Manuscript Peer Review

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How many of you have done/are doing manuscript peer review?

What manuscript peer reviewers contribute to the research ecosystem

- > 100 million hours in 2020
  - Equivalent to > 15 thousand years
- US based peer reviewers
  - > $USD 1.5 billion dollars
- UK based peer reviewers
  - ~ $USD 600 million dollars
- Chinese based peer reviewers
  - ~ $400 million dollars

Aczel *et al. Research Integrity and Peer Review* (2021) 6:14
https://doi.org/10.1186/s41073-021-00118-2

Research Integrity and Peer Review

RESEARCH Open Access

A billion-dollar donation: estimating the cost of researchers' time spent on peer review

Balazs Aczel[1*], Barnabas Szaszi[1*] and Alex O. Holcombe[2]

ACCOUNTABILITY IN RESEARCH, 2025
https://doi.org/10.1080/08989621.2025.2450451

Taylor & Francis
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Publisher and journal reciprocity for peer review: Not so much

David Moher [a] and Anna Catharina Vieira Armond [b]

[a]Centre of Journalology, Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Canada; [b]Metaresearch and Open Science Program, University of Ottawa Heart Institute, Ottawa, Canada

ABSTRACT

Peer reviewers provide a critical role in helping journals keep publishing. To understand the rewards and incentives offered to peer reviewers, we assessed what journals/publishers offered to one peer reviewer in biomedicine over a 1-month period (June 2023). After receiving 88 peer reviewer invitations, we noted that incentives were minimal. They include access to journal/publisher peer review training materials, reduced author processing charges of future article submissions, and free access to the journal/publisher website. Depending on the acceptance rate (30% or 50%) of recommendations to publish the article, peer review from this sample could generate anywhere from $USD 897,000 to $USD 1.45 million dollars when annualized. However, little, if any of this revenue is shared directly or indirectly with peer reviewers. With almost no reci-

ARTICLE HISTORY
Received 3 July 2024
Accepted 3 January 2025

KEYWORDS
Manuscript peer review; reciprocity; equity, article processing charge

How many of you have formal training in manuscript peer review?

Colonoscopy

- Trained
- Untrained

IS THIS A DOUBLE STANDARD?

Editorial peer review for improving the quality of reports of biomedical studies (Review)

Jefferson T, Rudin M, Brodney S, Davidoff F

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2006, Issue 1

Bruce *et al. BMC Medicine* (2016) 14:85
DOI 10.1186/s12916-016-0631-5

BMC Medicine

RESEARCH ARTICLE Open Access

Impact of interventions to improve the quality of peer review of biomedical journals: a systematic review and meta-analysis

Rachel Bruce[1,2,3†], Anthony Chauvin[2,3,4†], Ludovic Trinquart[2,3,5], Philippe Ravaud[1,2,3,5] and Isabelle Boutron[2,3,5*]

Abstract

Background: The peer review process is a cornerstone of biomedical research. We aimed to evaluate the impact of interventions to improve the quality of peer review for biomedical publications.

Methods: We performed a systematic review and meta-analysis. We searched CENTRAL, MEDLINE (PubMed), Embase, Cochrane Database of Systematic Reviews, and WHO ICTRP databases, for all randomized controlled trials (RCTs) evaluating the impact of interventions to improve the quality of peer review for biomedical publications.

Results: We selected 22 reports of randomized controlled trials, for 25 comparisons evaluating training interventions (n = 5), the addition of a statistical peer reviewer (n = 2), use of a checklist (n = 2), open peer review (i.e., peer reviewers informed that their identity would be revealed; n = 7), blinded peer review (i.e., peer reviewers blinded to author names and affiliation; n = 6) and other interventions to increase the speed of the peer review process (n = 3). Results from only seven RCTs were published since 2004. As compared with the standard peer review process, training did not improve the quality of the peer review report and use of a checklist did not improve the quality of the final manuscript. Adding a statistical peer review improved the quality of the final manuscript (standardized mean difference (SMD), 0.58; 95 % CI, 0.19 to 0.98). Open peer review improved the quality of the peer review report (SMD, 0.14; 95 % CI, 0.05 to 0.24), did not affect the time peer reviewers spent on the peer review (mean difference, 0.18; 95 % CI, −0.06 to 0.43), and decreased the rate of rejection (odds ratio, 0.56; 95 % CI, 0.33 to 0.94). Blinded peer review did not affect the quality of the peer review report or rejection rate. Interventions to increase the speed of the peer review process were too heterogeneous to allow for pooling the results.

Conclusion: Despite the essential role of peer review, only a few interventions have been assessed in randomized controlled trials. Evidence-based peer review needs to be developed in biomedical journals.

Keywords: Peer review process, Peer reviewers, Systematic review, Meta-analysis

Is peer review effective?

Not so much

The harms of manuscript peer review

- Takes many months and often up to a year for a result
- Rejected manuscript
  - Loss on promotion
  - Loss of tenure
  - Loss of degree (e.g., PhD)
- Negative institutional performance review for the faculty member
- Threats of violence, including death threats, to editors

Chauvin *et al. BMC Medicine*
DOI 10.1186/s12916-015-0395-3

BMC Medicine

RESEARCH ARTICLE Open Access

The most important tasks for peer reviewers evaluating a randomized controlled trial are not congruent with the tasks most often requested by journal editors

Anthony Chauvin[2,3†], Philippe Ravaud[1,2,3], Gabriel Baron[1,3], Caroline Barnes[2,3] and Isabelle Boutron[1,2,3*†]

Abstract

Background: The peer review process is a cornerstone of biomedical research publications. However, it may fail to allow the publication of high-quality articles. We aimed to identify and sort, according to their importance, all tasks that are expected from peer reviewers when evaluating a manuscript reporting the results of a randomized controlled

What are the practical implications for clinicians using interventions that are ineffective

- Professional and Systemic Risks
  - Clinicians may face professional criticism, legal risk, or reputational harm if patients are harmed by ineffective care.
  - Healthcare systems may suffer from inefficiency and reduced public trust, and may have difficulty de-implementing entrenched but ineffective practices
- The use of ineffective interventions leads to patient harm, wasted resources, higher costs, loss of trust, delayed adoption of effective care, and systemic inefficiencies.

Article

Examining AI Guidelines in Canadian Universities: Implications on Academic Integrity in Academic Writing

Faith Marcel
Niagara College
https://orcid.org/0000-0002-7163-5797

Phoebe Kang
University of Toronto Mississauga
https://orcid.org/0000-0002-1215-0917

Results

- Policy Gaps: While guidelines and resources are rapidly emerging, few universities have updated formal academic integrity policies to reflect AI's impact. The responsibility for defining and communicating "authorized" AI use often falls to individual instructors.
- Implications: Institutions are encouraged to develop more comprehensive support, benchmark best practices, and foster critical discussions on AI literacy and ethical writing in the digital era

What is manuscript peer review

Definitions of manuscript peer review

- ICMJE
  - "the critical assessment of manuscripts submitted to journals by experts who are usually not part of the editorial staff"
- Taylor and Francis
  - "Peer review acts as a form of quality control for academic journals and provides authors with constructive feedback to improve their work before publication"
- While definitions are broadly used, there is no single, globally agreed-upon standard for what constitutes peer review

Bruce *et al. BMC Medicine* (2016) 14:85
DOI 10.1186/s12916-016-0631-5

BMC Medicine

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Conclusion: Despite the essential role of peer review, only a few interventions have been assessed in randomized controlled trials. Evidence-based peer review needs to be developed in biomedical journals.

Keywords: Peer review process, Peer reviewers, Systematic review, Meta-analysis

As suggested by Bruce and colleagues, an internationally agreed-upon definition of manuscript peer review is a necessary prerequisite to optimally facilitate this type of research

Definitions in clinical medicine

- Example - Atrial fibrillation
  - International guidelines, such as the 2023 ACC/AHA/ACCP/HRS and those from the European Society of Cardiology (ESC), agree on classifying AF by its duration and clinical context

Take some action

Individual (you control) and system

ELSEVIER

Journal of Clinical Epidemiology 161 (2023) 65–73

Journal of Clinical Epidemiology

ORIGINAL ARTICLE

Limited online training opportunities exist for scholarly peer reviewers

Jessie V. Willis[a,b], Kelly D. Cobey[c,d], Janina Ramos[a,e], Ryan Chow[a,b], Jeremy Y. Ng[a], Mohsen Alayche[a,b], David Moher[a,d,*]

[a]*Centre for Journalology, Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Canada*
[b]*Department of Medicine, Faculty of Medicine, University of Ottawa, Ottawa, Canada*
[c]*University of Ottawa Heart Institute, Ottawa, Canada*
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Accepted 29 June 2023; Published online 6 July 2023

Abstract

Objectives: To create a comprehensive list of all openly available online trainings in scholarly peer review and to analyze their characteristics.

Study Design and Setting: A systematic review of online training material in scholarly peer review openly accessible between 2012 and 2022. Training characteristics were presented in evidence tables and summarized narratively. A risk of bias tool was purpose-built for this study to evaluate the included training material as evidence-based.

Results: Fourty-two training opportunities in manuscript peer review were identified, of which only twenty were openly accessible. Most were online modules (n = 12, 60%) with an estimated completion time of less than 1 hour (n = 13, 65%). Using our ad hoc risk of bias tool, four sources (20%) met our criteria of evidence-based.

Conclusion: Our comprehensive search of the literature identified 20 openly accessible online training materials in manuscript peer review. For such a crucial step in the dissemination of literature, a lack of training could potentially explain disparities in the quality of scholarly publishing.

Keywords: Scholarly communication; Scientific publishing; Peer review training resources; Peer review; Training

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Abstract	Chandran	Peer Review of Manuscri	2013	USA	academics	journal rev	Not report	Online module	No	30 min - 1 hr	No	No	No	No/Unsure	
Video	Sainani	Doing a peer review	2017	USA	academics	All researc	Not report	Online video (asynch	Yes, Writir	10-30 min	certificate	No	Arabic, Fre	No/Unsure	
Video	Veis	Journal Peer Review: Tip	2018	USA	society	journal rev	Not report	Webinar/Zoom	No	30 min - 1 hr	No	No	No	No/Unsure	
Website	Foster	Open Peer Review	2018	Multiple	Other	No	Not report	Online module	No	30 min - 1 hr	Badge afte	No	No	No/Unsure	
Abstract	Tokalić	A peer review card excha	2018	Croatia	academics	All researc	Private	Card game (Other)	No	10-30 min	No	No	No	Observational study	
Article	Chauvin	Accuracy in detecting ina	2019	France	academics	early care	None	Online module	No	10-30 min	CME credi	Regist	No	cross-sectional study	
Video	Lovick	How to Be A Peer Review	2020	USA	publisher	No	Not report	Webinar/Zoom	No	30 min - 1 hr	No	No	No	No/Unsure	
Video	Stiller-Reeve	How to master peer revi	2021	Germany	publisher	No	Not report	Webinar/Zoom	No	1-2 hours	No	No	No	No/Unsure	
Website	Elsevier	Certified Peer Reviewer (	2021	Netherlan	publisher	No	Not report	Online module	No	4-8 hours	certificate	Regist	Chinese	No/Unsure	
Video	Marshall	Peer Reviewer Training -	2021	Multiple	Other	No	Not report	Webinar/Zoom	Yes, How t	1-2 hours	No	No	Chinese	No/Unsure	
Website	Taylor & Francis	Excellence in Peer Review	2022	Multiple	publisher	All researc	Not report	Online module, Work	No	1-2 hours	certificate	No (O	No	No/Unsure	
Website	Nature Masterclass	Focus on Peer Review —	not report	Germany	publisher	early care	Not report	Online module	No	2-4 hours	certificate	Regist	No	No/Unsure	
Website	Web of Science	An Introduction to Peer F	not report	UK	Other	early care	Not report	Online module	Yes, Web	10-30 min	certificate	Regist	No	No/Unsure	
Website	University of Manchester	My Research Essentials:	not report	UK	academics	All researc	Not report	Online module	Yes, My Re	10-30 min	No	No	No	No/Unsure	
Website	Springer Nature	How to Peer Review	not report	Germany	publisher	All researc	Not report	Online module	Yes, Autho	10-30 min	No	No	No	No/Unsure	
Website	The BMJ	Reviewer training materi	not report	UK	journal	journal rev	Not report	Website of resources	No	30 min - 1 hr	No	No	No	No/Unsure	
Website	Optica	Reviewer certification	not report	USA	publisher	journal rev	Not report	Online module	No	30 min - 1 hr	certificate	No	No	No/Unsure	
Website	ASHA Journals	The Peer Review Excelle	not report	USA	publisher	journal rev	Not report	Online module	No	30 min - 1 hr	No	No	No	No/Unsure	
Website	Wolters Kluwer	Peer Reviewer Training C	not report	Netherlan	publisher	All researc	Not report	Online module	No	2-4 hours	No	No	No	No/Unsure	

Peerspectives

Engaging doctoral students in peer review: a pre-post study evaluating the effectiveness of the "Peerspectives" course on review quality, knowledge and skills

Jessica L. Rohmann, Nadja Wülk, Kerstin Rubarth, Hannah Grillmaier, Iman Abdikarim, Mariana Lopes Simoes, Sara Schroter, Marco Piccininni, Tobias Kurth, Toivo Glatz

doi: https://doi.org/10.1101/2025.02.11.25322060

Posted February 13, 2025.

This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should *not* be used to guide clinical practice.

Subject Area

Medical Education

https://www.medrxiv.org/content/10.1101/2025.02.11.25322060v1

Use a reporting guideline

Checklist

Flow diagram

Explicit text to guide authors in reporting a specific type of research, developed using explicit methodology

A consensus process, which involves obtaining agreement among stakeholders (e.g., journal editors, methodologists and content experts) should be a crucial characteristic

Carefully developed reporting guidelines provide authors with a minimum set of items that need to be addressed when reporting a study

Use evidence to inform the selection of item whenever possible

nature medicine

Consensus Statement

https://doi.org/10.1038/s41591-025-03635-5

CONSORT 2025 statement: updated guideline for reporting randomized trials

Received: 28 February 2025

Accepted: 5 March 2025

Published online: 15 April 2025

Check for updates

A list of authors and their affiliations appears at the end of the paper

Well-designed and properly executed randomized trials are considered the most reliable evidence on the benefits of healthcare interventions. However, there is overwhelming evidence that the quality of reporting is not optimal. The CONSORT (Consolidated Standards of Reporting Trials) statement was designed to improve the quality of reporting and provides a minimum set of items to be included in a report of a randomized trial. CONSORT was

Table 1 | CONSORT 2025 checklist to include when reporting a randomized trial

Section/topic	No	CONSORT 2025 checklist item description
Title and abstract		
Title and structured abstract	1a	Identification as a randomized trial
	1b	Structured summary of the trial design, methods, results, and conclusions
Open science		
Trial registration	2	Name of trial registry, identifying number (with URL) and date of registration
Protocol and statistical analysis plan	3	Where the trial protocol and statistical analysis plan can be accessed
Data sharing	4	Where and how the individual de-identified participant data (including data dictionary), statistical code and any other materials can be accessed
Funding and conflicts of interest	5a	Sources of funding and other support (eg, supply of drugs), and role of funders in the design, conduct, analysis and reporting of the trial
	5b	Financial and other conflicts of interest of the manuscript authors
Introduction		
Background and rationale	6	Scientific background and rationale
Objectives	7	Specific objectives related to benefits and harms
Methods		
Patient and public involvement	8	Details of patient or public involvement in the design, conduct and reporting of the trial
Trial design	9	Description of trial design including type of trial (eg, parallel group or crossover), allocation ratio, and framework (for example, superiority, equivalence, non-inferiority or exploratory)
Changes to trial protocol	10	Important changes to the trial after it commenced including any outcomes or analyses that were not prespecified, with reason
Trial setting	11	Settings (such as community or hospital) and locations (eg, countries or sites) where the trial was conducted
Eligibility criteria	12a	Eligibility criteria for participants
	12b	If applicable, eligibility criteria for sites and for individuals delivering the interventions (eg, surgeons or physiotherapists)
Intervention and comparator	13	Intervention and comparator with sufficient details to allow replication. If relevant, where additional materials describing the intervention and comparator (eg, intervention manual) can be accessed
Outcomes	14	Prespecified primary and secondary outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (for example, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome
Harms	15	How harms were defined and assessed (eg, systematically or non-systematically)
Sample size	16a	How sample size was determined, including all assumptions supporting the sample size calculation
	16b	Explanation of any interim analyses and stopping guidelines
Randomization:		
Sequence generation	17a	Who generated the random allocation sequence and the method used
	17b	Type of randomization and details of any restriction (eg, stratification, blocking and block size)
Allocation concealment mechanism	18	Mechanism used to implement the random allocation sequence (eg, central computer/telephone; sequentially numbered, opaque, sealed containers), describing any steps to conceal the sequence until interventions were assigned
Implementation	19	Whether the personnel who enrolled and those who assigned participants to the interventions had access to the random allocation sequence
Blinding	20a	Who was blinded after assignment to interventions (eg, participants, care providers, outcome assessors, data analysts)
	20b	If blinded, how blinding was achieved and description of the similarity of interventions
Statistical methods	21a	Statistical methods used to compare groups for primary and secondary outcomes, including harms
	21b	Definition of who is included in each analysis (eg, all randomized participants), and in which group
	21c	How missing data were handled in the analysis
	21d	Methods for any additional analyses (eg, subgroup and sensitivity analyses), distinguishing prespecified from post hoc
Results		
Participant flow, including flow diagram	22a	For each group, the numbers of participants who were randomly assigned, received intended intervention, and were analyzed for the primary outcome
	22b	For each group, losses and exclusions after randomization, together with reasons
Recruitment	23a	Dates defining the periods of recruitment and follow-up for outcomes of benefits and harms
	23b	If relevant, why the trial ended or was stopped

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Your one-stop-shop for writing and publishing high-impact health research

find reporting guidelines | improve your writing | join our courses | run your own training course | enhance your peer review | implement guidelines

Library for health research reporting

The Library contains a comprehensive searchable database of reporting guidelines and also links to other resources relevant to research reporting.

- Search for reporting guidelines
- Not sure which reporting guideline to use?
- Reporting guidelines under development
- Visit the library for more resources

Reporting guidelines for main study types

Randomised trials	CONSORT	Extensions
Observational studies	STROBE	Extensions
Systematic reviews	PRISMA	Extensions
Study protocols	SPIRIT	PRISMA-P
Diagnostic/prognostic studies	STARD	TRIPOD
Case reports	CARE	Extensions
Clinical practice guidelines	AGREE	RIGHT
Qualitative research	SRQR	COREQ
Animal pre-clinical studies	ARRIVE	
Quality improvement studies	SQUIRE	Extensions
Economic evaluations	CHEERS	Extensions

See all 692 reporting guidelines

Toolkits

Find practical help and resources to support you in:

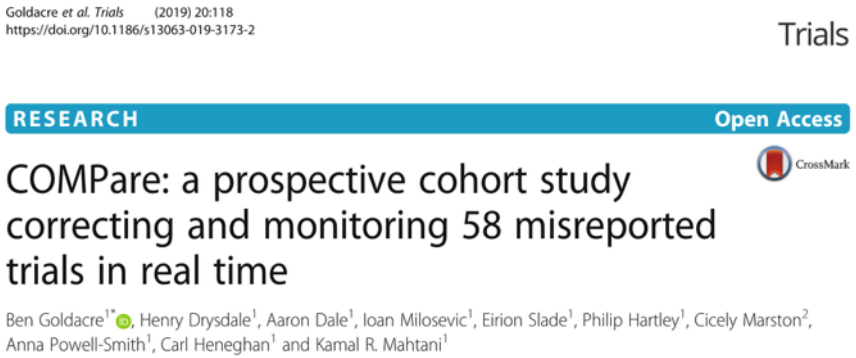
- Writing research
- Peer reviewing research
- Using guidelines in your journal
- How to develop a reporting guideline

View all Toolkits

https://www.equator-network.org/

- Take a course on research integrity
  - One of my institutions

Switched primary outcomes



Goldacre *et al. Trials* (2019) 20:118
https://doi.org/10.1186/s13063-019-3173-2

Trials

RESEARCH Open Access

CrossMark

COMPare: a prospective cohort study correcting and monitoring 58 misreported trials in real time

Ben Goldacre[1*], Henry Drysdale[1], Aaron Dale[1], Ioan Milosevic[1], Eirion Slade[1], Philip Hartley[1], Cicely Marston[2], Anna Powell-Smith[1], Carl Heneghan[1] and Kamal R. Mahtani[1]

67 TRIALS CHECKED TO DATE

9 TRIALS WERE PERFECT

301 OUTCOMES NOT REPORTED

357 NEW OUTCOMES SILENTLY ADDED

)n average, each trial reported just 62.0% of its specified outcomes. And on average, each trial ilently added 5.3 new outcomes.

58 LETTERS SENT

6 LETTERS PUBLISHED

31 LETTERS UNPUBLISHED AFTER 4 WEEKS

16 LETTERS REJECTED BY EDITOR

- 365 ‘novel’ outcomes were reported without declaration
- Only 29 studies had a pre-trial protocol publicly available

Hold an Annual Publication School Focused on RI and PR

EQUATOR Canada Publication School

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EQUATOR Canada Publication School

The EQUATOR Canada Publication School is a highly rated, intensive, and interactive course that introduces course attendees to the principles and practice of publication science. This course is designed for both patient partners who have had experience with working with a research team and trainees/early career researchers. Course attendees gain an understanding of the myriad of factors that can influence and impact the integrity of the scientific record and access strategies and resources to deal with them.

> ***"Was such a pleasure to learn from and with this keen group of patient partners and learners! The format, content and facilitators were great. Thrilled with the new knowledge & tools to help make my research more relevant and impactful." – Myrene Lychek, January 2022 Course Participant***

View more feedback from course participants on Twitter using #EQPubSchool.
Topics include:

- Patient partnership in research and publishing
- How do biomedical journals operate?
- Publication ethics, authorship, and research integrity
- An introduction to reporting guidelines

Moher *et al. BMC Medicine* (2017) 15:167
DOI 10.1186/s12916-017-0927-0

BMC Medicine

CORRESPONDENCE Open Access

Core competencies for scientific editors of biomedical journals: consensus statement

David Moher[1,2*], James Galipeau[3], Sabina Alam[4], Virginia Barbour[5], Kidist Bartolomeos[6], Patricia Baskin[7,8], Sally Bell-Syer[9,10], Kelly D. Cobey[1,2,11], Leighton Chan[12], Jocalyn Clark[13], Jonathan Deeks[14], Annette Flanagin[15], Paul Garner[16], Anne-Marie Glenny[17], Trish Groves[18], Kurinchi Gurusamy[19], Farrokh Habibzadeh[20,21,22], Stefanie Jewell-Thomas[23], Diane Kelsall[24], José Florencio Lapeña Jr[22,25,26,27], Harriet MacLehose[28], Ana Marusic[29,30], Joanne E. McKenzie[31], Jay Shah[32,33,34], Larissa Shamseer[1,2], Sharon Straus[35], Peter Tugwell[2,36,37], Elizabeth Wager[38,39], Margaret Winker[22] and Getu Zhaori[40]

- The paper establishes, for the first time, a formal set of 14 core competencies required for scientific editors of biomedical journals, organized into three major areas: editor qualities and skills, publication ethics and research integrity, and editorial principles and processes.
  - Demonstrate knowledge related to the integrity of research and publishing and apply best practices in dealing with research or publication misconduct, misbehavior, and questionable practices. (e.g., identifying and addressing breaches in publication ethics, managing conflicts of interest, and ensuring adherence to reporting guidelines)

Training physicians

- Residency training is based on an agreed upon set of core competencies – CANMEDS – Scholar Role: Key Competencies
  - Critically evaluate the integrity, reliability, and applicability of health-related research and literature
- These competencies are examined
  - Royal college examination
- Licensure
- Continuing Medical Education

Core competencies for manuscript peer reviewers

- Trained as a physician or allied health professional
- Graduate course in journalology (publication science)
- Graduate training in epidemiology
- At least two graduate courses in epidemiology
  - Selective reporting •
- At least two graduate courses in biostatistics
- Training in diplomacy/interpersonal relations
- Training in research integrity
- Have an established (or establishing) area of content expertise and/or methods expertise
- Understanding the difference between being an investigator and peer reviewer
- Extensive knowledge of reporting guidelines

What manuscript peer reviewers contribute to the research ecosystem

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  - Equivalent to > 15 thousand years
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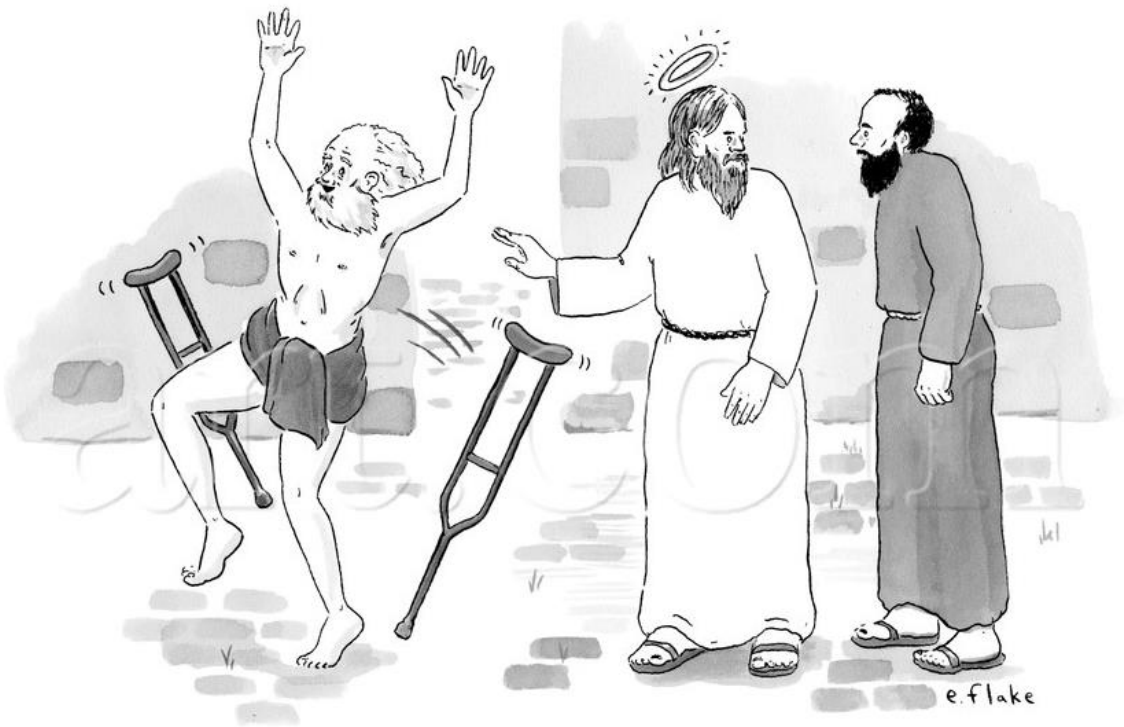
A billion-dollar donation: estimating the cost of researchers' time spent on peer review

Balazs Aczel[1*], Barnabas Szaszi[1*] and Alex O. Holcombe[2]

Thank you



"Yeah, but good luck getting it peer-reviewed."