

**BMJ**



# BMJ

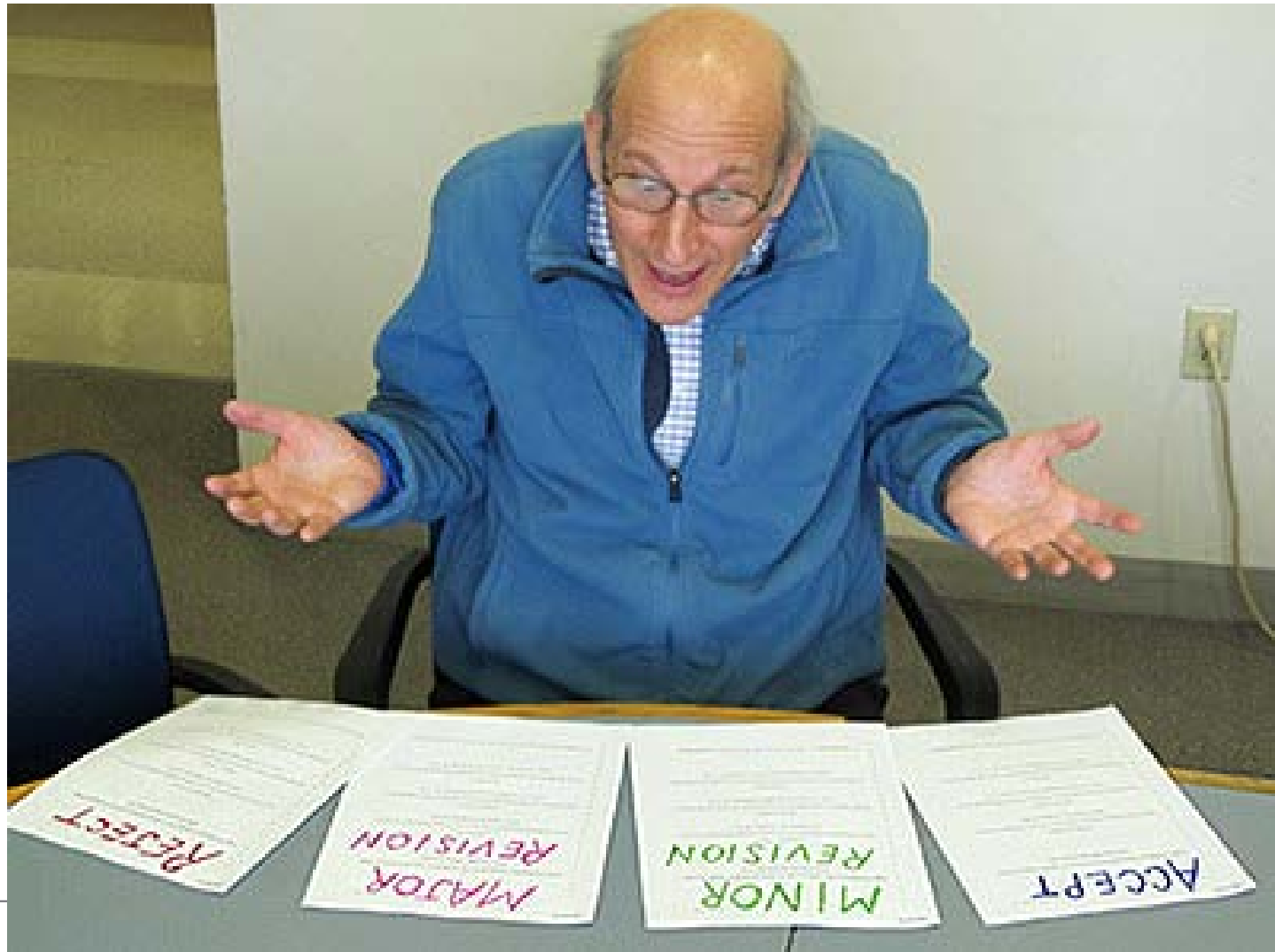
## Peer review research at The BMJ

Dr Wim Weber & Dr Sara Schroter, The BMJ

# What am I going to talk about?

- A series of RCTs done at The BMJ on the peer review process that have helped inform our policies
- Some other relevant research evidence on peer review from BMJ research studies

Peer review is  
'inconsistent, unreliable, unfair, etc....'



# We have done a number of trials to improve peer review

- Does blinding help ?
- Can one select better reviewers ?
- Can we train them to become better ?

# Does blinding help ?





# Blinding trial with a paper in which 8 areas of weakness had been inserted

420 reviewers: 2 x 2 factorial trial

- Manuscripts with and without the authors' names and affiliations
- Reviewers were asked to sign/ not sign their reports
- Main Outcome Measure: the number of weaknesses in the paper that were commented on by the reviewers.

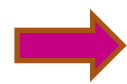


53% of reviewers returned a review:

Mean number of weaknesses detected was 2.0

**Other result:**

Reviewers blinded to authors' identities were less likely to recommend rejection than those who were aware of authors' identities



Such measures are unlikely to improve the quality of peer review reports.

*Godlee F, et al JAMA 1998; 280: 237-240.*







# Review Quality Instrument (validated tool)

- Did the reviewer discuss the importance of the research question?
- Did the reviewer discuss the originality of the paper?
- Did the reviewer clearly identify the strengths and weaknesses of the method (study design, data collection and data analysis)?
- Did the reviewer make specific useful comments on the writing, organisation, tables and figures of the manuscript?
- Were the reviewer's comments constructive?
- Did the reviewer supply appropriate evidence using examples from the paper to substantiate their comments?
- Did the reviewer comment on the author's interpretation of the results?
- How would you rate the quality of this review overall?

*Van Rooyen S, et al. J Clin Epidemiol 1999;52(7):625-9.*

# 476 BMJ papers given to one blinded and one unblinded reviewer:

- Quality scores were 3.26 and 3.25
- Blinding was successful in 67% of cases
- Blinding made no editorially significant difference to review quality, reviewers' recommendations, or time taken to review

*van Rooyen S, JAMA 1998; 280; 234-7*



# Effect of open peer review on quality of reviews

## 125 BMJ papers randomized

one reviewer to have identity revealed to the authors and  
one reviewer to remain anonymous.

- No important effect on the quality of the review, the recommendation regarding publication, or the time taken to review
- But it significantly increased the likelihood of reviewers declining to review

➔ BMJ introduced signed reviewers' opinions

*van Rooyen S, et al. BMJ 1999;318:23-7.*



Does telling peer reviewers that their signed reviews of research papers might be posted on the *BMJ*'s website affect the quality of their reviews?

# Trial: 558 BMJ papers randomised

**Intervention:** the reviewer's signed report made available on the BMJ's website alongside the published paper

**Control:** usual practice

**Outcome:** quality of the review by RQI



471 manuscripts remained after exclusions  
1039 reviewers approached, 568 (55%)  
declined

Editors' assessment	3.40	3.36
Authors' assessment	3.16	3.10
Reviewers' time taken (minutes)	182	157

So, telling peer reviewers that their signed reviews of research papers will be posted on the BMJ's website:

- does not affect the quality of their review
- does increase time to complete their review

And:

Reviewers, although not authors, are reluctant to participate in an experiment of very open peer review

*Van Rooyen. BMJ. 2010; 341: c5729.*





# How long should reviewers spend on a review?

- Survey of 420 BMJ papers with 690 reviews:
- Review quality increases with time spent on a review, up to 3 hours but not beyond

*Black et al. JAMA. 1998 Jul 15;280(3):231-3*



# What makes a good reviewer?

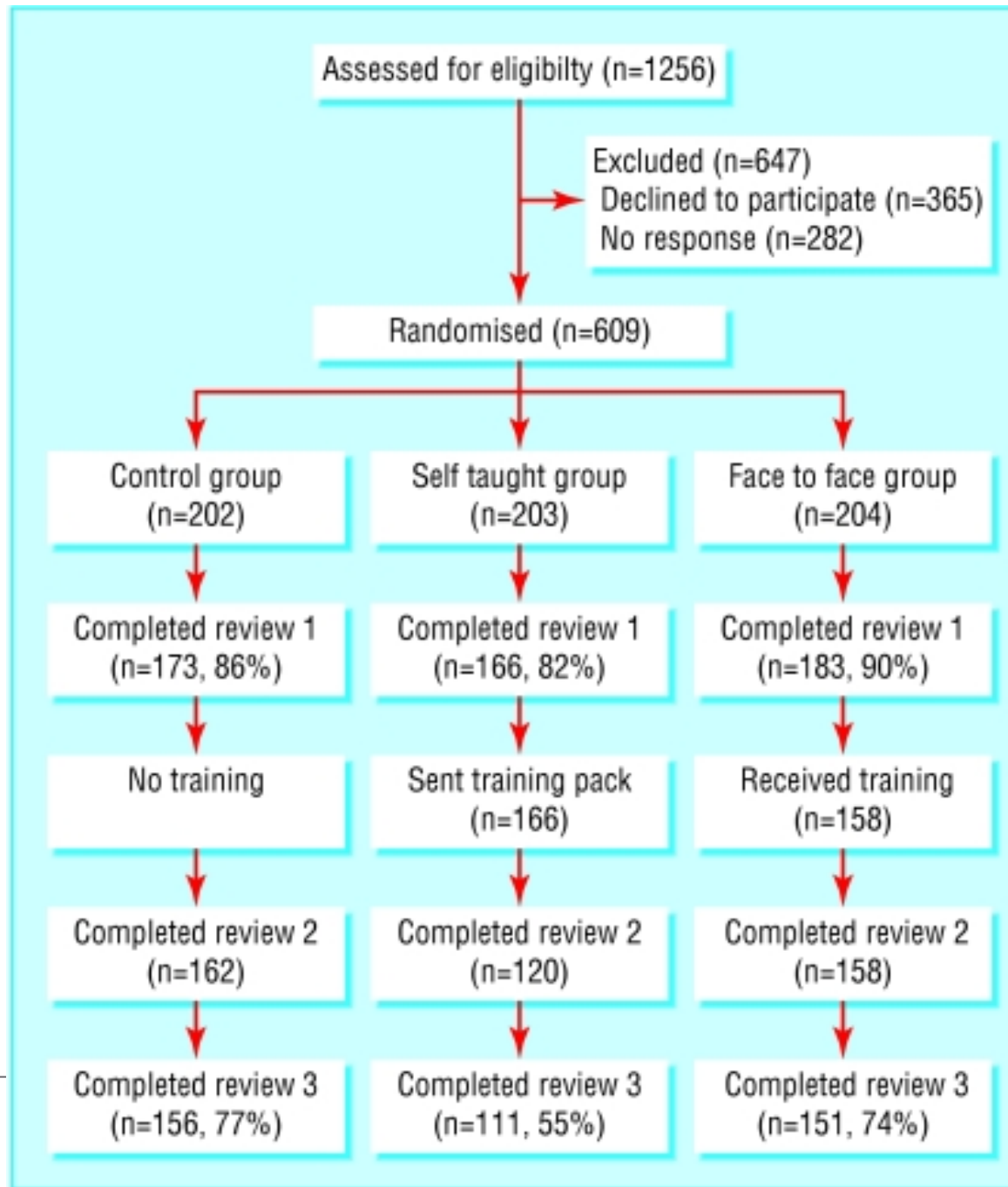
- aged under 40
- working in a good institution
- known to the editors
- methodological training (statistics & epidemiology)

*Black N et al. JAMA 1998;280:231-3.*

Would training help ?



# Trial of training interventions





# Does training reviewers improve the quality of review or number of errors detected?

- Slight improvement in review quality, but not of editorial significance & not maintained in the long term
- Identified more errors but not maintained in long term

*Schroter, et al. BMJ. 2004 Mar 20; 328(7441): 673*



# But..... peer review is poor at detecting errors

- On average, reviewers reported only 3 of the 9 major errors in their reviews, with almost a quarter of the reviewers reporting one or less.

*Schroter S, et al J R Soc Med 2008;101: 507-14.*



# Do tables and figures change much after peer review?

- Cohort of 61 RCTs submitted to The BMJ and published in The BMJ or elsewhere
- Numbers of tables & figures didn't change markedly between submission & publication
- *BMJ* peer reviewers seldom commented on tables or figures

*Schriger DL, Sinha R, Schroter S, et al. Ann Emerg Med 2006 Dec;48(6):750-6*

Should journals use reviewers suggested by authors?



# Trial on 10 journals, comparing reviewers: ASR vs. ESR

**Table 1.** Manuscripts and Reviewers by Journal

Journal	Total Manuscripts Submitted to the Journals in Study Period, No.		Study Manuscripts, No. (%)		Overall Journal Acceptance Rate, %	Reviews, No.	
	Sent for External Peer Review	Sent for External Peer Review and the Author Suggested a Reviewer	Included in Study*	Accepted for Publication†		Author Suggested	Editor Suggested
<i>Archives of Disease in Childhood</i>	542	209	37	23 (62)	33	42	41
<i>British Journal of Ophthalmology</i>	482	234	28	13 (46)	27	37	35
<i>British Journal of Sports Medicine</i>	267	261	60	14 (23)	32	70	77
<i>BMJ</i>	581	234	49	16 (33)	7	52	56
<i>Heart</i>	484	179	33	13 (39)	24	34	40
<i>Injury Prevention</i>	99	40	13	11 (85)	35	16	21
<i>Journal of Epidemiology and Community Health</i>	155	78	22	16 (73)	20	24	48
<i>Occupational and Environmental Medicine</i>	195	122	62	37 (60)	40	63	75
<i>Quality and Safety in Health Care</i>	116	59	15	6 (40)	27	15	17
<i>Tobacco Control</i>	93	55	10	7 (70)	25	13	12
<b>Total</b>	<b>3014</b>	<b>1471</b>	<b>329</b>	<b>156 (47.4)</b>		<b>366‡</b>	<b>422</b>

\*The following types of papers were excluded after reading the study abstract: resubmissions, companion papers, case studies, case series, animal studies, small clinical studies, and laboratory science. Manuscripts were included only if they resulted in at least 1 review completed by an editor-suggested reviewer and 1 completed by an author-suggested reviewer.

†Authors of 10 studies failed to resubmit revised manuscripts so the final decision was treated as reject.

‡Of the 366 total, 314 were selected by editors and 52 were selected by journal administrators.



# Results

- Compared ASRs & ESRs of 10 journals to investigate differences in review quality, timeliness, & recommendation for publication
- 788 reviews of 329 manuscripts
- Review quality & timeliness did not differ significantly
- ASRs were more likely to provide a favourable recommendation
- No evidence that these effects varied across journals

*Schroter S, et al. JAMA 2006;295:314-7.*



# Why do reviewers decline to review?

Survey of 551 reviewers at 5 BMJ journals

Most frequently cited factors for declining to review (n=258 who had recently declined):

- conflict with other workload (76%)
- having too many reviews for other journals (29%)
- tight deadline for completing review (30%)
- insufficient interest in the paper (21%)
- absence from work (19%)

*Tite L, Schroter S. Why do reviewers decline to review for journals? A survey. JECH 2007;61:9-12.*



# Survey of grant reviewers

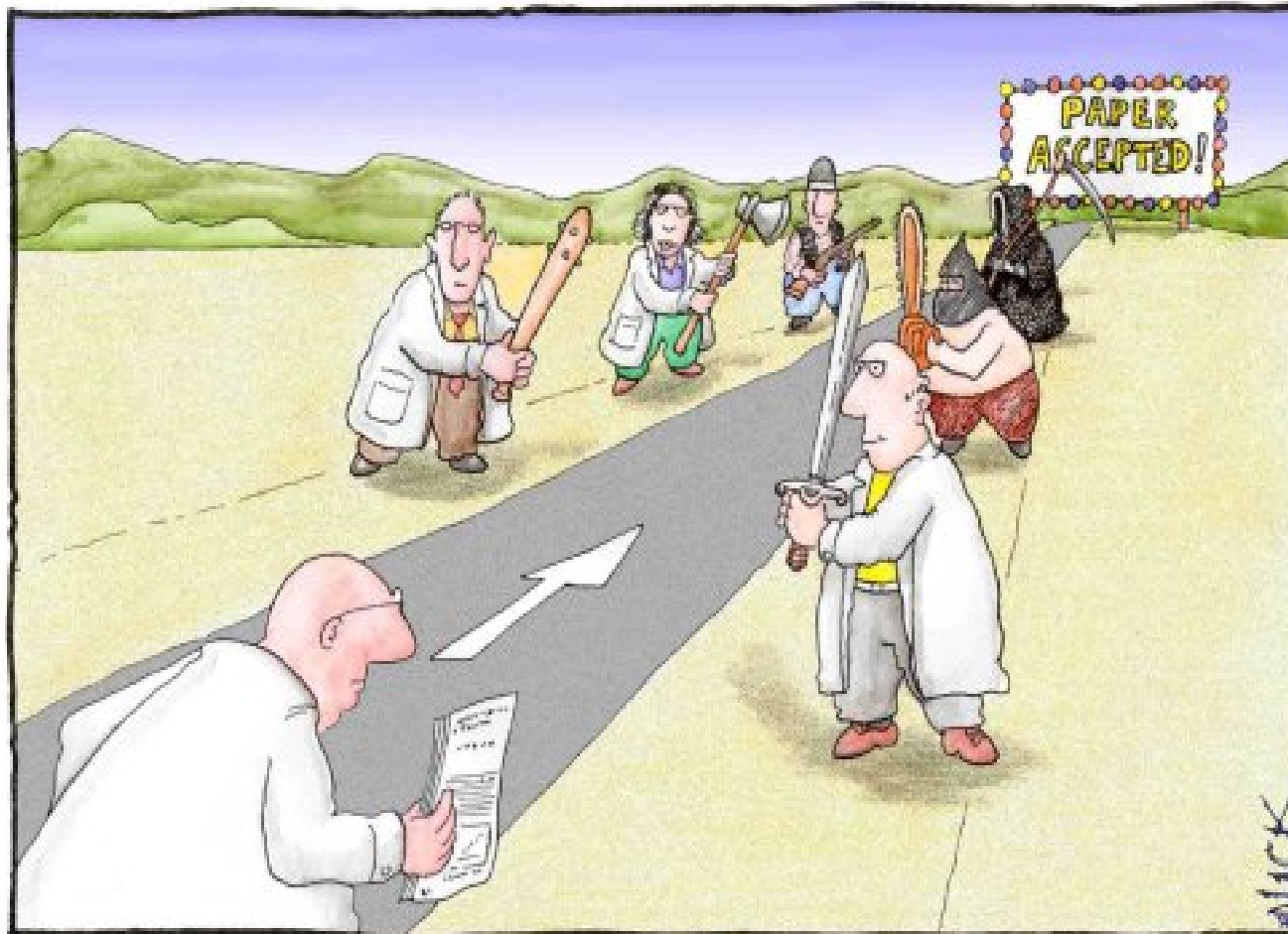
- 258/418 (62%) reviewers from 22 countries
- Only 7% were given protected time and 74% received no academic recognition for this
- Reviewers rated these factors as extremely/very important in deciding to review proposals:
  - 51% desire to support external fairness
  - 47% professional duty
  - 46% relevance of the proposal's topic
  - 43% wanting to keep up to date
  - 40% desire to avoid suppression of innovation
- Only 16% reported that guidance from funders was very clear
- 85% had not been trained in grant review and 64% wanted this

*Schroter S, et al. BMC Medicine 2010;8:62.*



# Experiment with patient reviews

- 2013: Patient partnership editor
- Dr. Tessa Richards has set up a patient panel
- All papers describing a RCT will also be reviewed by a patient



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

# Thank You

Web: [bmj.com](http://bmj.com)

Email: [wweber@bmj.com](mailto:wweber@bmj.com)

Twitter: [@WimWeber\\_BMJ](https://twitter.com/WimWeber_BMJ)

**BMJ**