation that are popularised in prestigious publications, neglecting novel ideas and truly independent investigative paths.
Artificial scarcity	Restrictions on the provision of a commodity above that expected from its production cost.	Print page limits are an obvious excuse for failure to accept articles, and further the small number of major "high-impact" journals have limited slots; extremely low acceptance rates provide status signals to successful publications and their authors.
Uncertainty	Situation where the real long-term value of a commodity is largely unpredictable.	For much (most?) scientific work, it is difficult or impossible to immediately predict future value, extensions, and practical applications.
Branding	Marking a product as valuable; of key importance when it is difficult to determine a product's value prior to consuming it.	Publishing in selective journals provides evidence of value of a research result and its authors, independent of the manuscript's content.

CRITICAL APPRAISAL

A. What question did they ask?

Patients/populations:
Intervention:
Comparison:
Outcome(s):

B. Are the results of the review valid?

1. What question (PICO) did the systematic review address?	
What is best? The main question being addressed should be clearly stated. The exposure , such as a therapy or diagnostic test, and the outcome(s) of interest will often be expressed in terms of a simple relationship.	Where do I find the information? The Title, Abstract or final paragraph of the Introduction should clearly state the question. If you still cannot ascertain what the focused question is after reading these sections, search for another paper!

This paper: Yes No Unclear
Comment:

2. Is it unlikely that important, relevant studies were missed?	
What is best? The starting point for comprehensive search for all relevant studies is the major bibliographic databases (e.g., Medline, Cochrane, EMBASE, etc) but should also include a search of reference lists from relevant studies, and contact with experts, particularly to inquire about unpublished studies. The search should not be limited to English language only. The search strategy should include both MESH terms and text words.	Where do I find the information? The Methods section should describe the search strategy, including the terms used, in some detail. The Results section will outline the number of titles and abstracts reviewed, the number of full-text studies retrieved, and the number of studies excluded together with the reasons for exclusion. This information may be presented in a figure or flow chart.

This paper: Yes No Unclear
Comment:

3. Were the criteria used to select articles for inclusion appropriate?	
What is best? The inclusion or exclusion of studies in a systematic review should be clearly defined a priori. The eligibility criteria used should specify the patients, interventions or exposures and outcomes of interest. In many cases the type of study design will also be a key component of the eligibility criteria.	Where do I find the information? The Methods section should describe in detail the inclusion and exclusion criteria. Normally, this will include the study design.

This paper: Yes No Unclear
Comment:

4. Were the included studies sufficiently valid for the type of question asked?	
What is best? The article should describe how the quality of each study was assessed using predetermined quality criteria appropriate to the type of clinical question (e.g., randomization, blinding and completeness of follow-up)	Where do I find the information? The Methods section should describe the assessment of quality and the criteria used. The Results section should provide information on the quality of the individual studies.

This paper: Yes No Unclear
Comment:

5. Were the results similar from study to study?	
What is best? Ideally, the results of the different studies should be similar or homogeneous. If heterogeneity	Where do I find the information? The Results section should state whether the results are heterogeneous and discuss possible reasons. The forest plot

exists the authors may estimate whether the differences are significant (chi-square test). Possible reasons for the heterogeneity should be explored.

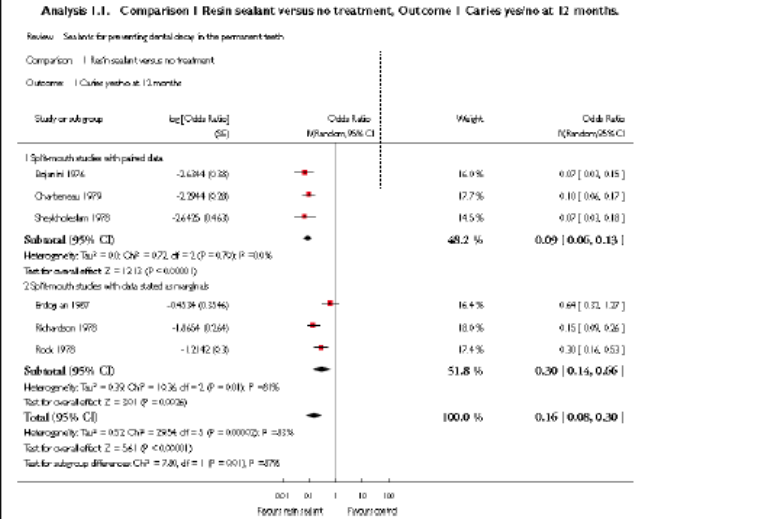
should show the results of the chi-square test for heterogeneity and if discuss reasons for heterogeneity, if present.

This paper: Yes No Unclear

Comment:

C. What were the results?

How are the results presented?
A systematic review provides a summary of the data from the results of a number of individual studies. If the results of the individual studies are similar, a statistical method (called meta-analysis) is used to combine the results from the individual studies and an overall summary estimate is calculated. The meta-analysis gives weighted values to each of the individual studies according to their size. The individual results of the studies need to be expressed in a standard way, such as relative risk, odds ratio or mean difference between the groups. Results are traditionally displayed in a figure, like the one below, called a forest plot.



D. Will the results help me in caring for my patient? (External Validity/Applicability)

The questions to ask before deciding to apply the results of the study in your practice:	Y	N	CT
• Is my patient so different to those in the study that the results cannot apply?			
• Is the treatment feasible in my setting?			
• Will the potential benefits outweigh the potential harms for my patients?			



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

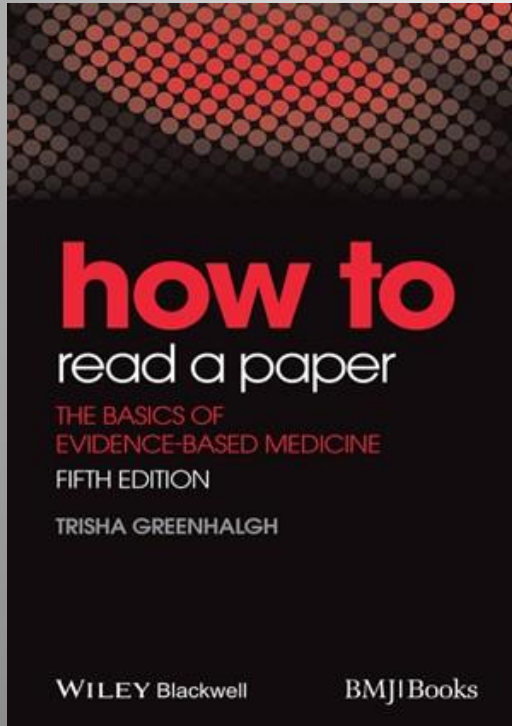
Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a randomised trial in the title	_____
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	_____
Introduction			
Background and objectives	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	_____

QUESTION TIME

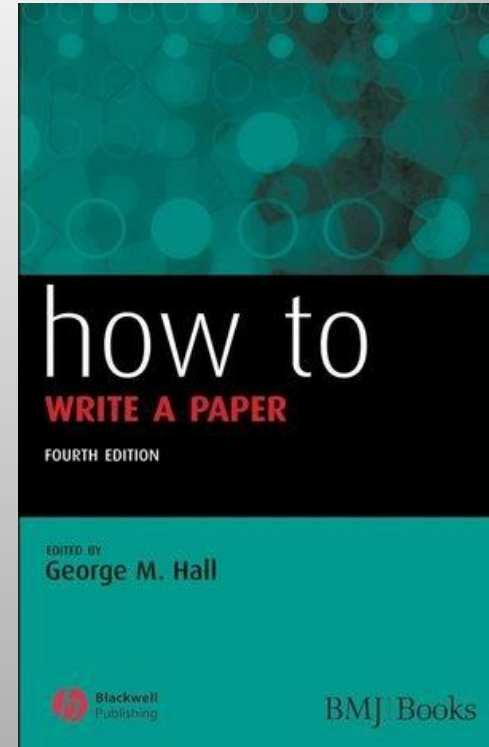
My questions

1. For those who have reviewed...what were some positive part of that process?
2. What was difficult?
3. What has prevented others from participating?

Recommended Readings



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