

RCR8: Peer Review of Grants and Papers

Matthew DeCamp, MD PhD

Associate Professor

Center for Bioethics & Humanities and Division of General Internal
Medicine

University of Colorado



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

Housekeeping

Zoom Etiquette:

- Silence personal devices.
- Stay muted when not talking.
- Set up in a quiet location.
- Remain attentive. Avoid checking email/phone/web.
- Use the Chat function to ask questions or get technical help.
- Use your full name, not an alias.

Receiving credit for attendance:

To satisfy the [NIH Requirement for Instruction in the Responsible Conduct of Research](#), the following are required in order to receive credit for attendance:



Attend the full 90 minutes of the training. Attending any 8 out of the 9 RCR seminars we offer will satisfy the NIH requirement.



Keep your video camera on throughout the session. NIH requirements for RCR training specify face-to-face discussion.



Participate interactively throughout the session. Participate in discussions, respond to polls, and sign the attendance sheet (link will be distributed in the Chat).

Welcome Poll: Who is the audience?

- 1. Select your primary university position or affiliation:
 - PI/Faculty
 - PRA/Researcher
 - Study Coordinator
 - Regulatory/Admin Support
 - Student/Trainee/Post-doc
 - Other
- 2. Are you primarily working on campus or remotely/from home?
 - On campus
 - Remotely



Disclosures

- **I have no active relevant conflicts of interest to disclose.**
- **My research has been funded by the NIH, AHRQ, Greenwall Foundation, Elrha's Research for Health in Humanitarian Crises (R2HC) program, and the American College of Physicians.**



Objectives

By the end of this presentations, participants will be able to:

- Explain the fundamental ethical principles and concepts that underly peer review of papers and grants
- Apply these principles to case studies in peer review

Agenda

TIME	TOPIC
20 minutes	Ethical principles of peer review applied to publication
25 minutes	CASE 1
20 minutes	Ethical principles of peer review applied to grants
25 minutes	CASE 2



Ethical Principles of Peer Review

Applied to publication



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

Poll Question 1

In the past 12 months, how many times have you served as a peer reviewer for a manuscript?

- a. 0
- b. 1-5
- c. 5-10
- d. More than 10



Poll Question 2

Have you experienced an “ethics challenge” or “ethics dilemma” in reviewing a manuscript?

- a. No, never.
- b. Yes, once
- c. Yes, on more than one occasion.



Peer Review in the News

MEDPAGE TODAY*

Opinion > Revolution and Revelation

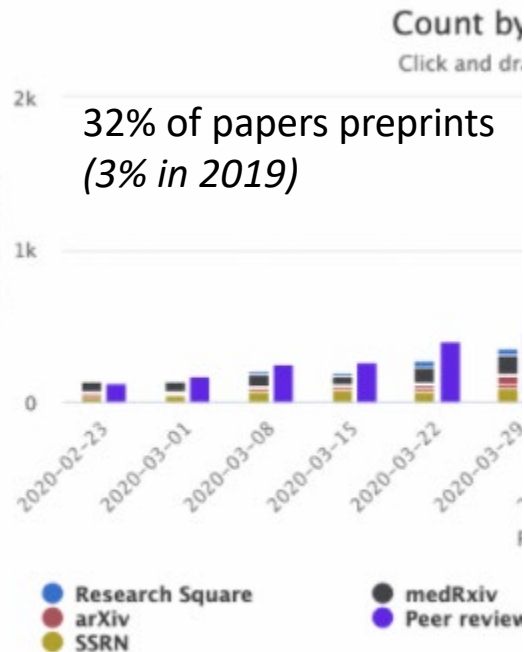
Does Peer Review Still Matter in the Era of COVID-19?

— Milton Packer describes the impossible task of vetting medical research

by Milton Packer MD May 13, 2020



<https://www.medpagetoday.com>



<https://asapbio.org/preprint>

COVID-19 preprints per week from http

Debunking Bad COVID-19 Research

MIT Press and the University of California, Berkeley, are leading an effort to rapidly review research related to the pandemic and stop the spread of misinformation.

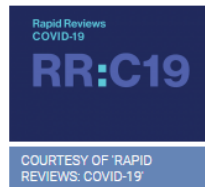
By Lindsay McKenzie // June 29, 2020

To understand and prevent the spread of the COVID-19 pandemic, researchers are working at a rapid clip.

As funders scale COVID-19 research grants and expedite application processes, publishers too are trying to move quickly to ensure that academics, policy makers and the public can access the latest research developments in a timely fashion.

This rush to disseminate information is exposing cracks in the scholarly research system. Academic journals have not been fast-moving historically, and traditional peer review can take months. To make research findings available quickly, many researchers are publishing versions of papers that have not yet been peer reviewed on preprint servers such as arXiv, bioRxiv and SSRN.

<https://www.insidehighered.com/news/2020/06/29/new-mit-press-journal-debunk-bad-covid-19-research>



Search Over 22,000 Jobs

Keyword or Location

Search

[Browse all jobs on Inside Higher Ed Careers »](#)



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

Why Peer Review?

Ideally, peer review plays a critical role within the fundamental Mertonian norms of science.

Communism

Scientific knowledge as a common good

Universalism

All scientific claims are evaluated by the same standard

Disinterestedness

Scientists are to be 'disinterested' in their findings

Organized
Skepticism

Critical scrutiny of scientific findings

*PEER
REVIEW*



Peer Review is a Privilege – and Responsibility

While definitions of a “profession” vary, it has a number of the following ingredients:

- (1) Specialized body of knowledge
- (2) Commitment to public interest
- (3) ~~Stated (“Professed”) values~~
- (4) Self-regulation

Here again, peer review can be seen as a critical part of the self-regulation of science as a profession – which means it is a privilege and a responsibility.



Foundational Ethical Principles of Peer Review

HUMILITY

IMPARTIALITY

RESPONSIBILITY
TO SCIENCE
Not the author

CONFIDENTIALITY

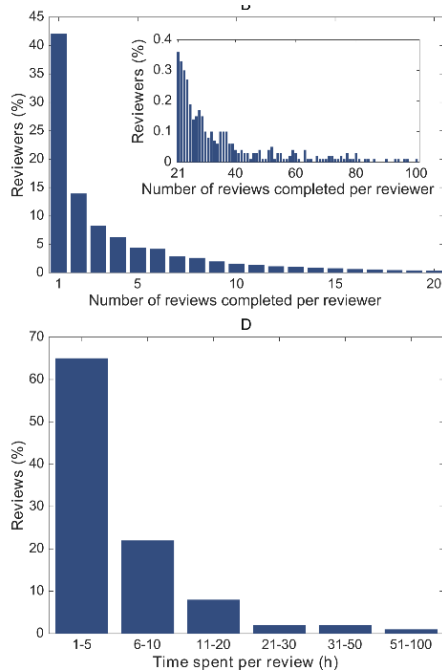
TIMELINESS



Foundational Ethical Principles of Peer Review

HUMILITY

HUMILITY means only accepting for review those manuscripts in which you have the expertise to do so.



Unfortunately, data indicate a limited pool of peer reviewers – with 20% of scientists performing up to 60-90% of reviews.

→ *In some surveys, editors think junior scientists perform better reviews.*

Kovanis M, Porcher R, Ravaud P, Trinquart L (2016) The Global Burden of Journal Peer Review in the Biomedical Literature: Strong Imbalance in the Collective Enterprise. PLoS ONE 11(11): e0166387. <https://doi.org/10.1371/journal.pone.0166387>



Foundational Ethical Principles of Peer Review

IMPARTIALITY

IMPARTIALITY requires disclosure and management of conflicts of interest – real or perceived.

TYPE OF CONFLICT	EXAMPLE
Financial	Owning stock/financial interest in the product under consideration (or the sponsor)
Institutional	Reviewing research by someone else at your own institution
Relational	Reviewing research of a collaborator or mentee
Scientific	Reviewing research that is “too close” to your own
Personal belief	Reviewing research that you “just don’t believe” (i.e., taking skepticism too far)

It is critical to discuss these openly with editors, and err on caution, at any point in the process.

Foundational Ethical Principles of Peer Review

RESPONSIBILITY
TO SCIENCE
Not the author

The reviewer's responsibility is to *science* and the *journal* – not to be an advocate for the author.

Nevertheless, this does not justify rude, meanspirited, or nitpicking comments (which appear to be levied against certain people over others). Be constructive!
Some advocate for sparing use of the “Confidential Comments to Editor” box.

Silbiger NJ, Stubler AD (2019) Unprofessional peer reviews disproportionately harm underrepresented groups in STEM. *PeerJ*. 7:e8247

Beaumont L. Peer reviewers need a code of conduct too. <https://www.nature.com/articles/d41586-019-02492-w>



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

Foundational Ethical Principles of Peer Review

CONFIDENTIALITY

CONFIDENTIALITY means keeping the manuscript and its content confidential.

Practically, confidentiality comes with challenges:

- It is OK to have a junior scientist/mentee help IF you ask the journal's permission first AND you acknowledge that contribution.
- It is not OK to use experimental findings for your own gain, though this can be a very gray area.

Co-reviewing and ghostwriting by early career researchers in the peer review of manuscripts

Gary S. McDowell, John Knutsen, June Graham, Sarah K. Oelker, Rebecca S. Lijek

doi: <https://doi.org/10.1101/617373>

Now published in eLife doi: 10.7554/eLife.48425



Foundational Ethical Principles of Peer Review

TIMELINESS

TIMELINESS means completing your review on time.

Timely reviews can be critical for junior and early career scientists, as they often rely on publications for early advancement, opportunities and so on.



Not Just Theoretical Concerns

Table 1

Journal peer review survey data

Have any of the following ever happened to you during the peer review process?		
	% Yes	SE
A reviewer was incompetent	61.8	3.3
A reviewer was biased	50.5	3.4
A reviewer required you to include unnecessary references to his/her publication(s)	22.7	2.8
Comments from reviewers included personal attacks	17.7	2.6
A reviewer delayed the review so that he/she could publish an article on the same topic	9.6	2.0
A reviewer breached confidentiality	6.8	1.7
A reviewer used your ideas, data, or methods without your permission	4.5	1.5

Resnik DB, Gutierrez-Ford C, Peddada S. Perceptions of ethical problems with scientific journal peer review: an exploratory study. *Sci Eng Ethics*. 2008 Sep;14(3):305-10. doi: 10.1007/s11948-008-9059-4.



The Future of Peer Review

There is a need to explore different models of peer review and cross-check them against these ethical principles.

TIMING	PrePrints	Pre-publication	Post-Publication
IDENTIFIABILITY	Double blind	Single blind	Open
MEDIATION	Editors mediate all interactions between reviewers and authors	Reviewers interact with one another openly	Reviewers and authors all interact with one another openly
PUBLICATION	Peer reviews are not published	Peer reviews are published but not signed	Peer reviews are published and signed
FACILITATION	Review facilitated by a journal	Review facilitated by a third-party	Review facilitated by authors
OWNERSHIP	Review owned by a journal or third party	Review owned by the authors of the reviews	Shared or mixed ownership of reviews

https://publicationethics.org/files/Ethical_Guidelines_For_Peer_Reviewers_2.pdf

For example, in one study, open review was not associated with quality of review but was associated with higher declination of requests and longer review time.

van Rooyen S, Delamothe T, Evans SJ. Effect on peer review of telling reviewers that their signed reviews might be posted on the web: randomised controlled trial. BMJ. 2010 Nov 16;341:c5729. doi: 10.1136/bmj.c5729.



Case 1

A complicated peer review



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

A Challenging Peer Review

Imagine you are asked to conduct peer review of a paper that is clearly in your field of expertise. When you receive the request, you notice that a former mentee is one of the authors of the paper.

- (1) What factors should you consider in determining whether you have a conflict of interest in this case?
- (2) How can you go about finding more information to help you make your decision?



A Challenging Peer Review (continued)

You have accepted the review. As you start reviewing the manuscript, you realize that the research is actually quite close to your own. In fact the authors conducted an experiment and its results could inform your own research to ‘take it to the next level.’

Oddly, though, you recall a recent conference where you saw that experiment conducted - with exactly the opposite outcome. This makes you start to question the validity of the findings.

- (1) Now that you have read the paper, is this a new potential conflict of interest? If you think so, what should you do?**
- (2) One thought crosses your mind: Maybe you can reach out to your former mentee. Should you?**
- (3) You seem to question whether there is scientific misconduct at play. How should you respond?**



A Challenging Peer Review (continued)

You decided to do the review anyway, and you send in your review, expressing to the editors and the authors concerns about the findings. And, you took the time to substantiate your claims with relevant citations. Now the editors write back, and ask two things. First, they want to edit your review before sending it to the authors. And second, they want to use some of your comments in an editor's note that will accompany the paper.

- (1) Is it ever permissible for journal editors to edit a review? (What if the content were rude, biased, or destructive?)
- (2) Who “owns” the content of anonymous peer reviews?



Ethical Principles of Peer Review

Applied to grants



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

Poll Question 3

The grant review process at the NIH is fair and unbiased.

- a. Strongly disagree
- b. Disagree
- c. Neither agree nor disagree
- d. Agree
- e. Strongly agree



Controversies in Grant Review

Open Mike

Helping connect you with the NIH perspective, and helping connect us with yours

Posted on September 2, 2020 by Mike Lauer

Case Study in Review Integrity: Abuse of Power

A series to raise awareness, encourage dialogue, and address challenges in maintaining integrity in peer review.

What would you do if, as the Dean of Research, you received a complaint from postdocs, and junior faculty reported that the Dean had been making critiques for a senior faculty member?

We were so impressed by the careful handling of this case by the NIH official recently that we wanted to share this case (with fictionalized names).

Dr. Lee, Dean of Research at a major research institution, received a complaint against Dr. Williams, a Distinguished Professor. According to the complaint, Dr. Williams was using his laboratory with requests for them to come to his laboratory. The complaint indicated that Dr. Williams was in the department to do the same. All had been practicing or their evaluations to anyone else.

Dr. Williams had clearly violated the NIH conflict of interest policy before gaining access to grant applications.

<https://nexus.od.nih.gov/all/case-study-in-review-integrity-abuse-of-power/>

The screenshot shows the PNAS website interface. At the top, the PNAS logo and the full name of the journal are displayed. A search bar is located on the right. Below the header, a navigation menu includes links for Home, Articles, Front Matter, News, Podcasts, and Authors. The 'Articles' section is active, showing a list of new research articles. The featured article is titled 'Topic choice contributes to the lower rate of NIH awards to African-American/black scientists' by Travis A. Hoppe, Aviva Litovitz, Kristine A. Willis, Rebecca A. Meseroll, Matthew J. Perkins, and B. Ian Hutcheon. The article is published in Science Advances, Vol. 5, no. 10, eaaw7238, DOI: 10.1126/sciadv.aaw7238.

PNAS Proceedings of the National Academy of Sciences of the United States of America

Keyword, Author, or

Home Articles Front Matter News Podcasts Authors

NEW RESEARCH IN Physical Sciences Social Sciences

RESEARCH ARTICLE

Lo RESEARCH ARTICLE | SCIENTIFIC COMMUNITY

the Topic choice contributes to the lower rate of NIH awards to African-American/black scientists

id Eli Mitch PNAS

Edited 23, 2019

id Travis A. Hoppe^{1,2}, Aviva Litovitz^{1,2}, Kristine A. Willis^{3,*}, id Rebecca A. Meseroll^{1,2}, Matthew J. Perkins^{1,2}, id B. Ian Hut...

+ See all authors and affiliations

Science Advances 09 Oct 2019: Vol. 5, no. 10, eaaw7238 DOI: 10.1126/sciadv.aaw7238

A Brief Primer on NIH Scoring

Categories: Overall Impact; Significance; Innovation; Investigators; Approach; Environment

Impact	Score	Descriptor	Additional Guidance on Strengths/Weaknesses
High	1	Exceptional	Exceptionally strong with essentially no weaknesses
	2	Outstanding	Extremely strong with negligible weaknesses
	3	Excellent	Very strong with only some minor weaknesses
Medium	4	Very Good	Strong but with numerous minor weaknesses
	5	Good	Strong but with at least one moderate weakness
	6	Satisfactory	Some strengths but also some moderate weaknesses
Low	7	Fair	Some strengths but with at least one major weakness
	8	Marginal	A few strengths and a few major weaknesses
	9	Poor	Very few strengths and numerous major weaknesses
Non-numeric score options: NR = Not Recommended for Further Consideration DF = Deferred, AB = Abstention, CF = Conflict, NP = Not present, ND = Not Discussed			
Minor Weakness: An easily addressable weakness that does not substantially lessen impact			
Moderate Weakness: A weakness that lessens impact			
Major Weakness: A weakness that severely limits impact			

Thanks to Paula Hoffman for this slide.



Overall Impact:

The likelihood for a project to exert a sustained, powerful influence on research field(s) involved

Overall Impact	High	Medium	Low
Score	1 2 3	4 5 6	7 8 9

Evaluating Overall Impact:

Consider the 5 criteria: significance, investigator, innovation, approach, environment (weighted based on reviewer's judgment) and other score influences, e.g. human subjects, animal welfare, inclusion plans, and biohazards

e.g. Applications are addressing a problem of high importance/interest in the field. May have some or no weaknesses.

e.g. Applications may be addressing a problem of high importance in the field, but weaknesses in the criteria bring down the overall impact to medium.

e.g. Applications may be addressing a problem of moderate importance in the field, with some or no weaknesses

e.g. Applications may be addressing a problem of moderate/high importance in the field, but weaknesses in the criteria bring down the overall impact to low.

e.g. Applications may be addressing a problem of low or no importance in the field, with some or no weaknesses.

5 is a good medium-impact application, and the entire scale (1-9) should always be considered.

Thanks to Paula Hoffman for this slide.



Ethical Principles Underlying Grant Review

Although most of the NIH policy focuses on confidentiality in peer review (https://grants.nih.gov/grants/peer/guidelines_general/Confidentiality_CertificationsPR.pdf), you can imagine that some of the ethics concepts apply:

HUMILITY

IMPARTIALITY

RESPONSIBILITY
TO SCIENCE
Not the applicant

CONFIDENTIALITY

TIMELINESS

Of course, humility looks different in this case – as reviewers don't get to 'choose' applications.



NIH Conflict of Interest in Reviews



Situation: Grant Reviews



Proposed reviewer **may not** be on the study section if :

- The reviewer is named on the application in a major professional role
- The reviewer is a member of an NIH Advisory Council
- The reviewer (or close family member) would receive a direct financial benefit if the application is funded



Proposed reviewer **may be** on the study section but **may not** review certain applications and **must leave the room when**:

- The PI or others on the application with a major role are from the reviewer's institution or institutional component (e.g., department)
- Within in the past three years, the reviewer has been a collaborator or has had any other professional relationship (e.g., served as a mentor) with any person on the application who has a major role
- The application includes a letter of support or reference letter from the reviewer
- The reviewer serves as a member of the advisory board for the project under review
- The reviewer has an indirect financial interest from the applicant institution or PD/PI of over \$10,000 in honoraria, stocks, and fees during the course of the last year or during the project period



Proposed reviewer **may be** on the study section and **may** review specific applications without a waiver if: (not considered COIs)

- An application originates from an institution where the reviewer has collaborators, but the reviewer's collaborators are not listed on the application
- The reviewer has an indirect financial interest of less than \$10,000
- The reviewer freely donates reagents or other materials to the proposed project, and these reagents or materials would also be available to other researchers
- The reviewer, as well as a person with a major role on the proposed project, contributes data, reagents, specimens, etc., to the same repository or database
- The reviewer is a member of a research network that involves a person with a major role on the proposed project
- The reviewer is a co-author of a non-research publication (e.g., review, commentary) or a mega-multi-authored publication with a person with a major role on the proposed project.

Note: A Federal employee serving as an NIH peer reviewer is responsible for obtaining any clearance required by his employing institute, agency, or office.



NIH National Institutes of Health
Office of Extramural Research



**Sign the Attendance Sheet now by
clicking the link in the Chat.**

Case 2

An ethics dilemma in grant review



University of Colorado
Anschutz Medical Campus

Center for Bioethics and Humanities

An Ethics Dilemma in Grant Review

You are serving on a study section, and you are assigned to review an application from TopNotch University. You've read carefully the COI guidelines from NIH. Problem is, you are currently negotiating with TopNotch University to take a position there. Although you do not currently work with the PI, you might in the future.

- (1) Does this represent a conflict of interest in reviewing the application?
- (2) What should you do?



An Ethics Dilemma in Grant Review (continued)

You are reviewing a different application in that same study section. This one is right in your area of scientific investigation, by a group that could be seen as a “competitor.” This group has long had a fundamentally different view about a particular mechanism, and your own research has consistently pushed against this view.

- (1) Should you recuse yourself, citing “intellectual conflict”? State at least one advantage and one disadvantage to doing so (or not).
- (2) Where can you draw the line between healthy scientific discourse and disagreement, and possible bias or misconduct?



Conclusions

- **Even if it is imperfect, peer review of grants and manuscripts is a critical part of science, and a professional privilege and responsibility of researchers.**
- **Several ethics concepts should guide the conduct of peer review.**
- **More research is needed to test how well different methods of peer review relate to these concepts.**



ADDITIONAL REFERENCES

Committee on Publication Ethics (COPE)

[https://publicationethics.org/files/Ethical Guidelines For Peer Reviewers 2.pdf](https://publicationethics.org/files/Ethical_Guidelines_For_Peer_Reviewers_2.pdf).

Rockwell S. Ethics of Peer Review: A Guide for Manuscript Reviewers.

<https://ori.hhs.gov/sites/default/files/prethics.pdf>

NIH

<https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training/annual-review-ethics-case-studies/research-cases-use-nih-community#theme8>

