Peer Review at PLOS ONE Past, present, and future

Adrian Aldcroft Associate Editor, *PLOS ONE* 16 June 2015





About me...

- Prior to working as an editor, I studied the visual system using fMRI in London, Canada.
- In 2009, I moved to London, UK, and found work as an editor at BioMed Central with a focus on clinical journals.
- In late 2013, I moved to PLOS ONE



Face Inversion Reduces the Persistence of Global Form and Its Neural Correlates Lars Strother, Pavagada S. Mathuranath, Adrian Aldcroft, Cheryl Lavell, Melvyn A. Goodale, Tutis Vilis. PLOS ONE, 2011.



Peer Review at PLOS ONE

- My talk is roughly divided into the past, present, and future of peer review at PLOS ONE:
 - Context: History of PLOS and the rise of PLOS ONE
 - The role of the staff editor
 - The role of the Academic Editor and reviewers
 - Discussion: Provide some idea of the future of peer review at PLOS ONE



Context: History of PLOS

Open Letter

We support the establishment of an online public library that would provide the full contents of the published record of research and scholarly discourse in medicine and the life sciences in a freely accessible, fully searchable, interlinked form. Establishment of this public library would vastly increase the accessibility and utility of the scientific literature, enhance scientific productivity, and catalyze integration of the disparate communities of knowledge and ideas in biomedical sciences.

We recognize that the publishers of our scientific journals have a legitimate right to a fair financial return for their role in scientific communication. We believe, however, that the permanent, archival record of scientific research and ideas should neither be owned nor controlled by publishers, but should belong to the public and should be freely available through an international online public library.

To encourage the publishers of our journals to support this endeavor, we pledge that, beginning in September 2001, we will publish in, edit or review for, and personally subscribe to only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports that they have published, through PubMed Central and similar online public resources, within 6 months of their initial publication date.

To help us launch a successful and sustainable open-access publishing operation, we have received generous support from a number of organizations that share our vision of unfettered access and reuse of scientific and medical knowledge. We are grateful to the following supporters:

- Agouron Institute
- William K. Bowes, Jr. Foundation
- · Burroughs Wellcome Fund
- California Community Foundation
- Ellison Medical Foundation

2000: Open letter from founders Harold Varmus, Patrick Brown, and Michael Eisen urging publishers to make research articles openly available





History of PLOS

- There was strong support for the movement (nearly 34,000 scientists from 180 nations signed the letter)
- Despite the strong support, the publishing landscape remained largely unchanged
- In order to effect change, PLOS became a publisher





PLOS Definition of Open Access Publishing

Making scientific articles immediately and freely available to anyone, anywhere for them to download, print, distribute, read, and reuse without charge or other restrictions, as long as the author is properly attributed.



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OA is much more than "no subscription"

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	Free readership rights to all articles after an embargo of no more than 6 months	Reuse, remixing, & further building upon the work subject to certain restrictions & conditions (e.g., CC BY-NC & CC BY-SA licenses)	Author retains/publisher grants broad rights, including author reuse (e.g., of figures in presentations/teaching, creation of derivatives) and authorization rights (for others to use)	Author may post some version (determined by publisher) to any repository or website with no delay	Journals make copies of all articles automatically available in trusted third-party repositories (e.g., PubMed Central, OpenAire, institutional) within 6 months	Article full text, metadata, & citations may be accessed via API, with instructions publicly posted	
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https://www.plos.org/open-access/howopenisit/



The PLOS journals

PLOS Biology October, 2003



PLOS Medicine October, 2004



PLOS Community Journals

June-September, 2005







October, 2007



Then came the earthquake...



The world's first multidisciplinary Open Access journal



December, 2006





PLOS ONE

The world's first multidisciplinary Open Access journal, *PLOS ONE* accepts scientifically rigorous research, regardless of novelty. *PLOS ONE*'s broad scope provides a platform to publish primary research, including interdisciplinary and replication studies as well as negative results. The journal's publication criteria are based on high ethical standards and the rigor of the methodology and conclusions reported



Publications by PLOS ONE since launch







PLOS ONE Publishes its 100,000th Article

By Damian Pattinson Posted: June 23, 2014







INTROD

PLOS ONE

Provides a venue for:

- Negative results
- Unfashionable results
- Reproduction studies

Levels the playing field:

- Peer review is less likely to fall victim to the bias associated with 'tiered' journals
- Smaller fields are given the same visibility as large ones
- "The journal's publication criteria are based on high ethical standards and the rigor of the methodology and conclusions reported"



Table of Contents: The Missing Pieces: A Collection of Negative, Null and Inconclusive Results

Cover

Research Article

COVER Image Credit: Willi Heidelbach, Wikimedia Commons



The publication of negative, null and inconclusive results is important to provide scientists with balanced information and avoid the duplication of efforts testing similar hypotheses, which waste valuable time and research resources in the process.

PLOS ONE considers all work that makes a contribution to the field, independent of impact. This includes negative findings which are valuable to the community in cases where the result is illuminating in the context of previous work.

www.ploscollections.org/missingpieces



The importance of negative results

GOPEN ACCESS 🔊 PEER-REVIEWED

RESEARCH ARTICLE

Lack of Association between Measles Virus Vaccine and Autism with Enteropathy: A Case-Control Study

Mady Hornig 🔄, Thomas Briese, Timothy Buie, Margaret L. Bauman, Gregory Lauwers, Ulrike Siemetzki, Kimberly Hummel, Paul A. Rota, William J. Bellini, John J. O'Leary, Orla Sheils, Errol Alden, Larry Pickering, W. Ian Lipkin 🖬

Published: September 4, 2008 • DOI: 10.1371/journal.pone.0003140 • Published in PLOS ONE

62	58
Saves	Citations
125,760	66
Views	Shares



Changing the scientific landscape

- PLOS is unlike other publishers
 - Not for profit with a mission to make science more open
- All sound science is worth publishing—not just the work that will grab the headlines



Discussion: What might be the advantages and challenges for the PLOS ONE model of peer review?





How peer review works at PLOS ONE The role of the staff editor



PLOS ONE Publication Criteria

- 1. Study presents primary research that contributes knowledge to the field
- 2. Results have not been published elsewhere
- 3. Experiments are performed to a high technical standard and described in sufficient detail
- 4. Conclusions are supported by the data
- 5. Article is intelligibly written in standard English
- 6. Meets all applicable standards of research and publication ethics
- 7. Adheres to reporting guidelines and meets data availability requirements

Staff editors/Academic Editors and reviewers

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The role of the staff editor

- Ensure the manuscript is in scope for the journal
 - Primary research that contributes knowledge to the field
 - If we are unsure, we can consult other staff editors or a member of our editorial board
- Screen for potential publication ethics issues
 - We are a member of COPE
- Ensure the study meets the highest ethical standards

The importance of ethics: Animals

Animal and field studies:

- *PLOS ONE* upholds the highest international standards
- IACUC approval required for all vertebrate animal studies, including collection of tissues and cells
- Assess use of humane endpoints for survival experiments
- Ensure appropriate methods of anesthesia and euthanasia
- For field studies, we require all the necessary permissions and permits

The importance of ethics: Humans

Human studies:

- Uphold the highest international standards
- IRB approval required for all studies involving human subjects and/or information, including collection of tissues and cells
- Ensure participants provide informed consent
- Protection of participant privacy and vulnerable groups
- We reserve the right to reject any study which does not adhere to the highest ethical standards

Case study: Organ transplantation research in China

The issue

- China has one of the largest organ transplantation programs in the world
- Organs are often harvested for commercial use
- Until 2013, it was legal to harvest the organs of executed prisoners (if they provide consent)
- Consent from prisoners on death row is dubious and there is a lot of evidence of unethical practice
- Though technically illegal now, many believe it is still taking place

Case study

Correspondence

Organ transplantation in China: concerns remain

Huige Li 🖂, Michael E Shapiro, Charl Els, Kirk C Allison

Altmetric 1

DOI: http://dx.doi.org/10.1016/S0140-6736(15)60484-6

🗄 Article Info

Summary Full Text References

On Dec 3, 2014, Jiefu Huang, Director of the China Organ Donation and Transplant Committee and former Vice Minister of Health, announced that, from Jan 1, 2015, only voluntarily donated organs would be used for transplantation. Worldwide media reported that China would stop use of executed prisoners as an organ source. The Editorial¹ in *The Lancet* interpreted the announcement in a similar manner; unfortunately, this interpretation does not reflect the reality.

Human Research Advisory Group (HRAG)

- Our human research advisory group is a collective of nine academics we consult on ethical issues in human research
- The focus is less on individual cases and more on developing broad guidelines
- We tried to find people who would cover areas we thought important (e.g., research in China, the collection of personal data)
- Communicate via an online forum

Case study

- Please provide the following information regarding donors for transplantation cases analyzed in your study:
 - Please provide information as to the source(s) of the transplanted tissue/organs used in the study; include the institution name and a non-identifying description of the donor(s).
 - Please state in your ethics statement whether the study involved the use of donated tissue/organs from any vulnerable populations or any individuals who might have been subject to coercion. Examples of such vulnerable populations include prisoners, subjects with reduced mental capacity due to illness or age, and children. If yes, describe the population and justify the decision to use tissue/organ donations from this group. If no, please state "None of the transplant donors were from a vulnerable population or were subject to coercion".
 - Provide details as to the cause(s) of death for tissue/organ donor(s).
 - Describe the informed consent procedure used for tissue/organ donors. If a vulnerable
 population was used, clearly describe what measures were taken in the informed
 consent procedure to assure protection of the vulnerable group and avoid coercion.
 - Please provide a blank example of the form used to obtain consent from donors, and an English translation if the original is in a different language.

How peer review works at PLOS ONE The role of the Academic Editor and peer reviewers

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Academic Editors

PLOS ONE EDITORIAL BOARD MEMBERSHIP

Over 6,000 members of the community of academic and practicing scientists and practitioners serve as Academic Editors (members of the Editorial Board) of *PLOS ONE*, making decisions about whether submitted manuscripts meet the journal's publication criteria. They are indispensable to the overall <u>publishing process</u> at PLOS and to ensuring the integrity and timeliness of the journal. *PLOS ONE* acknowledges their work by publishing the Academic Editor's name alongside every accepted manuscript.

Each *PLOS ONE* Academic Editor is responsible for conducting the peer-review process and for making a decision to accept, invite revision of, or reject the papers they handle... Academic Editors are encouraged to <u>consult their colleagues</u> on the Editorial Board about any difficulties handling manuscripts, and discuss *PLOS ONE* policies and procedures using the Editorial Board Knowledge Base.

Initial appointments to the Editorial Board are for three years. During that time, *PLOS ONE* staff provide training, guidance, and feedback to new Academic Editors as they gain editorial experience and understand the unique aspects of *PLOS ONE*.

From our Academic Editor Handbook

Overview

From our AE handbook

How we use post-publication peer review

G DPEN ACCESS 👂 PEER-REVIEWED	34,836	15	123	607
RESEARCH ARTICLE	VIEWS	CITATIONS	SAVES	SHARES

Increasing Cropping System Diversity Balances Productivity, Profitability and Environmental Health

Adam S. Davis 🖾, Jason D. Hill, Craig A. Chase, Ann M. Johanns, Matt Liebman

Published: October 10, 2012 • DOI: 10.1371/journal.pone.0047149

Article	About	the Authors	Metrics	Comments	Related Content	Download PDF 👻		
Reader C	Comments ((6) Ie				 CrossMark Subject Areas Cereal crops Crop management Farms 		
4 RESPONSES	15 Jan 2013 18:05 GMT MOST RECENT	<u>Media Co</u> Posted by	werage of This Article asdavist on 22 Oct 2012 at 10	6.52 GMT		Fertilizers Herbicides Haize Soybean Honore Herbicides		
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0 Responses	16 Nov 2012 17:57 GMT MOST RECENT	Answers Posted by	<u>to frequently asked quest</u> <u>asdavis1</u> on 16 Nov 2012 at 1	<u>ions</u> 7:57 GMT		Expressway to Discovery		
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The importance of comments

- Can act as a form of post-publication peer review
- Opens up discussions of key points about an article
- Can fill in gaps or expose errors in the peer review process
- Around 10% of articles have comments

Other forms of post-publication review

Discussed 📀

PLOS Science Wednesday 6/17 /r/science AMA Balasegaram and Pécoul

View More

Discussion 2: What is the aim of peer review: Assessment vs. Improvement

Assessment vs Improvement

- Traditionally the role of peer review was assessment (with the focus on the reader, giving more exposure to the journal, etc.)
- We are shifting more to a focus on peer review as a constructive discussion to help authors improve their work (i.e., a combination of peer review and peer revision).
- Science is becoming more collaborative

The future of peer review at PLOS ONE

- Goal of making the peer review process more open and transparent
 - Studies suggest peer review is more constructive when reviewers are required to sign a review (Walsh et al., 2000)
- Encourage collaboration and crowd sourcing
- PLOS wants to shift its message from Open Access to Open Science

Thank you

