Innovations Publishing Medical Research

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UNIVERSITY of MARYLAND SCHOOL OF MEDICINE

UCLA Medicine, July 2019

thebmj

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- I am co-editor of the Blogging Stroke, the blog of the *Stroke* Journal (AHA)

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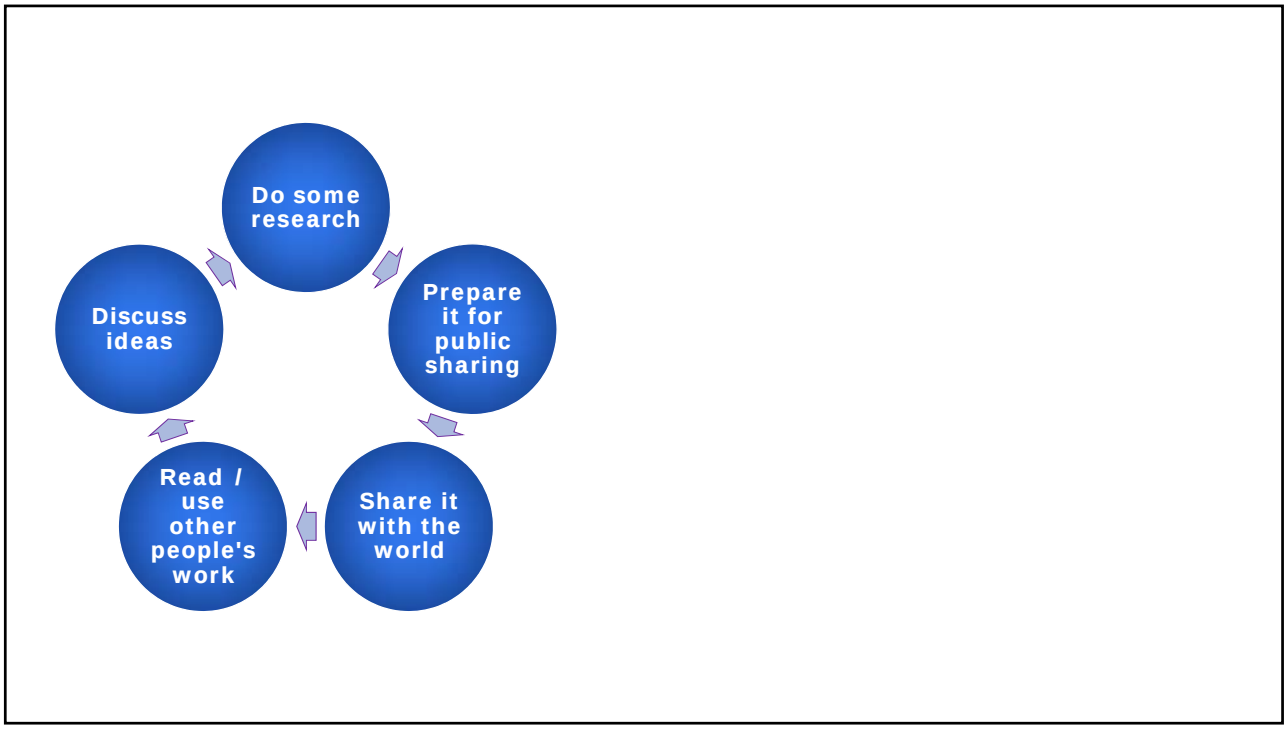
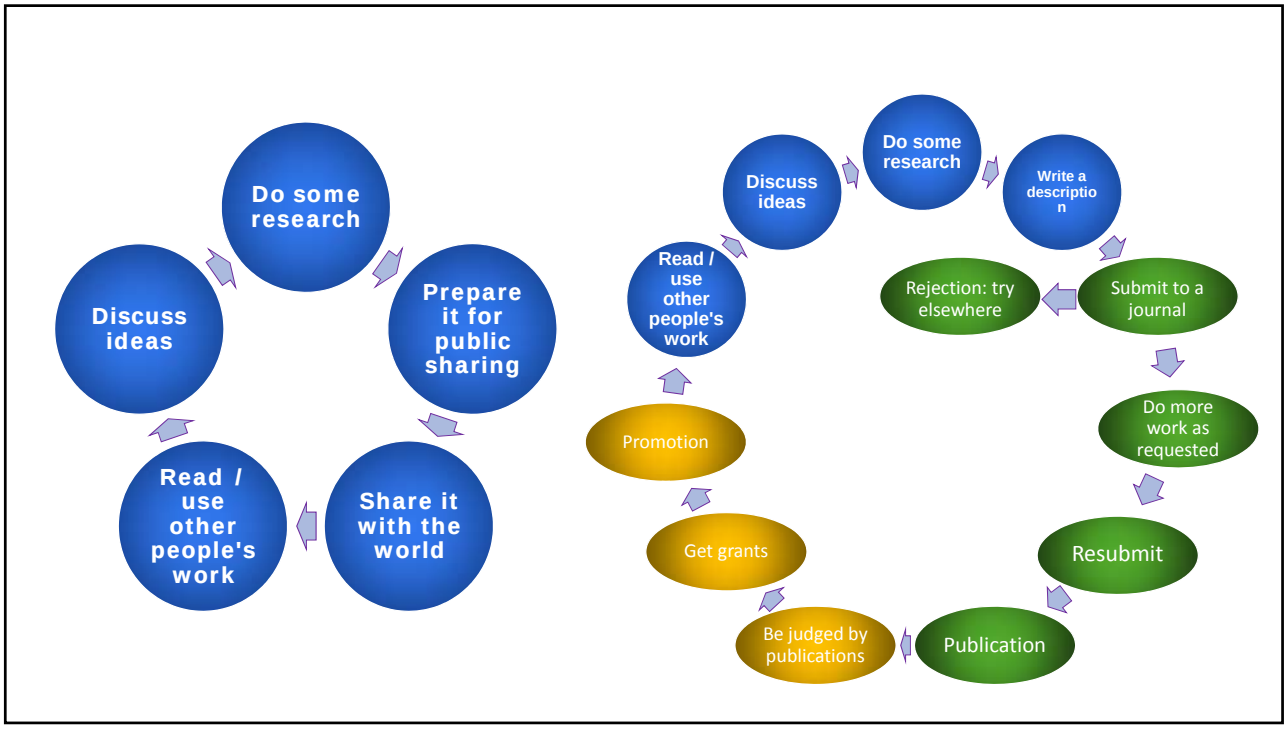

Do some research
Prepare it for public sharing
Share it with the world
Read / use other people's work
Discuss ideas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Do some research
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Submit to a journal
Rejection: try elsewhere
Do more work as requested
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Discuss ideas

Innovations

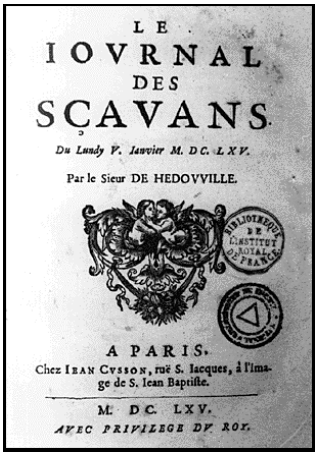
- Peer Review
- Preprints
- Open access mandates

Source: Research to Action www.researchtoaction.org/reviewing-peer-review/

"Peer review is the critical assessment of manuscripts submitted to journals by experts who are usually not part of the editorial staff.

Because unbiased, independent, critical assessment is an intrinsic part of all scholarly work, including scientific research, peer review is an important extension of the scientific process."

International Committee of Medical Journal Editors (ICMJE)

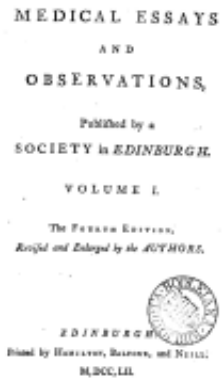

LE
IOVRNAL
DES
SCAVANS.
Du Lundy V. Ianvier M. DC. LXV.
Par le Sieur DE HEDOVVILLE.
A PARIS.
Chez IEAN CVSSON, ruë S. Iacques, à l'image de S. Iean Baptiste.
M. DC. LXV.
AVEC PRIVILEGE DV ROY.

"We aim to report the ideas of others without guaranteeing them."

Denis de Sallo

1665

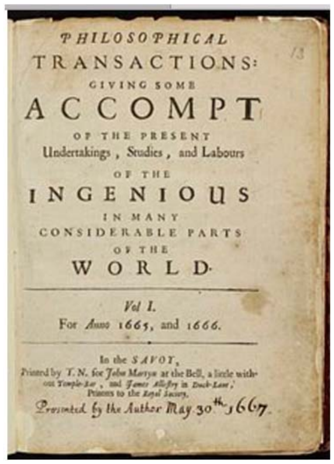
Taken from Rennie, D. Peer Review in Health Sciences. Eds. Godlee and Jefferson. London: BMJ, 1999. 1-13


MEDICAL ESSAYS
AND
OBSERVATIONS,
Published by a
SOCIETY in EDINBURGH.
VOLUME I.
The FOURTH EDITION,
Revised and Enlarged by the AUTHORS.
EDINBURGH
Printed by HAMILTON, BALFOUR, and NEILL.
M,DCC,LII.

"Memoirs sent by correspondence are distributed according to the subject matter to those members who are most versed in these matters. The report of their identity is not know to the author… The sanction which the Society gives to the work now published under its auspices, extends only to the novelty, ingenuity or importance of the several memoirs which it contains. Responsibility concerning the truth of facts, the soundness of reasoning, in the accuracy of calculations is wholly disclaimed: and must rest alone, on the knowledge, judgement or ability of the authors who have respectfully furnished such communications."

1731

Taken from Rennie, D. Peer Review in Health Sciences. Eds. Godlee and Jefferson. London: BMJ, 1999. 1-13


PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.
Vol I.
For Anno 1665, and 1666.

Royal Society Committee on Papers (1752)

“empowered to call on any other members of the Society who are knowing and well skilled in that particular branch of science that shall happen to be the subject matter…”

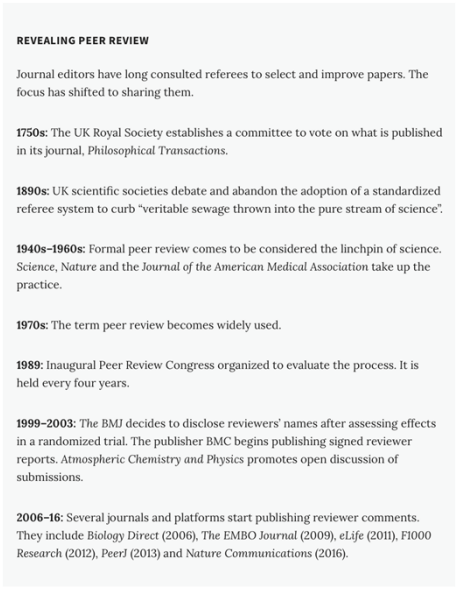

BRITISH MEDICAL JOURNAL:
BEING THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.
EDITED FOR THE ASSOCIATION BY ERNEST HART.
LONDON: SATURDAY, JANUARY 7, 1893.
COURSE OF LECTURES
ON THE
SURGERY OF THE KIDNEY.

1893

“It is a laborious and difficult method, involving heavy daily correspondence and constant vigilance to guard against personal eccentricity or prejudice or – the bugbear of journalism- unjustifiable censure. But that method may… be recommended as one that gives authoritative accuracy, reality and trustworthiness to journalism.”

Ernest Hart (Editor of The British Medical Journal) writing to US medical editors in 1893

Taken from Drummond Rennie, Editorial Peer review:its development and rationale, 2002



REVEALING PEER REVIEW

Journal editors have long consulted referees to select and improve papers. The focus has shifted to sharing them.

1750s: The UK Royal Society establishes a committee to vote on what is published in its journal, *Philosophical Transactions*.

1890s: UK scientific societies debate and abandon the adoption of a standardized referee system to curb "veritable sewage thrown into the pure stream of science".

1940s–1960s: Formal peer review comes to be considered the linchpin of science. *Science*, *Nature* and the *Journal of the American Medical Association* take up the practice.

1970s: The term peer review becomes widely used.

1989: Inaugural Peer Review Congress organized to evaluate the process. It is held every four years.

1999–2003: The *BMJ* decides to disclose reviewers' names after assessing effects in a randomized trial. The publisher BMC begins publishing signed reviewer reports. *Atmospheric Chemistry and Physics* promotes open discussion of submissions.

2006–16: Several journals and platforms start publishing reviewer comments. They include *Biology Direct* (2006), *The EMBO Journal* (2009), *eLife* (2011), *F1000 Research* (2012), *PeerJ* (2013) and *Nature Communications* (2016).

Polka JK et al. Nature 2018;560:545-7

thebmj

PLOS | MEDICINE

JAMA The Journal of the American Medical Association

The NEW ENGLAND JOURNAL of MEDICINE

BioMed Central The Open Access Publisher

THE LANCET

Annals of Internal Medicine
Established in 1927 by the American College of Physicians

20th Century

Technical review vs. editorial selection

Technical review - by experts in the field

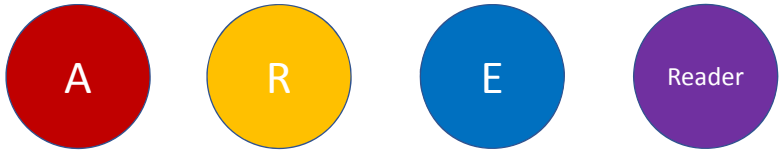
Is the work properly done?

Are the claims statistically valid?

Can the conclusions be drawn from the results shown?

Editorial selection - by editors, with advice from experts in the field

Is the work interesting and important to the readers of this journal?



But…

- "Stand at the top of the stairs with a pile of papers and throw them down the stairs. Those that reach the bottom are published."
- "Sort the papers into two piles: those to be published and those to be rejected. Then swap them over."

- Slow
- Expensive
- Profligate of academic time
- Highly subjective
- Something of a lottery
- Prone to bias
- Easily abused
- Hopeless at spotting error and fraud

Smith R. J Royal Soc Med 2006;99:178

Cochrane Database of Systematic Reviews

Editorial peer review for improving the quality of reports of biomedical studies

Review | Methodology

Tom Jefferson, Melanie Rudin, Suzanne Brodney Folse, Frank Davidoff

First published: 18 April 2007

Assessed as up-to-date: 19 February 2007

Editorial Group: Cochrane Methodology Review Group

Main results

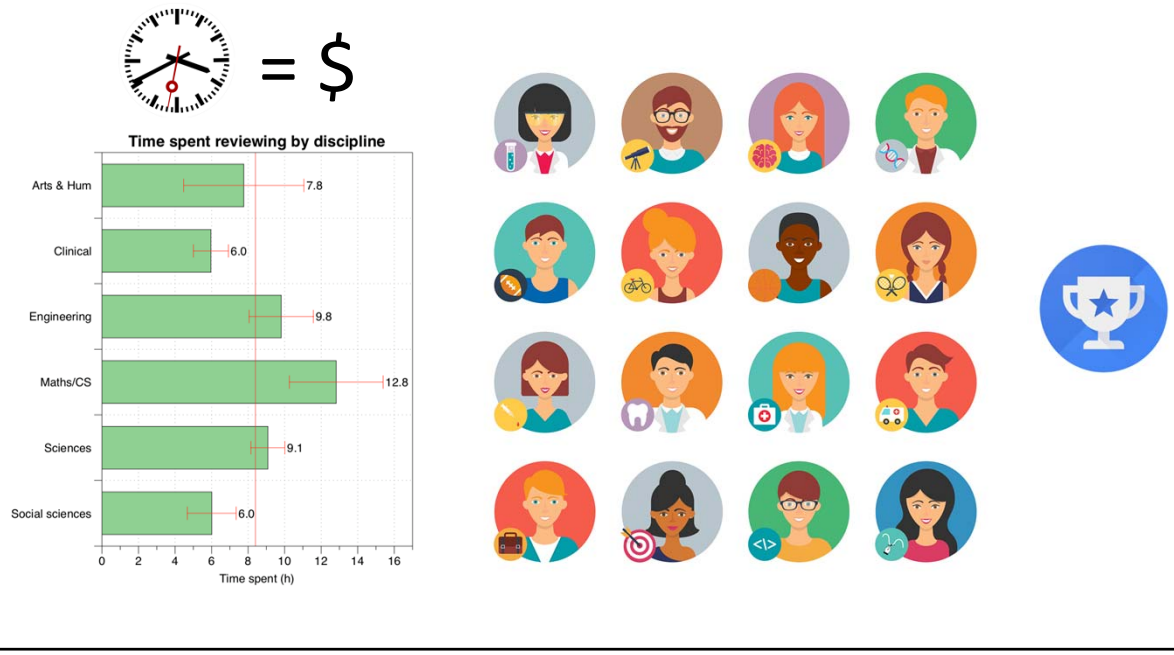
We included 28 studies. We found no clear-cut evidence of effect of the well-researched practice of reviewer and/or author concealment on the outcome of the quality assessment process (9 studies). Checklists and other standardisation media have some evidence to support their use (2 studies). There is no evidence that referees' training has any effect on the quality of the outcome (1 study). Different methods of communicating with reviewers and means of dissemination do not appear to have an effect on quality (3 studies). On the basis of one study, little can be said about the ability of the peer-review process to detect bias against unconventional drugs. Validity of peer review was tested by only one small study in a specialist area. Editorial peer review appears to make papers more readable and improve the general quality of reporting (2 studies), but the evidence for this has very limited generalisability.

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

22 reports of RCTs (only 7 since 2004)

- Training (n=5): did not improve review report quality
- Addition of a statistical reviewer (n=2): improved the final manuscript
- Use of a checklist (n=2): did not improve the manuscript
- Open peer review ([open identities]; n=7):
  - improved quality of the review report;
  - did not affect the time reviewers spent on review;
  - decreased the rate of rejection
- Blinded peer review ([peer reviewers blinded to authors' ID]; n=6): did not affect the quality of review or the rejection rate

Bruce R et al. BMC Medicine 2016;14:85



Unreliable and Inconsistent

- Weak level of agreement between reviewers
- Inconsistent decision making
- Failure to detect major methodological problems
- Does not filter best papers to best journals

Unreliable and Inconsistent

TABLE I **Concurrence Within Pairs of Reviewers Who Rated (A, B, C or D) 496 Consecutive Submitted Scientific Articles, Five or More Manuscript Pages in Length***

Data	Degree of Concurrence (% of total) 1	2	3	4
Rejected papers (401)	39.7	31.1	17.5	11.7
Accepted papers (95)	50.5	33.7	10.5	5.3
All papers (496)				
Observed	41.8	31.7	16.1	10.4
As determined by chance	30	29	24	17

NOTE: (1) Both reviewers gave identical ratings, i.e., A-A, B-B, etc. (2) Reviewers differed by one step, i.e., A-B, B-C, or C-D. (3) Reviewers differed by two steps, i.e., A-C, B-D. (4) Reviewers disagreed totally, i.e., A-D.
* Dr. Ronald Goldberg collected and analyzed these data.

Inglefinger FJ. Am J Med 1974;56:686

Table 1. Likelihood of Initial Decision to Reject in Relation to Reviewer Agreement.

Reviewer Recommendations	N (%)	Fraction Rejected by Editors (%)
Complete agreement *not* to reject	1080 (47.7)	20.3
Any level of disagreement	1027 (45.4)	70.6
Complete agreement to reject	157 (6.9)	88.5
Total	2264 (100)	47.8

doi:10.1371/journal.pone.0010072.t001

JGIM

Kappa statistic for inter-reviewer agreement on reject vs. accept/revise was 0.11

Kravitz RL et al. PLoS ONE 2010:5(4); e10072.

Retraction Watch — Tracking retractions as a window in

Top 10 most highly cited retracted papers

without comments

Ever curious which retracted papers have been most cited by other scientists? Below, we present the list of the 10 most highly cited retractions. Readers will see some familiar entries, such as the infamous *Lancet* paper by Andrew Wakefield that originally suggested a link between autism and childhood vaccines. You'll note that many papers — including the #1 most cited paper — received more citations after they were retracted, which research has shown is an ongoing problem. As always, we will update the list as more information comes to light.

Article	Year of retraction	Cites before retraction	Cites after retraction	Total cites from journals indexed by Web of Science
1. Visfatin: A protein secreted by visceral fat that mimics the effects of insulin. SCIENCE, JAN 21 2005 *Fukuhara A, Matsuda M, Nishizawa M, Segawa K, Tanaka M, Kishimoto K, Matsuki Y, Murakami M, Ichisaka T, Murakami H, Watanabe E, Takagi T, Akiyoshi M, Ohtsubo T, Kihara S, Yamashita S, Makishima M, Funahashi T, Yamanaka S, Hiramatsu R, Matsuzawa Y, Shimomura I.*	2007	247	776	1023
2. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. LANCET, FEB 28 1998 *Wakefield AJ, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, Berelowitz M, Dhillon AP, Thomson MA, Harvey P, Valentine A, Davies SE, Walker-Smith JA.*	2010	675	308	983
3. An enhanced transient expression system in plants based on suppression of gene silencing by the p19 protein of tomato bushy stunt virus. PLANT JOURNAL, MAR 2003 *Voinnet O, Rivas S, Mestre P, Baulcombe D.*	2015	897	N/A	897
4. Purification and ex vivo expansion of postnatal human marrow mesodermal progenitor cells. BLOOD, NOV 1 2001 *Reyes M, Lund T, Lenvik T, Aguiar D, Koodie L, Verfaillie CM.*	2009	655	214	869
5. Viral pathogenicity determinants are suppressors of transgene silencing in Nicotiana benthamiana. EMBO JOURNAL, NOV 16 1998 *Brigneti G, Voinnet O, Li WX, Ji LH, Ding SW, Baulcombe DC.*	2015	792	N/A	792
6. TREEFINDER: a powerful graphical analysis environment for molecular phylogenetics. BMC EVOLUTIONARY BIOLOGY, JUN 28 2004 *Jobb G, von Haeseler A, Strimmer K.*	2015	748	N/A	748
7. Combination treatment of angiotensin-II receptor blocker and angiotensin-converting-enzyme inhibitor in non-diabetic renal disease (COOPERATE): a randomised controlled trial. LANCET, JAN 11 2003 *Nakao N, Yoshimura A, Morita H, Takada M, Kayano T, Ideura T.*	2009	572	101	673
8. Spontaneous human adult stem cell transformation. CANCER RESEARCH, APR 15 2005 Rubio D, Garcia-Castro J, Martín MC, de la Fuente R, Cigudosa JC, Lloyd AC, Bernad A.	2010	371	269	640
9. A pleiotropically acting microRNA, miR-31, inhibits breast cancer metastasis. CELL, JUN 12 2009 *Valastyan S, Reinhardt F, Benaich N, Calogrias D, Szász AM, Wang ZC, Brock JE, Richardson AL, Weinberg RA.*	2015	530	N/A	530
10. Regression of human metastatic renal cell carcinoma after vaccination with tumor cell-dendritic cell hybrids. NATURE MEDICINE, MAR 2000 *Kugler A, Stuhler G, Walden P, Zöller G, Zobywalski A, Brossart P, Trefzer U, Ullrich S, Müller CA, Becker V, Gross AJ, Hemmerlein B, Kanz L, Müller GA, Ringert RH.*	2003	348	166	514

Peer-reviewed papers sometimes have to be retracted

Unaccountability and risk of subversion

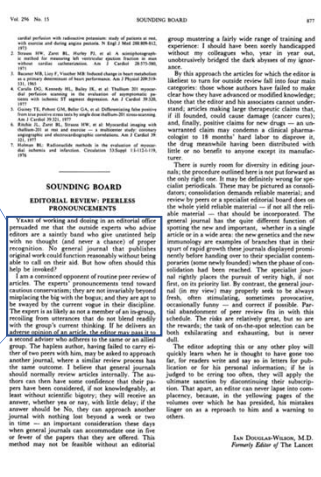
- Editors may choose reviewers with outcome in mind
- Reviewers shielded by anonymity may act unethically
- Authors may falsify reviews/stolen identities

BIAS & ABUSE

Other issues…

YEARS of working and dozing in an editorial office persuaded me that the outside experts who advise editors are a saintly band who give unstinted help with no thought (and never a chance) of proper recognition. No general journal that publishes original work could function reasonably without being able to call on their aid. But how often should this help be invoked?

I am a convinced opponent of routine peer review of articles. The experts' pronouncements tend toward cautious conservatism; they are not invariably beyond misplacing the big with the bogus; and they are apt to be swayed by the current vogue in their discipline. The expert is as likely as not a member of an in-group, recoiling from utterances that do not blend readily with the group's current thinking. If he delivers an



SOUNDING BOARD

EDITORIAL REVIEW: PEERLESS PRONOUNCEMENTS

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By this approach the articles for which the editor is likeliest to turn for outside review fall into four main categories: those whose authors have failed to make clear how they have advanced or modified knowledge; those that the editor and his associates cannot understand; articles making large therapeutic claims that, if ill founded, could cause damage (cancer cures); and, finally, positive claims for new drugs — an unwarranted claim may condemn a clinical pharmacologist to 18 months' hard labour to disprove it, the drug meanwhile having been distributed with little or no benefit to anyone except its manufacturer.

There is surely room for diversity in editing journals; the procedure outlined here is not put forward as the only right one. It may be definitely wrong for specialist periodicals. These may be pictured as consolidators; consolidation demands reliable material; and review by peers or a specialist editorial board does on the whole yield reliable material — if not all the reliable material — that should be incorporated. The general journal has the quite different function of spotting the new and important, whether in a single article or in a wide area: the new genetics and the new immunology are examples of branches that in their spurt of rapid growth these journals displayed prominently before handing over to their specialist contemporaries (some newly founded) when the phase of consolidation had been reached. The specialist journal rightly places the pursuit of verity high, if not first, on its priority list. By contrast, the general journal (in my view) may properly seek to be always fresh, often stimulating, sometimes provocative, occasionally funny — and correct if possible. Partial abandonment of peer review fits in with this schedule. The risks are relatively great, but so are the rewards; the task of on-the-spot selection can be both exhilarating and exhausting, but is never dull.

The editor adopting this or any other ploy will quickly learn when he is thought to have gone too far, for readers write and say so in letters for publication or for his personal information; if he is judged to be erring too often, they will apply the ultimate sanction by discontinuing their subscription. That apart, an editor can never lapse into complacency, because, in the yellowing pages of the volumes over which he has presided, his mistakes linger on as a reproach to him and a warning to others.

IAN DOUGLAS-WILSON, M.D.
Formerly Editor of The Lancet

Ian Douglas-Wilson. N Engl J Med 1977;296:877

No. 4356 April 25, 1953 NATURE 737

equipment, and to Dr. G. E. R. Deacon and the captain and officers of R.R.S. *Discovery II* for their part in making the observations.

¹ Young, F. B., Gerard, R., and Ivens, W., *Phil. Mag.*, **40**, 149 (1920).
² Longuet-Higgins, M. S., *Mon. Not. Roy. Astro. Soc., Geophys. Supp.*, **5**, 285 (1949).
³ Von Ark, W. S., Woods Hole Papers in Phys. Oceanog. Meteor., **11** (1) (1950).
⁴ Ekman, V. W., *Arkiv. Mat. Astron. Fysik.* (Stockholm), **2** (11) (1905).

MOLECULAR STRUCTURE OF NUCLEIC ACIDS

A Structure for Deoxyribose Nucleic Acid

WE wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

A structure for nucleic acid has already been proposed by Pauling and Corey[1]. They kindly made their manuscript available to us in advance of publication. Their model consists of three inter-twined chains, with the phosphates near the fibre axis, and the bases on the outside. In our opinion, this structure is unsatisfactory for two reasons: (1) We believe that the material which gives the X-ray diagrams is the salt, not the free acid. Without the acidic hydrogen atoms it is not clear what forces would hold the structure together, especially as the negatively charged phosphates near the axis will repel each other. (2) Some of the van der Waals distances appear to be too small.

Another three-chain structure has also been suggested by Fraser (in the press). In his model the phosphates are on the outside and the bases on the inside, linked together by hydrogen bonds. This structure as described is rather ill-defined, and for this reason we shall not comment on it.

We wish to put forward a radically different structure for the salt of deoxyribose nucleic acid. This structure has two helical chains each coiled round the same axis (see diagram). We have made the usual chemical assumptions, namely, that each chain consists of phosphate diester groups joining β-D-deoxyribofuranose residues with 3′,5′ linkages. The two chains (but not their bases) are related by a dyad perpendicular to the fibre axis. Both chains follow right-handed helices, but owing to the dyad the sequences of the atoms in the two chains run in opposite directions. Each chain loosely resembles Furberg's[2] model No. 1; that is, the bases are on the inside of the helix and the phosphates on the outside. The configuration of the sugar and the atoms near it is close to Furberg's 'standard configuration', the sugar being roughly perpendicular to the attached base. There is a residue on each chain every 3·4 A. in the *z*-direction. We have assumed an angle of 36° between adjacent residues in the same chain, so that the structure repeats after 10 residues on each chain, that is, after 34 A. The distance of a phosphorus atom from the fibre axis is 10 A. As the phosphates are on the outside, cations have easy access to them.

The structure is an open one, and its water content is rather high. At lower water contents we would expect the bases to tilt so that the structure could become more compact.

The novel feature of the structure is the manner in which the two chains are held together by the purine and pyrimidine bases. The planes of the bases are perpendicular to the fibre axis. They are joined together in pairs, a single base from one chain being hydrogen-bonded to a single base from the other chain, so that the two lie side by side with identical *z*-co-ordinates. One of the pair must be a purine and the other a pyrimidine for bonding to occur. The hydrogen bonds are made as follows: purine position 1 to pyrimidine position 1; purine position 6 to pyrimidine position 6.

If it is assumed that the bases only occur in the structure in the most plausible tautomeric forms (that is, with the keto rather than the enol configurations) it is found that only specific pairs of bases can bond together. These pairs are: adenine (purine) with thymine (pyrimidine), and guanine (purine) with cytosine (pyrimidine).

In other words, if an adenine forms one member of a pair, on either chain, then on these assumptions the other member must be thymine; similarly for guanine and cytosine. The sequence of bases on a single chain does not appear to be restricted in any way. However, if only specific pairs of bases can be formed, it follows that if the sequence of bases on one chain is given, then the sequence on the other chain is automatically determined.

It has been found experimentally[3,4] that the ratio of the amounts of adenine to thymine, and the ratio of guanine to cytosine, are always very close to unity for deoxyribose nucleic acid.

It is probably impossible to build this structure with a ribose sugar in place of the deoxyribose, as the extra oxygen atom would make too close a van der Waals contact.

The previously published X-ray data[5,6] on deoxyribose nucleic acid are insufficient for a rigorous test of our structure. So far as we can tell, it is roughly compatible with the experimental data, but it must be regarded as unproved until it has been checked against more exact results. Some of these are given in the following communications. We were not aware of the details of the results presented there when we devised our structure, which rests mainly though not entirely on published experimental data and stereochemical arguments.

It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material.

Full details of the structure, including the conditions assumed in building it, together with a set of co-ordinates for the atoms, will be published elsewhere.

We are much indebted to Dr. Jerry Donohue for constant advice and criticism, especially on inter-atomic distances. We have also been stimulated by a knowledge of the general nature of the unpublished experimental results and ideas of Dr. M. H. F. Wilkins, Dr. R. E. Franklin and their co-workers at

This figure is purely diagrammatic. The two ribbons symbolize the two phosphate–sugar chains, and the joints between them the pairs of bases holding the chains together. The vertical line marks the fibre axis

Telegraphic Address: PHUSIS LESQUARE LONDON
Telephone Number WHITEHALL 8831.

Editorial and Publishing Offices: MACMILLAN & CO., LTD., ST. MARTIN'S STREET, LONDON, W.C.2.

RAG.AH/N. 14th June 1937.

The Editor of NATURE presents his compliments to Mr. H. A. Krebs and regrets that as he has already sufficient letters to fill the correspondence columns of NATURE for seven or eight weeks, it is undesirable to accept further letters at the present time on account of the delay which must occur in their publication.

If Mr. Krebs does not mind such delay, the Editor is prepared to keep the letter until the congestion is relieved in the hope of making use of it. He returns it now, however, in case Mr. Krebs prefers to submit it for early publication to another periodical.

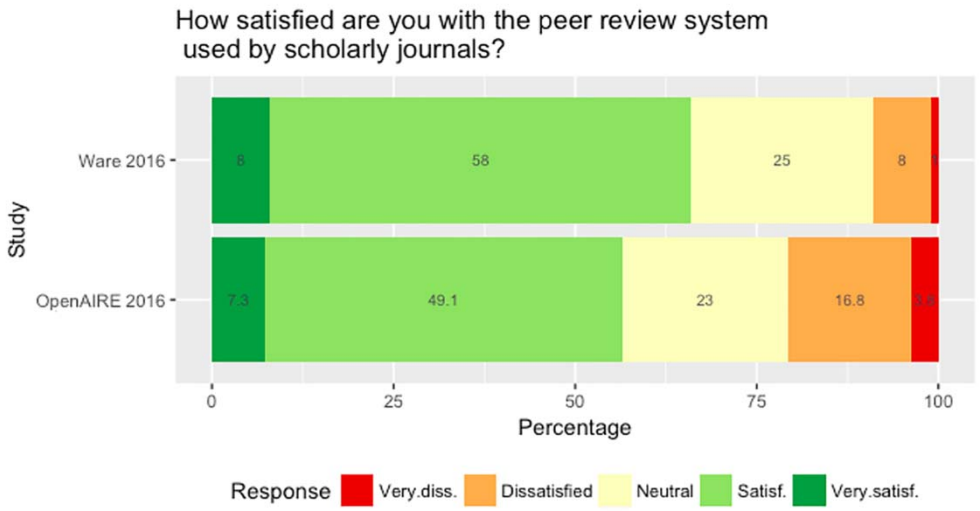
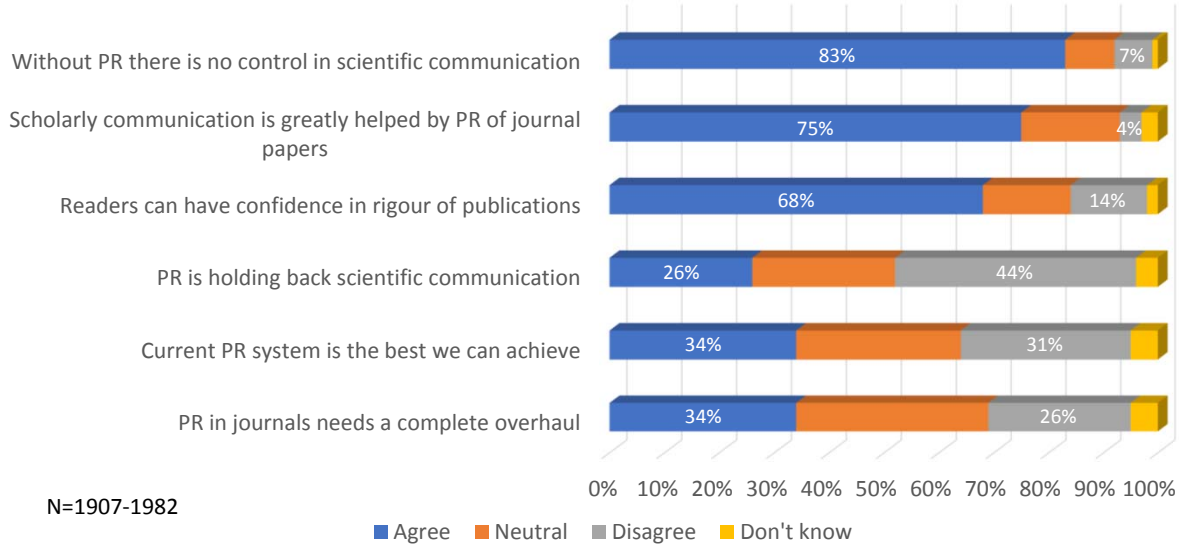


Fig 6. Overall satisfaction with peer review: Ware (2016, n = 2004) vs. OpenAIRE study (2016, n = 3001).

https://doi.org/10.1371/journal.pone.0189311.g006

Ross-Hellauer Tet al. PLoS ONE 2017:12:e0189311

Attitudes toward research and scholarly publishing

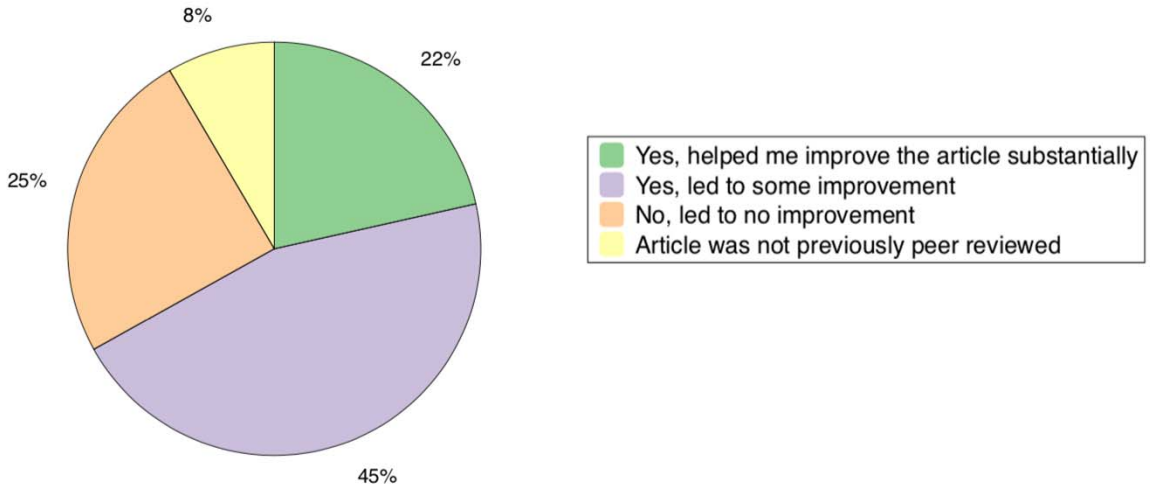


N=1907-1982

Mark Ware Consulting

PRC peer review survey report Final 2016-05-19.pdf

Did peer review at another journal help improve the article?



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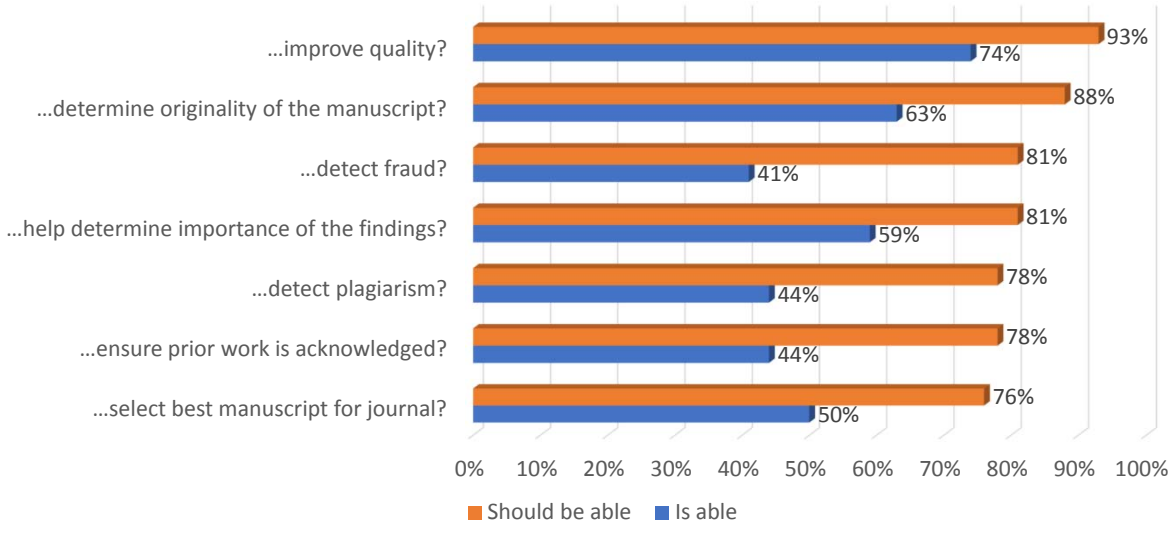
Does peer review…



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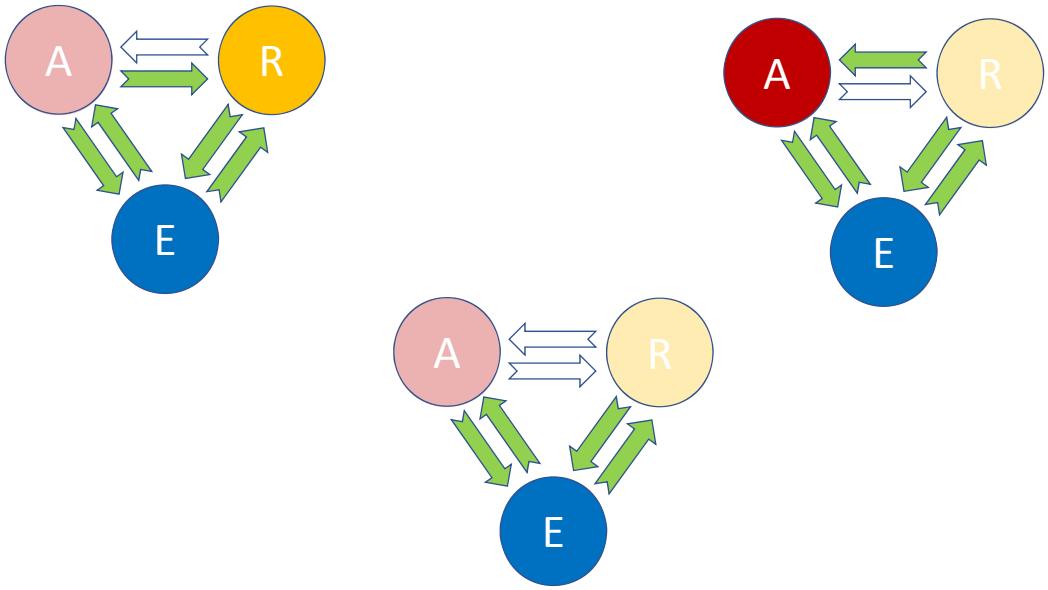
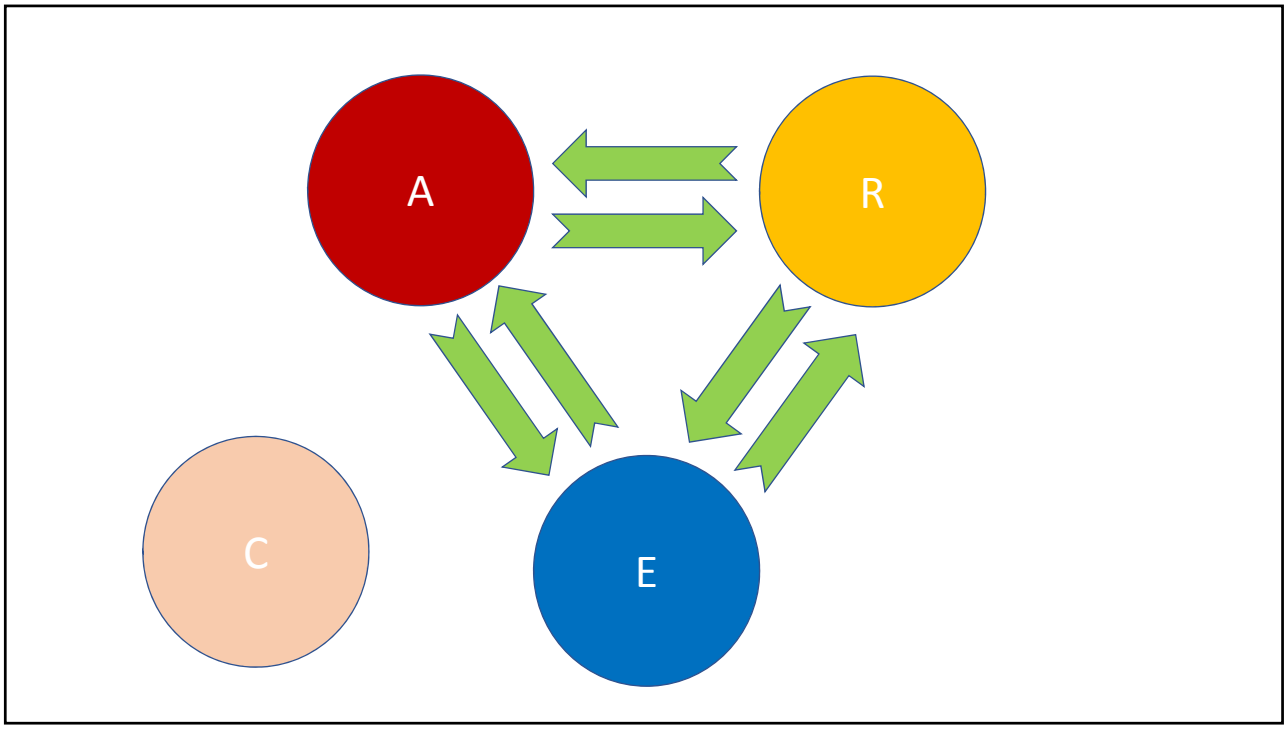
PRC peer review survey report Final 2016-05-19.pdf

"Peer review is like democracy, which is, to use Churchill's phrase, the worst form of government except for all those other forms that have been tried from time to time."

Rennie D. *JAMA 1993;*270:2856-58.





Open Peer Review

- **Open identities**: Authors and reviewers are aware of each other's identity

thebmj

BMJ Open

BMC Medicine

F1000Research Open for Science

BMJ Open Science

Editorials

Opening up *BMJ* peer review

A beginning that should lead to complete transparency

Ross-Hellauer T. *F1000Research* 2017, 6:588

Open Peer Review

- **Open reports**: Review reports are published alongside the relevant article

thebmj

BMJ Open

BMC Medicine

F1000Research Open for Science

BMJ Open Science

EDITORIALS

Prepublication histories and open peer review at *The BMJ*

We will publish peer reviews and authors' responses for all research articles

Trish Groves *deputy editor*, Elizabeth Loder *acting head of research*

The BMJ, London WC1H 9JR, UK

Ross-Hellauer T. *F1000Research* 2017, 6:588

POTENTIAL BENEFITS OF PUBLISHED REVIEW

Encourages good-quality, constructive comments. The expectation that reviews will be published will encourage editors and reviewers to hold them to a high standard.

Preserves useful scholarship. Peer reviews contain arguments and ideas that can reveal how thinking in a field evolves. This material should be preserved and made available to others.

Builds trust. Readers have a right to understand the level of scrutiny that a paper has undergone.

Makes journal decisions more transparent. Editors must integrate information from diverse sources, including reviewers, to make their decisions. Published peer review provides a window on the process.

Creates a pathway for crediting reviewing. Reviewers can point (even privately) to their work as evidence of scholarly activity for grants and promotions.

Provides a resource for training. Reports can show people how to (and how not to) assess a paper.

Bolsters systemic study of peer review. Published reports and rebuttals enable more research on best practices, leading to improvements in the system as a whole.

Polka JK et al. Nature 2018;560:545-7

RESEARCH

OPEN ACCESS

Association between physician *US News & World Report* medical school ranking and patient outcomes and costs of care: observational study

Yusuke Tsugawa,[1] Daniel M Blumenthal[2,3,4] Ashish K Jha,[3,4] E John Orav,[2,3] Anupam B Jena[4,10,11]

For numbered affiliations see end of article.
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Additional material is published online only. To view please visit the journal online.

Cite this as: *BMJ* 2018;362:k3640 http://dx.doi.org/10.1136/bmj.k3640
Accepted: 16 August 2018

ABSTRACT

OBJECTIVE
To investigate whether the *US News & World Report* (USNWR) ranking of the medical school a physician attended is associated with patient outcomes and healthcare spending.

DESIGN
Observational study.

SETTING
Medicare, 2011-15.

PARTICIPANTS
20% random sample of Medicare fee-for-service beneficiaries aged 65 years or older (n=996 212), who were admitted as an emergency to hospital with a medical condition and treated by general internists.

MAIN OUTCOME MEASURES
Association between the USNWR ranking of the medical school a physician attended and the physician's patient outcomes (30 day mortality and 30 day readmission rates) and Medicare Part B spending, adjusted for patient and physician characteristics and hospital fixed effects (which effectively compared physicians practicing within the same hospital). A sensitivity analysis employed a natural experiment by focusing on patients treated by hospitalists, because patients are plausibly randomly assigned to hospitalists based on their specific work schedules. Alternative rankings of medical schools based on social mission score or National Institute of Health (NIH) funding were also investigated.

RESULTS
996 212 admissions treated by 30 322 physicians were examined for the analysis of mortality. When using USNWR primary care rankings, physicians who graduated from higher ranked schools had slightly lower 30 day readmission rates (adjusted rate 15.7% for top 10 schools v 16.1% for schools ranked ≥50; adjusted risk difference 0.4%, 95% confidence interval 0.1% to 0.8%; P for trend=0.005) and lower spending (adjusted Part B spending $1029 (£790; €881) v $1066; adjusted difference $36, 95% confidence interval $20 to $52; P for trend <0.001) compared with graduates of lower ranked schools, but no difference in 30 day mortality. When using USNWR research rankings, physicians graduating from higher ranked schools had slightly lower healthcare spending than graduates from lower ranked schools, but no differences in patient mortality or readmissions. A sensitivity analysis restricted to patients treated by hospitalists yielded similar findings. Little or no relation was found between alternative rankings (based on social mission score or NIH funding) and patient outcomes or costs of care.

CONCLUSIONS
Overall, little or no relation was found between the USNWR ranking of the medical school from which a physician graduated and subsequent patient mortality or readmission rates. Physicians who graduated from highly ranked medical schools had slightly lower spending than graduates of lower ranked schools.

WHAT IS ALREADY KNOWN ON THIS TOPIC

No national data exist on whether the *US News & World Report* (USNWR) ranking of the medical school from which an internist graduated is associated with hospital patient outcomes and costs of care

Patients may perceive the medical school from which a physician graduated as a signal of care quality

The predictive relation between the USNWR ranking of the medical school a physician attended and subsequent patient outcomes and spending is therefore important to understand

WHAT THIS STUDY ADDS

Physicians who graduated from highly USNWR ranked primary care medical schools had slightly lower patient readmission rates and spending compared with those who attended lower ranked schools, but no difference in patient 30 day mortality

Physicians who graduated from highly ranked research medical schools had slightly lower spending but no difference in patient 30 day mortality or readmission rates

Little or no association was found between other rankings—based on social mission score or National Institute of Health funding—and patient outcomes and costs of care

Introduction

Given extensive evidence that practice patterns vary widely across physicians,[1-4] there is increasing interest in measuring the performance of individual physicians and understanding the determinants of physician level variation in patient outcomes and healthcare spending. Such knowledge may help design effective interventions to improve quality of care and reduce low value care.[1 5] Education and training are potentially important determinants of a physician's practice style. Research has found that physicians whose residency training occurred in regions with higher healthcare spending had higher subsequent costs of care after residency completion compared with physicians who trained in lower spending regions.[6] A previous study also found that obstetricians who trained in residency programs with higher complication rates for childbirth had higher complication rates compared with obstetricians who trained in residency programs

Research

Association between physician *US News & World Report* medical school ranking and patient outcomes and costs of care: observational study

BMJ 2018 ; 362 doi: https://doi.org/10.1136/bmj.k3640 (Published 26 September 2018)
Cite this as: *BMJ* 2018;362:k3640

Article | Related content | Metrics | Responses | Peer review

Status	Comments	Date
Original article	Access document	01 May 2018
First decision	Access document	14 June 2018
Author response	Access document	13 July 2018
First revised article	Access document	13 July 2018
Second decision	Access Document	06 August 2018
Second response	Access Document	08 August 2018
ICJME Forms	Access Document	08 August 2018

For research papers *The BMJ* has fully open peer review. This means that accepted research papers submitted from September 2014 onwards usually have their prepublication history posted alongside them on thebmj.com.

Table. Results of Trials Comparing Signed and Unsigned Reviews*

Source, y	Design	No. of Reviewers/ Manuscripts	Effect of Signing On: Quality of Review	Effect of Signing On: Advice on Publication	Effect of Signing On: Time Taken to Review†	Effect of Signing On: No. of Reviewers Declining to Review
McNutt et al,[8] 1990	Nonrandomized comparison of unsigned vs voluntary signed review	109 Reviewers (43% of reviewers in RCT who chose to sign their reviews)	No overall difference in quality (judged by editors) but more constructive and courteous (judged by editors) and fairer (judged by authors)	More likely to recommend acceptance ($P<.001$)	Not evaluated	Not evaluated
Godlee et al,[9] 1998	RCT comparing signed and unsigned reviews	221 Reviewers sent same article with 8 intentionally added errors	No significant difference in No. of errors detected	No significant difference	Not evaluated	No significant difference
van Rooyen et al,[12] 1999	RCT comparing signed and unsigned reviews	250 Paired reviewers of 125 manuscripts	No significant difference (RQI scores from editors and authors)	No significant difference	No significant difference	Increased (35% vs 23%; 95% confidence interval, 0.2%-24%; $P = .049$)
Walsh et al,[13] 2000	RCT comparing signed and unsigned reviews	408 Reviewers and manuscripts	Improved quality (RQI scores 3.35 vs 3.14; $P = .02$)	More likely to recommend acceptance (33% vs 18%; $P \leq .01$)	Increased (2.05 vs 1.65 hours; $P = .02$)‡	Not evaluated
van Rooyen et al, unpublished	RCT comparing signed reviews vs posting of signed reviews on the Internet	558 Reviewers and manuscripts	No significant difference (RQI scores)	No significant difference	Increased (mean, 25 min longer)	Analysis of data not yet available

*RCT indicates randomized controlled trial; RQI, review quality instrument. The RQI was validated by van Rooyen et al.[14]
†Reviewers' self-reported time.
‡Of reviews that took more than 4 hours to write, 69% were signed vs 31% unsigned.

Godlee F. JAMA 2002;287:2762

BMJ

RESEARCH

Effect on peer review of telling reviewers that their signed reviews might be posted on the web: randomised controlled trial

Susan van Rooyen, research assistant,[1] Tony Delamothe, deputy editor,[1] Stephen J W Evans, professor of pharmacoepidemiology[2]

WHAT IS ALREADY KNOWN ON THIS TOPIC

Openness and transparency are areas of concern in medical research, especially involving medicines

Secrecy and lack of accountability are serious flaws of traditional peer review, but most scientific journals are reluctant to address these concerns

Revealing the identity of a reviewer to a co-reviewer or to the author of the reviewed paper does not adversely affect the quality of a review

WHAT THIS STUDY ADDS

Telling peer reviewers that their signed review might appear online alongside the published paper does not affect the quality of their review

Reviewers who know that their signed review might appear online alongside the published paper take significantly longer to complete their review

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

Table 4 | Effect on review quality and time taken to review of forewarning reviewers that their signed reviews might be published online

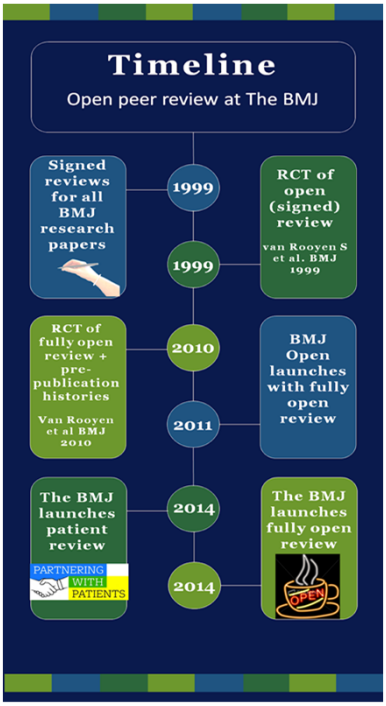
	Intervention (mean (SD))	Control (mean (SD))	Difference (95% CI)
Total			
Editors' assessment (mean total score)	3.40 (0.73)	3.36 (0.69)	0.04 (−0.09 to 0.17)
n	225	246	
Authors' assessment (mean total score)	3.16 (0.77)	3.10 (0.80)	0.06 (−0.09 to 0.20)
n	213	240	
Reviewers' time taken (minutes)	182 (135.2)	157 (101.9)	25* (3.0 to 47.0)
n	219	237	
Accepted papers†			

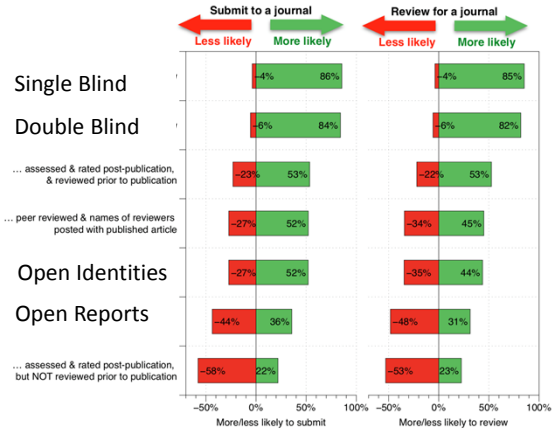
Van Rooyen S et al. BMJ 2010;341:c5729

The BMJ publishes all research with open access, identifies all reviewers to authors, and, since early 2015, publishes a detailed "prepublication history" that includes reviewers' signed reports.

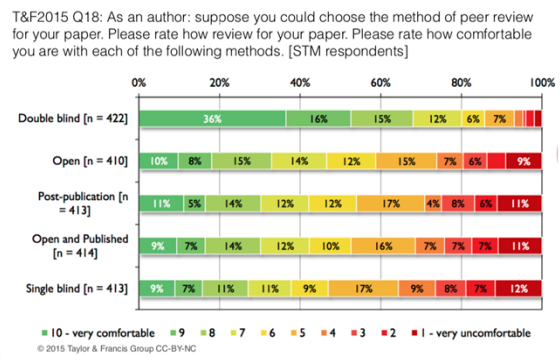
This open peer review policy draws on evidence from two randomised controlled trials of open peer review, and on 19 years experience of mandatory open peer review.

We also have very active commenting





Ware Survey



Taylor & Francis Survey

Mark Ware Consulting

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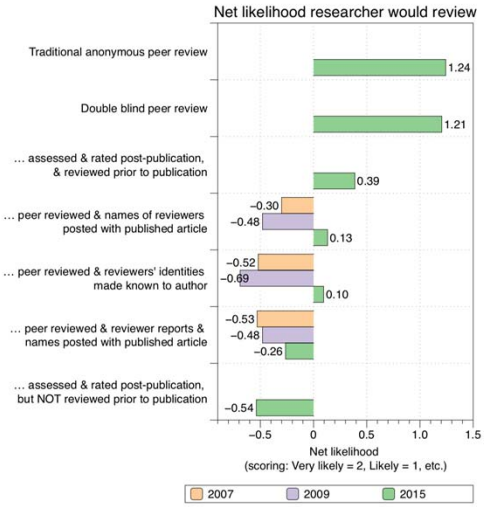
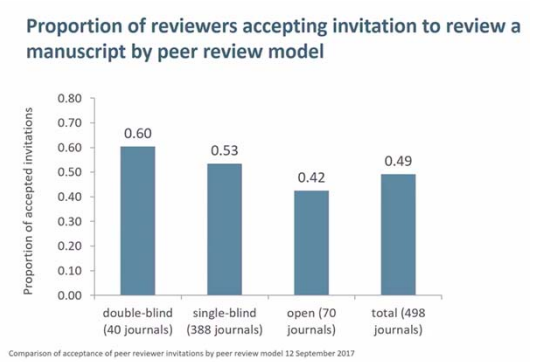
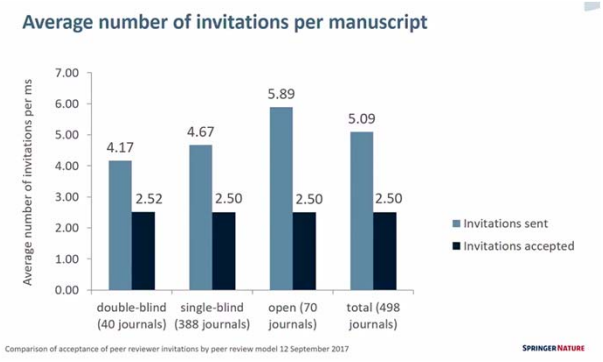


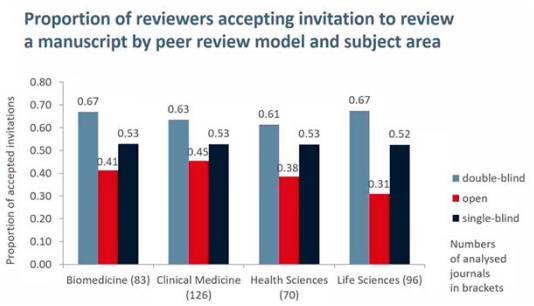
Q: How likely is it that you would REVIEW or ASSESS a research article for a journal that conducted the following form of assessment (pr10 Base: All; n=1741–1965).
Note that wordings of the questions and rating scales were similar but not identical across the three surveys, and this may have affected responses

Mark Ware Consulting

PRC peer review survey report Final 2016-05-19.pdf



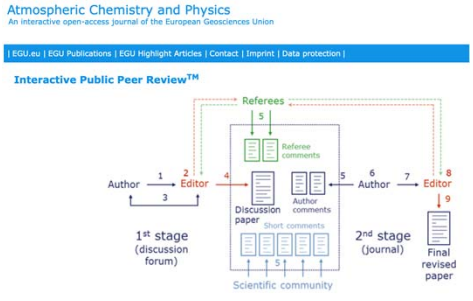




Kowalczuk M & Samarashing M. https://peerreviewcongress.org/prc17-0227

Open Peer Review

- **Open participation:** The wider community able to contribute to the review process



Ross-Hellauer T. *F1000Research* 2017, 6:588

Open Peer Review

- **Open interaction:** Direct reciprocal discussion between authors and reviewers, or between reviewers, is encouraged

EMBOpress eLIFE F1000Research Open for Science

BMJ Open Science

Ross-Hellauer T. *F1000Research* 2017, 6:588

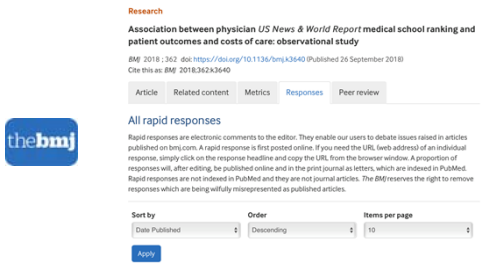
Open Peer Review

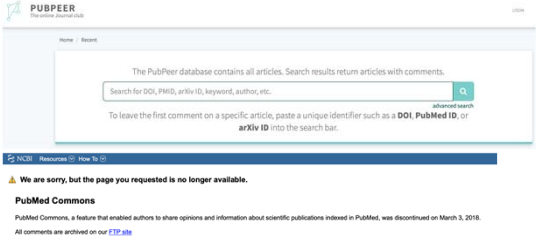
- **Open final version commenting:** Review of commenting on final "version of record" publication

scienceOPEN.com research+publishing network

PUBPEER The online Journal club

Mendeley

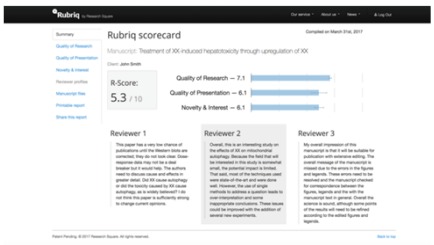




Ross-Hellauer T. *F1000Research* 2017, 6:588

Open Peer Review

- **Open platforms:** Review is do-coupled from publisher, facilitated by another entity that is independent from the publisher



Peerage of Science

publons

Ross-Hellauer T. *F1000Research* 2017, 6:588

Open Peer Review

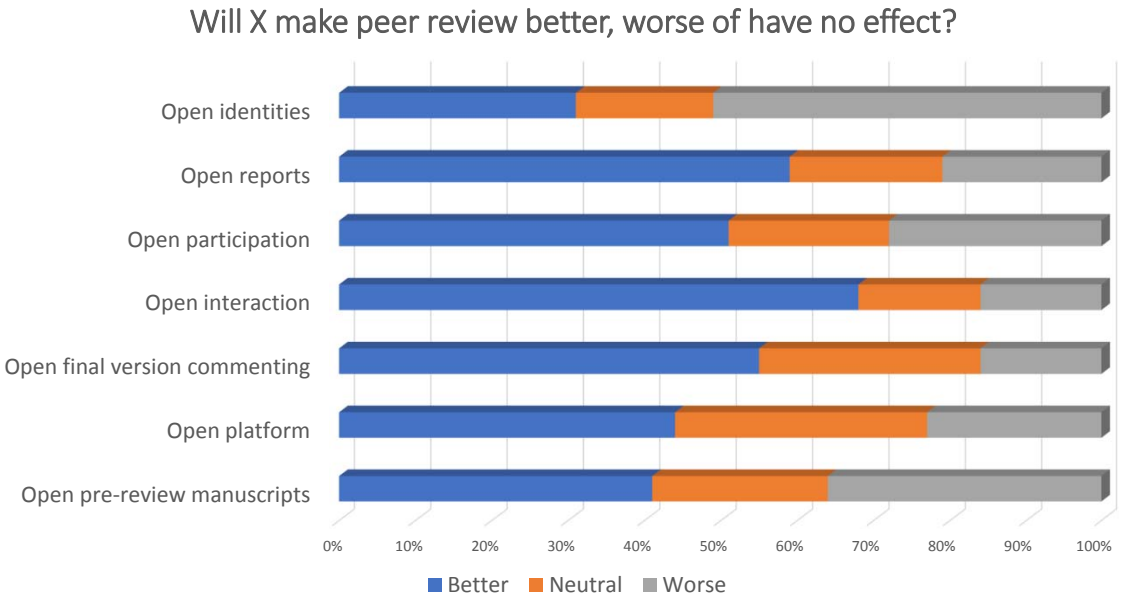
- **Open pre-review manuscripts:** Manuscripts are made immediately available in advance of the formal peer-review process

arXiv.org

bioRχiv
THE PREPRINT SERVER FOR BIOLOGY

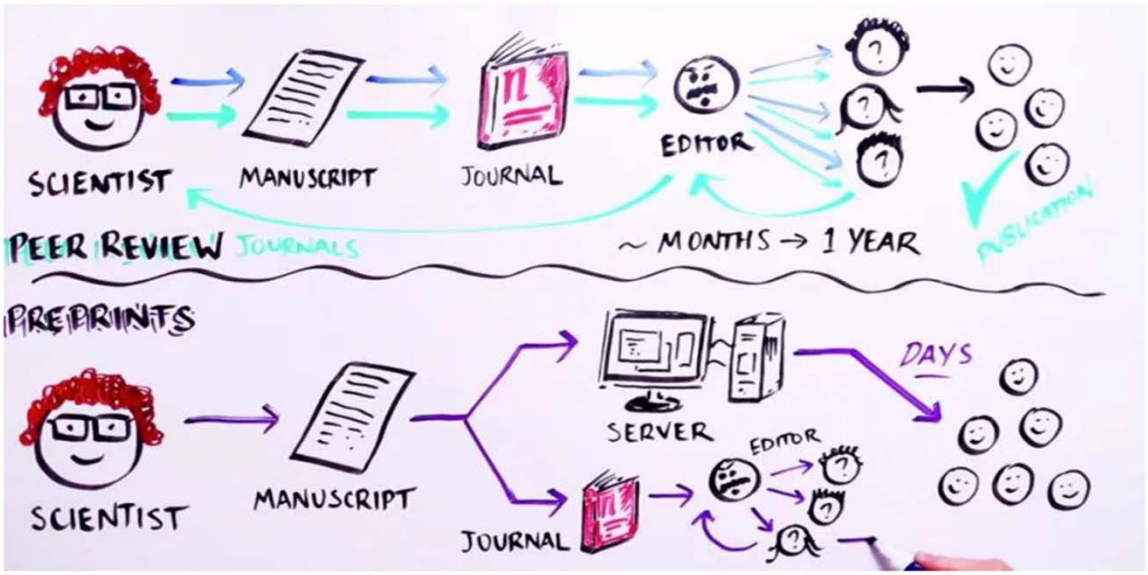
medRχiv
THE PREPRINT SERVER FOR HEALTH SCIENCES

Ross-Hellauer T. *F1000Research* 2017, 6:588

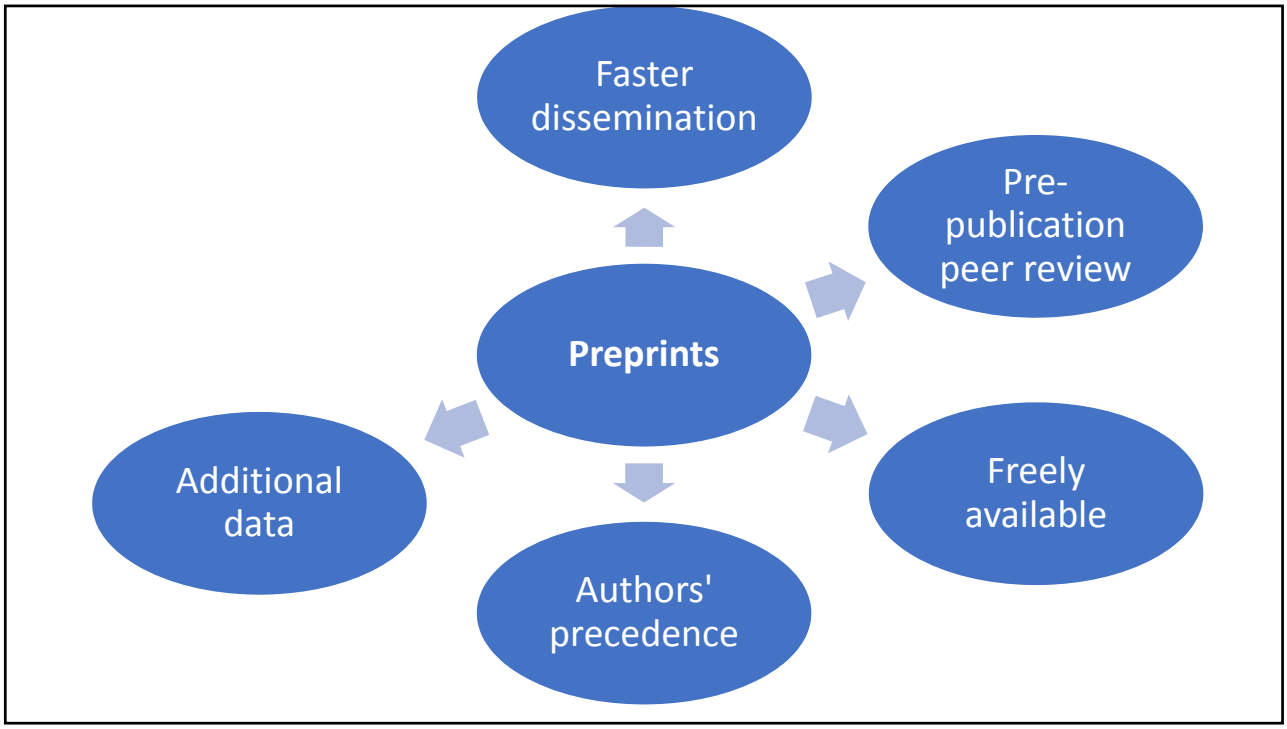


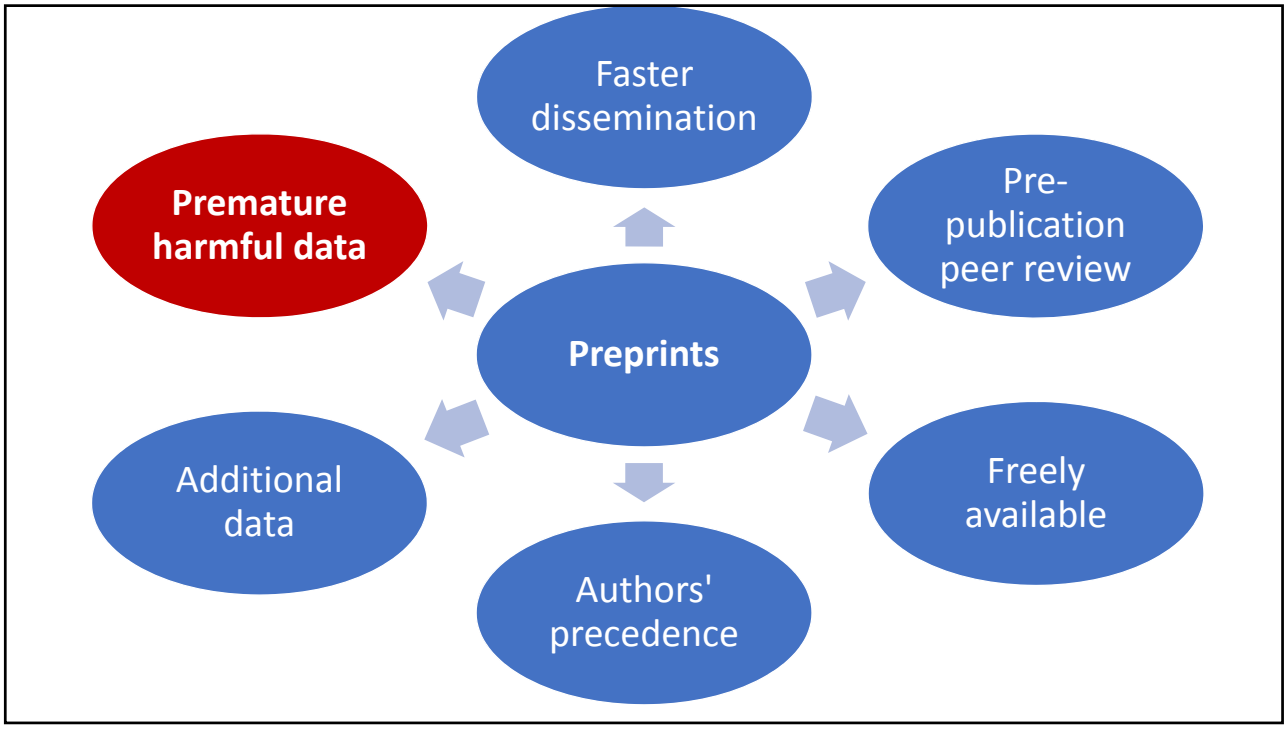
N=3062

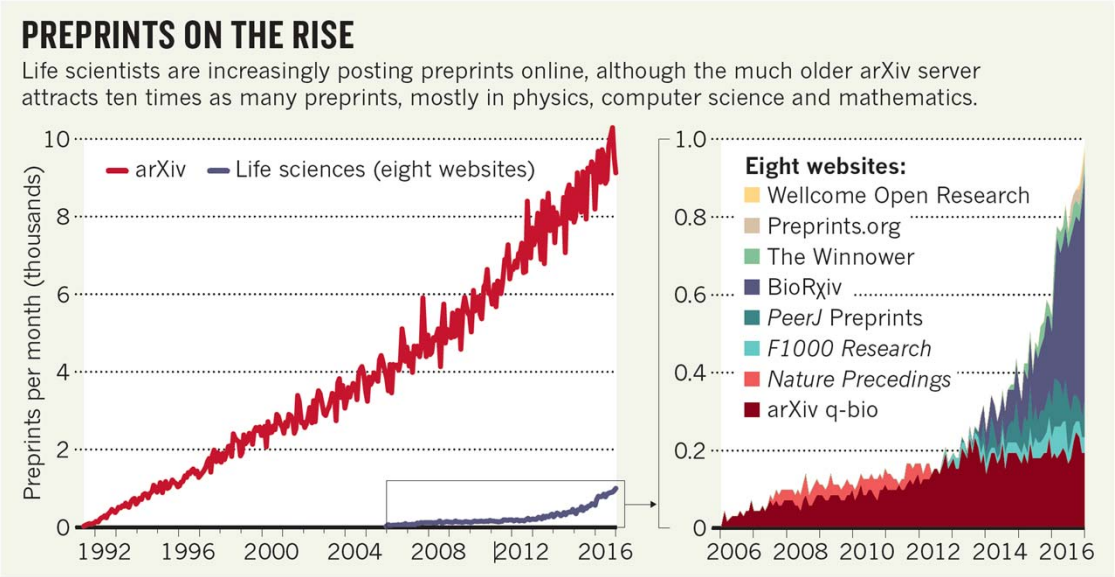
Data from: Ross-Hellauer Tet al. PLoS ONE 2017:12:e0189311



https://www.ibiology.org/biomedical-workforce/preprints/


Faster dissemination
Pre-publication peer review
Preprints
Additional data
Freely available
Authors' precedence


Faster dissemination
Premature harmful data
Pre-publication peer review
Preprints
Additional data
Freely available
Authors' precedence



Why are preprints taking off now?

- Funders (NIH, Welcome) favour 'interim research outputs'
- Funders accepting in grant applications
- NIH provide guidance on how to choose a repository
- Launching own open research platforms
- $$$ injection by CZI into bioRxiv
- Generational change?

What constitutes a preprint server? Does it matter?

1991 arXiv.org

1994 SSRN

2013 bioRxiv beta — THE PREPRINT SERVER FOR BIOLOGY

PeerJ Preprints

figshare

zenodo

Assign DOIs and take all types of data

CellPress Sneak Peek — A PREVIEW OF PAPERS UNDER REVIEW

Expose some or all of peer review

F1000Research Open for Science

thebmj

BMJ 2019;365:l2301 doi: 10.1136/bmj.l2301 (Published 6 June 2019)

Check for updates

EDITORIALS

New preprint server for medical research

Announcing the launch of medRxiv for faster access to better evidence

Claire Rawlinson *publisher*, Theodora Bloom *executive editor, The BMJ*

[1]BMJ, London, UK

John Inglis
@JohnRInglis Follows you

Harlan Krumholz
@hmkyale

Theodora Bloom
@TheoBloom Follows you

Richard Sever
@cshperspectives

Joseph Ross
@jsross119

Claire Rawlinson
@clairerawlinson

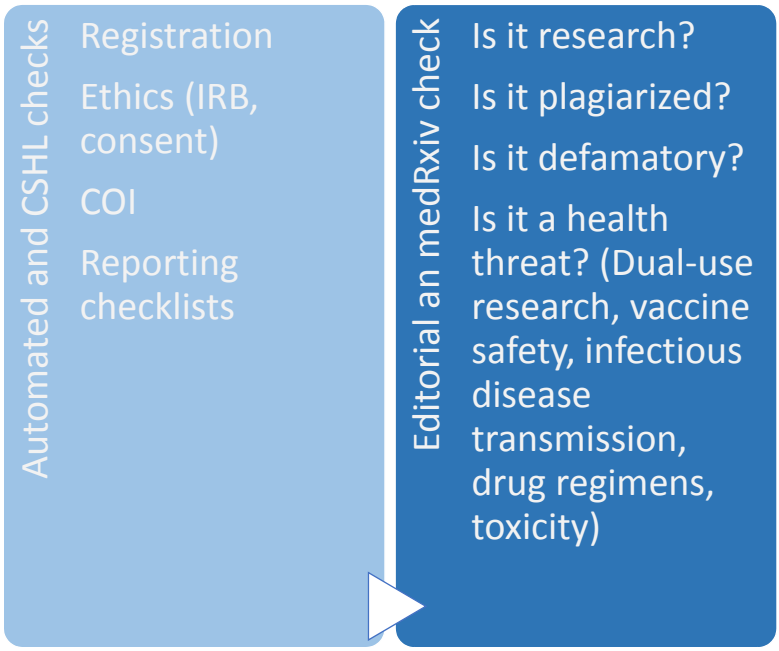
Cold Spring Harbor Laboratory

Yale

BMJ

Automated and CSHL checks

- Registration
- Ethics (IRB, consent)
- COI
- Reporting checklists



Harmful to health?

What do clusters of similar HIV genetic sequences tell us about HIV risks in Africa?

"…most sex partners are in or close to home, genetic diversity showed little or no geographic structure in the three studies that looked at the issue. Evidence from these studies does not support the common view that sex accounts for most HIV infections in Africa. Studies did not do what they…"

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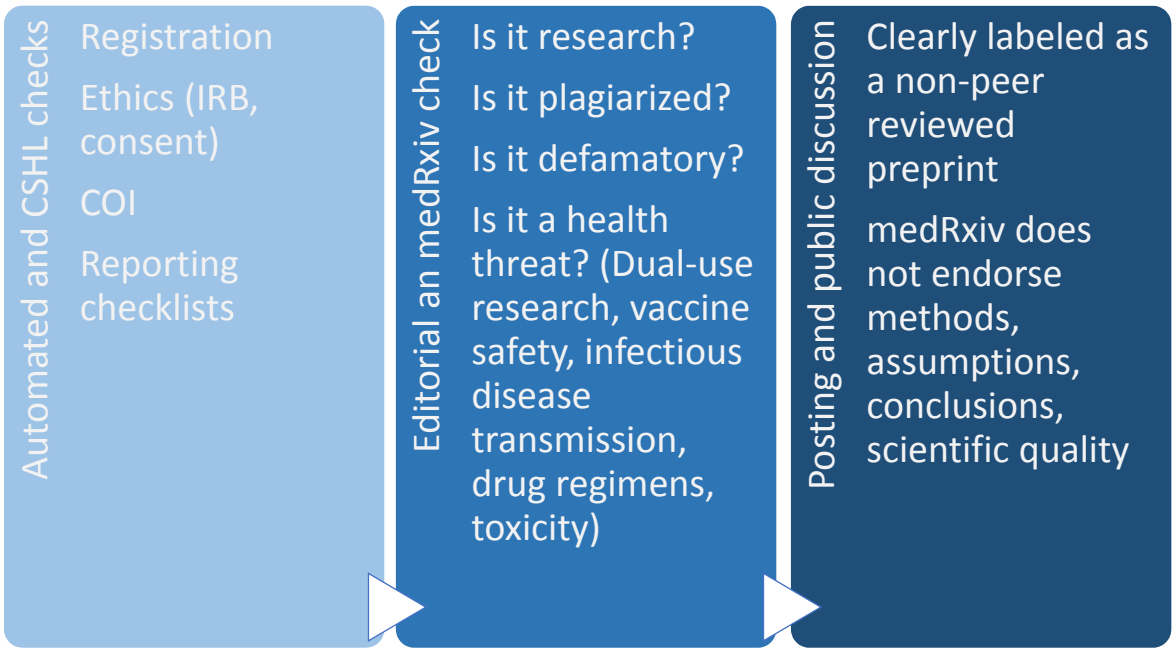
Rejected from bioRxiv



What happens once a preprint is live

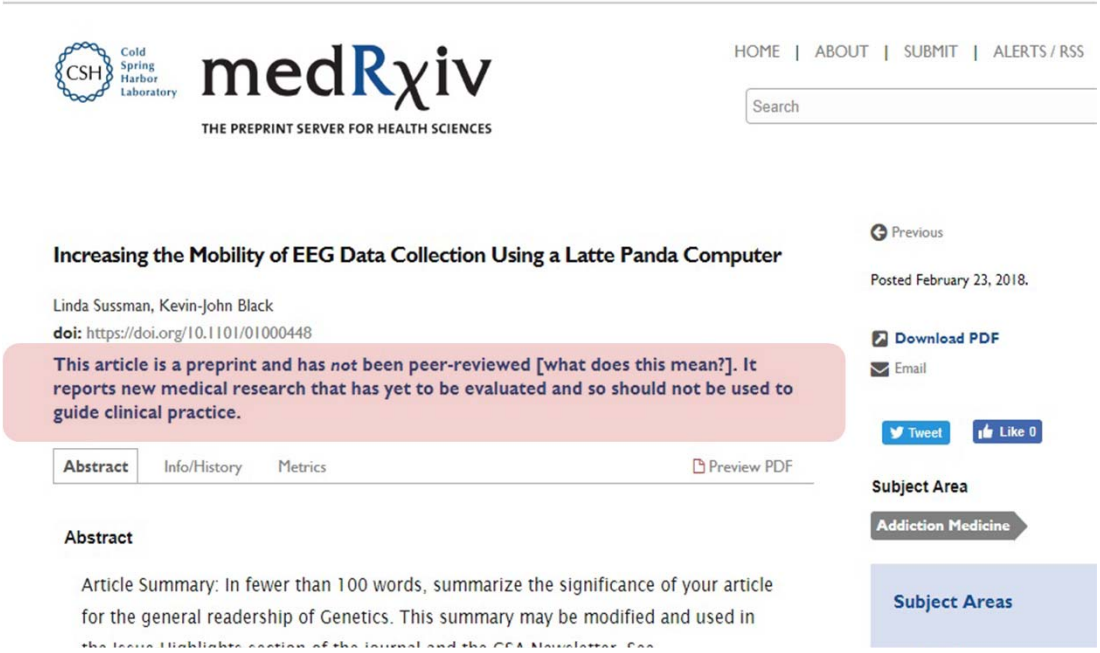
- Prominent 'not peer reviewed' warnings, no press releases
- Moderated comments: peer-to-peer network for researchers
- Authors may submit a revised version
- Articles receive a DOI, and are citable with bidirectional linking between preprints and published versions
- Very rare take-downs

medRxiv THE PREPRINT SERVER FOR HEALTH SCIENCES

CSH Cold Spring Harbor Laboratory

Yale

BMJ



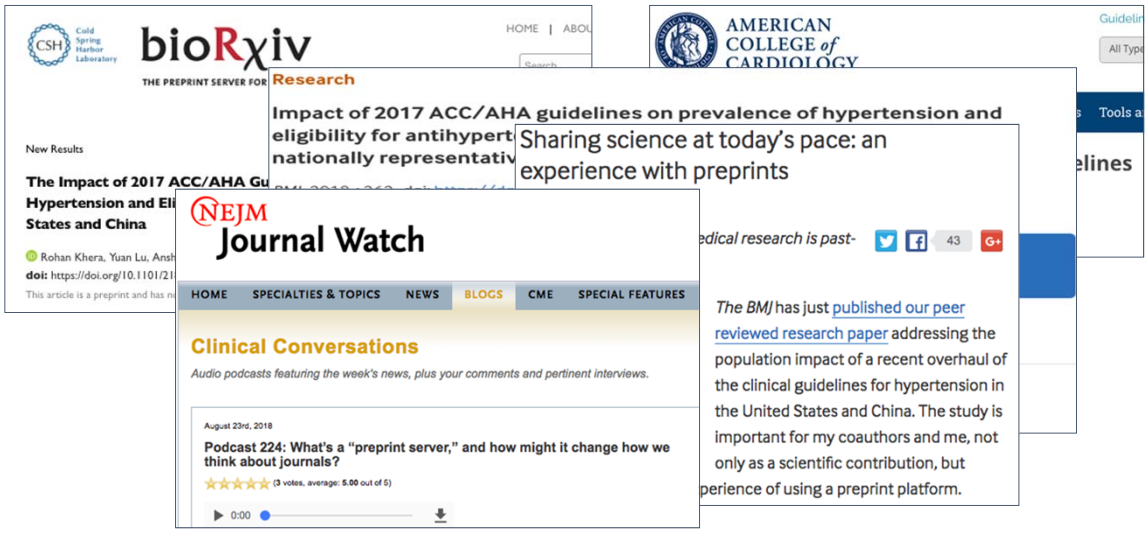
What is an unrefereed preprint?

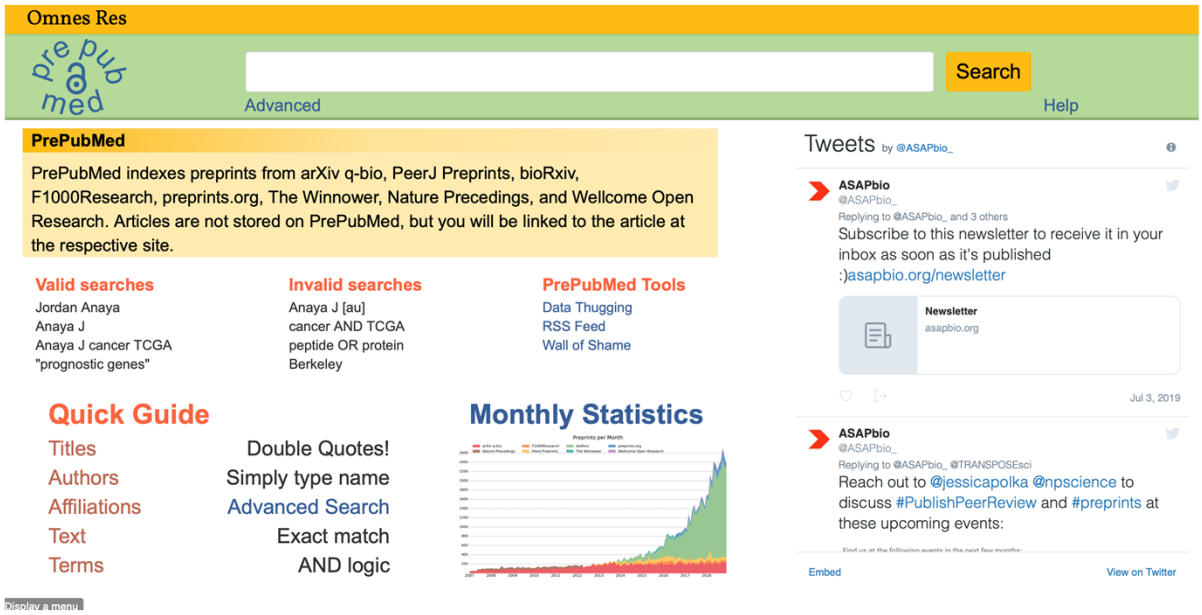
Before formal publication in a scholarly journal, scientific and medical articles are traditionally "peer reviewed." In this process, the journal's editors take advice from various experts—called "referees"—who have assessed the paper and may identify weaknesses in its assumptions, methods, and conclusions. Typically a journal will only publish an article once the editors are satisfied that the authors have addressed referees' concerns and that the data presented support the conclusions drawn in the paper.

Because this process can be lengthy, authors use the medRxiv service to make other scientists to see, discuss, and comment on the findings immediately. Readers should therefore be aware that articles on medRxiv have not been finalized by authors, might contain errors, and report information that has not yet been accepted or endorsed in any way by the scientific or medical community.

We also urge journalists and other individuals who report on medical research to the general public to consider this when discussing work that appears on medRxiv preprints and emphasize it has yet to be evaluated by the medical community and the information presented may be erroneous.

Publishing work that has previously been a preprint





http://www.prepubmed.org

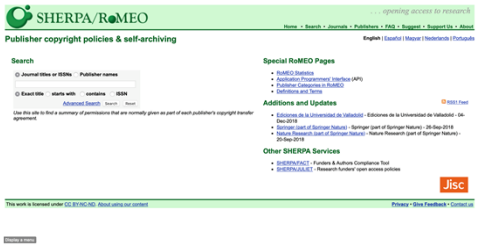
Duplicate publication is publication of a paper that overlaps substantially with one already published, without clear, visible reference to the previous publication. Prior publication may include release of information in the public domain.

This recommendation does not prevent a journal from considering a complete report that **follows publication of a preliminary report**, such as a letter to the editor, **a preprint**, or an abstract or poster displayed at a scientific meeting.

Authors who choose to post their work on **a preprint server** should choose one that clearly identifies preprints as not peer-reviewed work and includes statements of conflicts of interest.

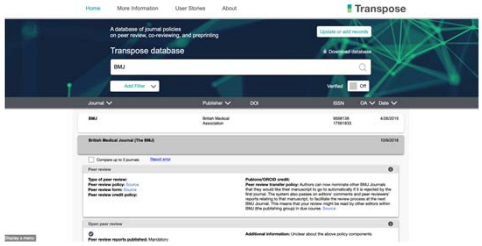
ICMJE INTERNATIONAL COMMITTEE of MEDICAL JOURNAL EDITORS

http://www.sherpa.ac.uk/romeo/index.php



https://en.wikipedia.org/wiki/List_of_academic_journals_by_preprint_policy

https://transpose-publishing.github.io/#/

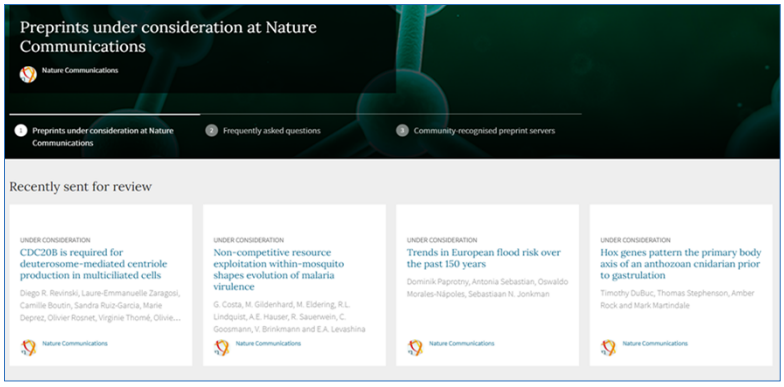


Journal / Publisher	SHERPA/ ROMEO
Most major publishers	✓
Cell Press	✓
The Lancet	✓
JAMA	✗
NEJM	✗
BMJ Journals	✓

Publisher	Policy type	Policy text
The JAMA Network	Incompatible	"Public dissemination of manuscripts prior to, simultaneous with, or following submission to this journal, such as posting the manuscript on preprint servers or other repositories, is discouraged, and will be considered in the evaluation of manuscripts submitted for possible publication in this journal. The evaluation will involve making a determination of whether publication of the submitted manuscript will add meaningful new information to the medical literature or will be redundant with information already disseminated with the posting of the preprint."
American Heart Association (AHA)	Compatible	All AHA journals share the same policy: "Posting of un-refereed manuscripts to a community pre-print server by the author will not be considered prior publication, provided that the following conditions are met: 1) During submission, authors must acknowledge pre-print server deposition and provide any associated accession numbers or DOIs; 2) Versions of a manuscript that have been altered as a result of the peer review process may not be deposited; 3) The pre-print version cannot itself have been indexed in MEDLINE or PubMed; 4) Upon publication, authors are responsible for updating the archived pre-print with a DOI and link to the published version of the article."
BMJ (company)	Compatible	
Nature Publishing Group	Compatible	The policy states "Neither conference presentations nor posting on recognized preprint servers constitute prior publication," and an editorial explains: "Nature never wishes to stand in the way of communication between researchers.[...] Communication between researchers includes not only conferences but also preprint servers. The ArXiv preprint server is the medium of choice for (mainly) physicists and astronomers who wish to share drafts of their papers with their colleagues, and with anyone else with sufficient time and knowledge to navigate it. [...] If scientists wish to display drafts of their research papers on an established preprint server before or during submission to Nature or any Nature
Elsevier	Compatible	Elsevier is generally permissive with respect to authors and electronic preprints. "(i) Authors can share their preprint anywhere at any time. (ii) [They] encourage authors to link from the preprint to their formal publication via its Digital Object Identifier (DOI). (iii) Authors can update their preprints on arXiv or RePEc with their accepted manuscript." [However, please note that Cell Press, The Lancet and some society-owned journals have their own preprint policies available in the Information to Authors.]
Wiley	Compatible	Wiley believes that in communities where non-commercial preprint servers exist, journals should allow for the submission of manuscripts which have already been made available on such a server. Allowing submission does not, of course, guarantee that an article will be sent out for review; it simply reflects a belief that availability on a preprint server should not be a disqualifier for submission.
PLOS	Compatible	[all PLOS Journals feature this language:] PLOS allows and encourages researchers to share early versions of their original research manuscripts via preprint servers either before or after submission to a PLOS journal. Authors choosing bioRxiv may now concurrently submit directly to select PLOS journals through bioRxiv's direct transfer to journal service. Posting a research article on a preprint server prior to or concurrently with submission to a PLOS journal will not preclude consideration of manuscripts for peer review in any PLOS journal.

The BMJ (formerly British Medical Journal)	BMJ	Compatible	Preprint ("the pre-review manuscript that is submitted to a journal, or any earlier draft.") can be posted.
New England Journal of Medicine		Incompatible	NEJM expects that the articles it publishes will not have been published or released elsewhere before they are published in NEJM. The policy page does not explicitly mention preprints; however, the journal has come under public scrutiny.
Science	AAAS	Compatible	*Science* will not consider any original research paper or component of a research paper that has been published or is under consideration for publication elsewhere. Distribution on the Internet may be considered prior publication and may compromise the originality of the paper as a submission to *Science*, although we do allow posting of research papers on not-for-profit preprint servers such as arxiv.org and bioRxiv. Please contact the editors with questions regarding allowable postings to other servers.
The Lancet	Elsevier	Compatible	Presentation of data at a scientific meeting, as a poster, abstract, orally, on a CD, or as an abstract on the web or on a pre-print server does not conflict with submission to The Lancet

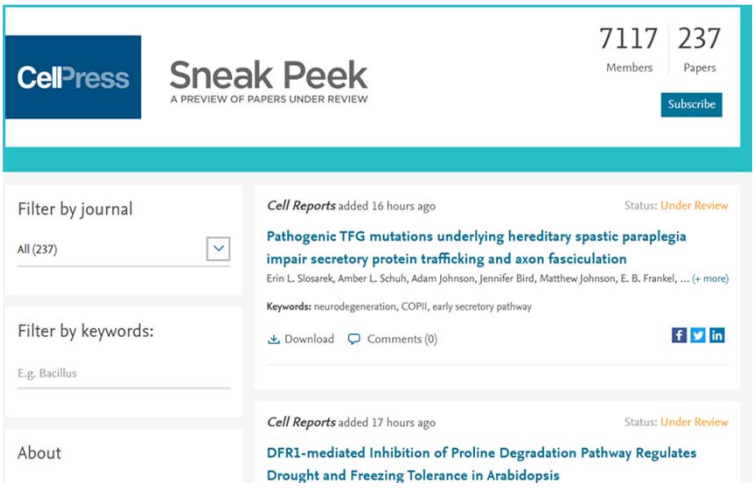
Integrating preprints and peer review



Read in full at bioRxiv.

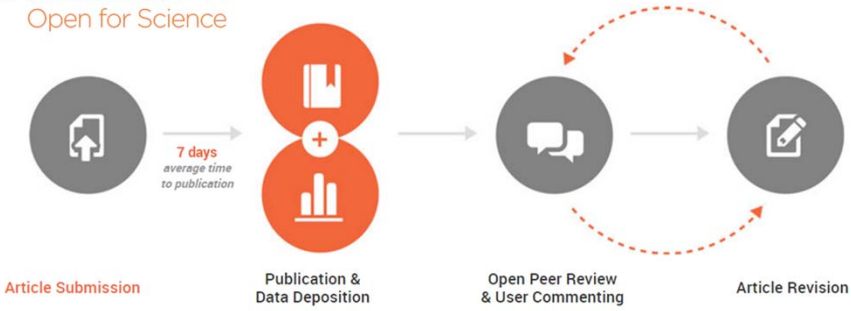
This is an abstract of a preprint hosted on an independent third party site. It has not been peer reviewed but is currently under consideration at Nature Communications.

Integrating preprints and peer review



Integrating preprints and peer review

F1000Research
Open for Science



Wellcome Open Research

BILL & MELINDA GATES foundation

Preprint journal clubs

ACADEMIC KARMA

PREreview

Upload preprint peer-review

Open-content preprint peer review

What is open-content preprint peer-review?

Preprint	Authors	Area	Date	Reviews
Acute fluoxetine differently affects aggressive display in zebrafish phenotypes	H. P. Barbosa ... C. Maximino	Neuroscience	Nov 2017	R1
TaxAss: Leveraging Custom Databases Achieves Fine-Scale Taxonomic Reso	R. R. Rohwer ... K. D. McMahon	Bioinformatics	Nov 2017	R1

UIUC Plant Physiology Journal Club: 2018-08-13

Steven Burgess (University of Illinois at Urbana-Champaign)

Abstract

The paper "Arabidopsis species employ distinct strategies to cope with drought stress" by Bouzid et al. (https://doi.org/10.1101/341859) investigates whether responses to water limitation vary between closely related species by assessing the growth and survival of *A. thaliana*, *A. lyrata* and *A. halleri* accessions in a dry down experiment. By including multiple accessions of each species the authors were able to analyse variation in response to drought stress within and between species based on eight phenotypic parameters. The authors went on to perform comparative transcriptomic analysis between *A. lyrata* and *A. halleri* over a time course of drought treatment and identified differentially expressed genes. GO ontology analysis suggest the species analysed adopt different strategies to cope with drought stress, with A. lyrata employing avoidance and tolerance mechanisms, whereas *A. thaliana* showed strong avoidance but no tolerance. We were impressed with the amount of work performed and thought the study aims to address an interesting question. During the hour long journal club participants were asked to focus on three aspects of the paper as part of a training exercise, including novelty, interest, soundness as well as writing and presentation.

Review

There are several published papers looking at the effect of drought stress in Arabidopsis species including *A. lyrata* (Sletvold and Agren 2011; Paccard et al. 2014) and A. thaliana (Ferguson et al. 2018; Kalladan et al. 2017). We suggest toning down the

Recommendation services

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PeerComInEvolBiol @PCIEvolBiol · May 22

New @PCIEvolBiol #preprint #recommendation: Ravigné & Blanquart: A new hypothesis to explain Ebola's high virulence
evolbiol.peercommunityin.org/public/rec?id=...

Today

PREPRINT

Can Ebola Virus evolve to be less virulent in humans?

Mircea T. Sofonea, Lafi Aldakak, Luis Fernando Boullosa, Samuel Alizon

https://doi.org/10.1101/108589

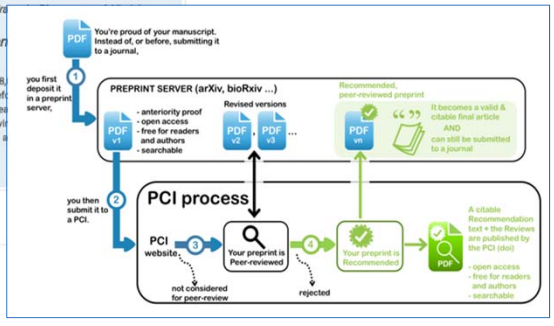
Recommended by Virginie Ravigné based on reviews by Fra... Ravigné

A new hypothesis to explain Ebola's high virulen...

The tragic 2014-2016 Ebola outbreak that resulted in more than 28... West Africa [1] has been a surprise to the scientific community. Bef... was known to produce recurrent outbreaks in remote villages nea... Africa, never exceeding a few hundred cases with very high vi... circulate for several months in large urban human populations a... sugges...

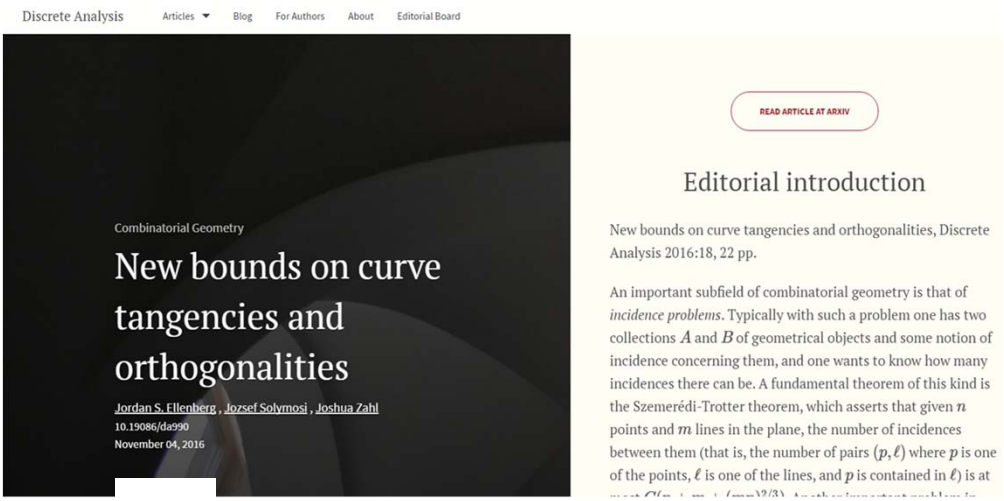
MORE

5 6



Overlay journals

http://discreteanalysisjournal.com/



Research into preprints

- Citation
- Changes during peer review
- Speed of uptake of findings
- Proportion of papers preprinted, and of preprints published
- Mainstream media coverage
- …?

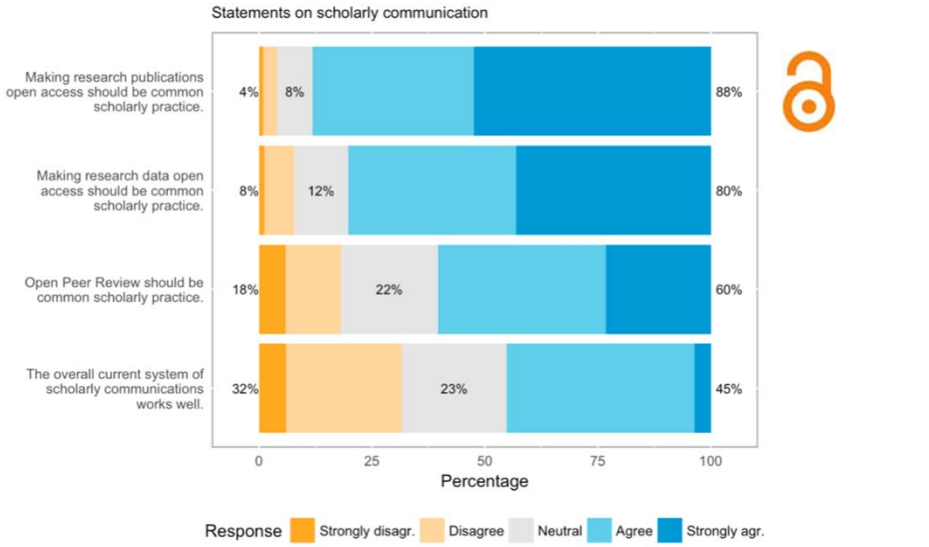


Fig 7. General attitudes towards aspects of open science.

https://doi.org/10.1371/journal.pone.0189311.g007

Open Access

"Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. What makes it possible is the internet and the consent of the author or copyright-holder." Peter Suber.

Two conditions:

1. Free of **all** restrictions on access (Gratis)
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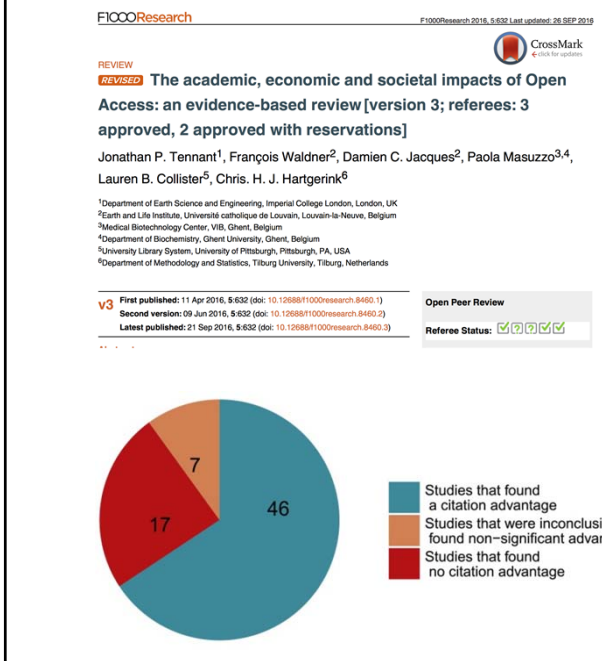
http://legacy.earlham.edu/~peters/fos/brief.htm

Open Access

Ways to provide:

Green: Publish and self archive in repository where it may be accessed for free (PubMed Central, Institutional, non-OA journal). Publisher may impose delay

Gold: Publish to make it immediately available (OA and hybrid OA journal)



F1000Research F1000Research 2016, 5:632 Last updated: 26 SEP 2016

REVIEW

REVISED **The academic, economic and societal impacts of Open Access: an evidence-based review [version 3; referees: 3 approved, 2 approved with reservations]**

Jonathan P. Tennant[1], François Waldner[2], Damien C. Jacques[2], Paola Masuzzo[3,4], Lauren B. Collister[5], Chris. H. J. Hartgerink[6]

[1]Department of Earth Science and Engineering, Imperial College London, London, UK
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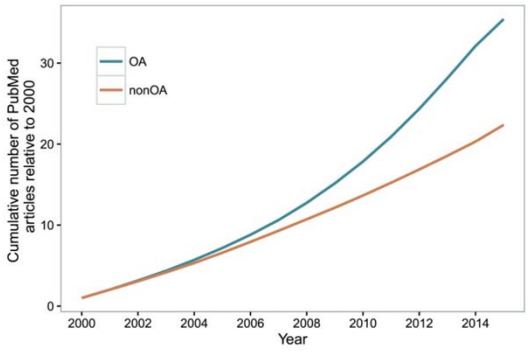
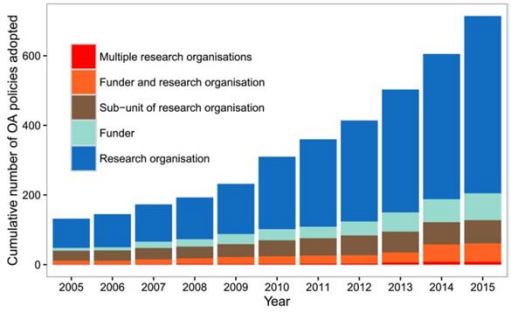
[5]University Library System, University of Pittsburgh, Pittsburgh, PA, USA
[6]Department of Methodology and Statistics, Tilburg University, Tilburg, Netherlands

v3 **First published:** 11 Apr 2016, 5:632 (doi: 10.12688/f1000research.8460.1)
Second version: 09 Jun 2016, 5:632 (doi: 10.12688/f1000research.8460.2)
Latest published: 21 Sep 2016, 5:632 (doi: 10.12688/f1000research.8460.3)

Open Peer Review

Referee Status:





"Predatory open access publishing is an exploitative form of academic publishing, in which publication fees is charged to the authors but the publishing as well as editorial services related to the journals is not provided."

Predatory Journals

https://predatoryjournalsblog.wordpress.com

Table 10 Salient characteristics of potential predatory journals

1.	The scope of interest includes non-biomedical subjects alongside biomedical topics
2.	The website contains spelling and grammar errors
3.	Images are distorted/fuzzy, intended to look like something they are not, or which are unauthorized
4.	The homepage language targets authors
5.	The Index Copernicus Value is promoted on the website
6.	Description of the manuscript handling process is lacking
7.	Manuscripts are requested to be submitted via email
8.	Rapid publication is promised
9.	There is no retraction policy
10.	Information on whether and how journal content will be digitally preserved is absent
11.	The Article processing/publication charge is very low (e.g., < $150 USD)
12.	Journals claiming to be open access either retain copyright of published research or fail to mention copyright
13.	The contact email address is non-professional and non-journal affiliated (e.g., @gmail.com or @yahoo.com)

Shamseer L et al. BMC Medicine 2017;15:28

Open Access at BMJ

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Making research free at the point of use is critically important to advancing medical research and enabling healthcare professionals to make better decisions. We offer authors, institutions and funders the option to publish open access research across our journals, including our flagship journal, The BMJ.

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Accelerating the transition to full and immediate Open Access to scientific publications

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The costs of academic publishing are absurd. The University of California is fighting back.

The UC system just dropped its $10 million-a-year subscription to the world's largest publisher of academic journals.

By Brian Resnick | @B_resnick | brian@vox.com | Mar 1, 2019, 11:10am EST

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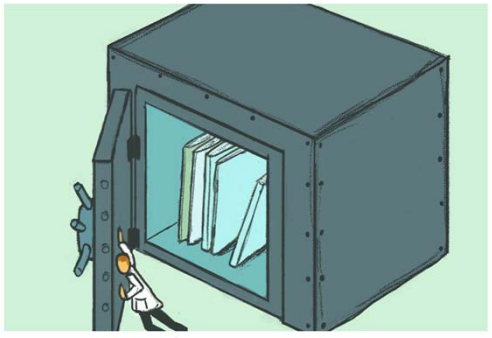
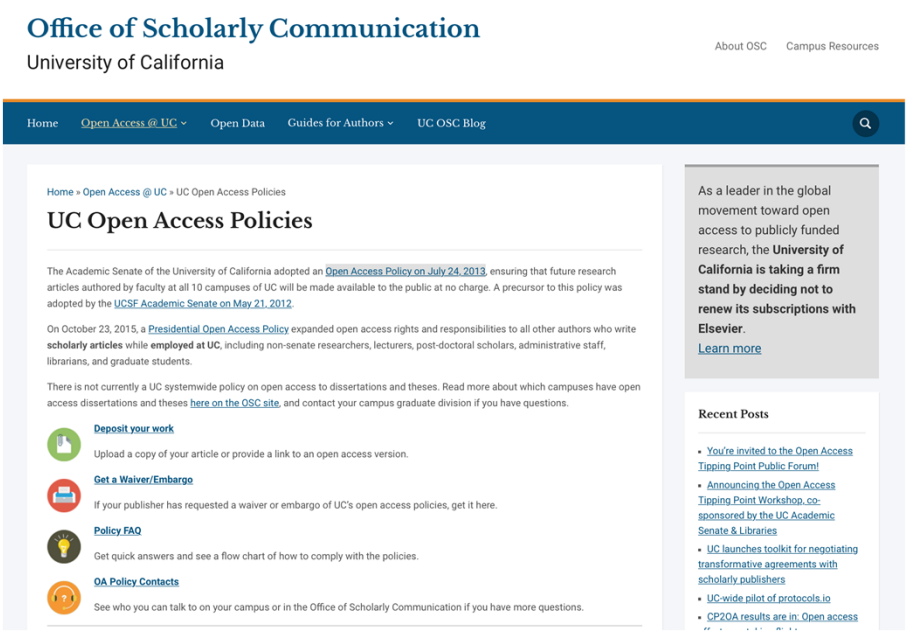
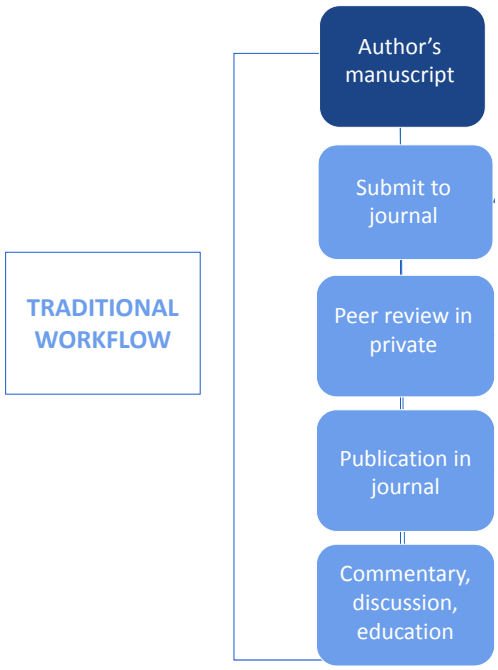
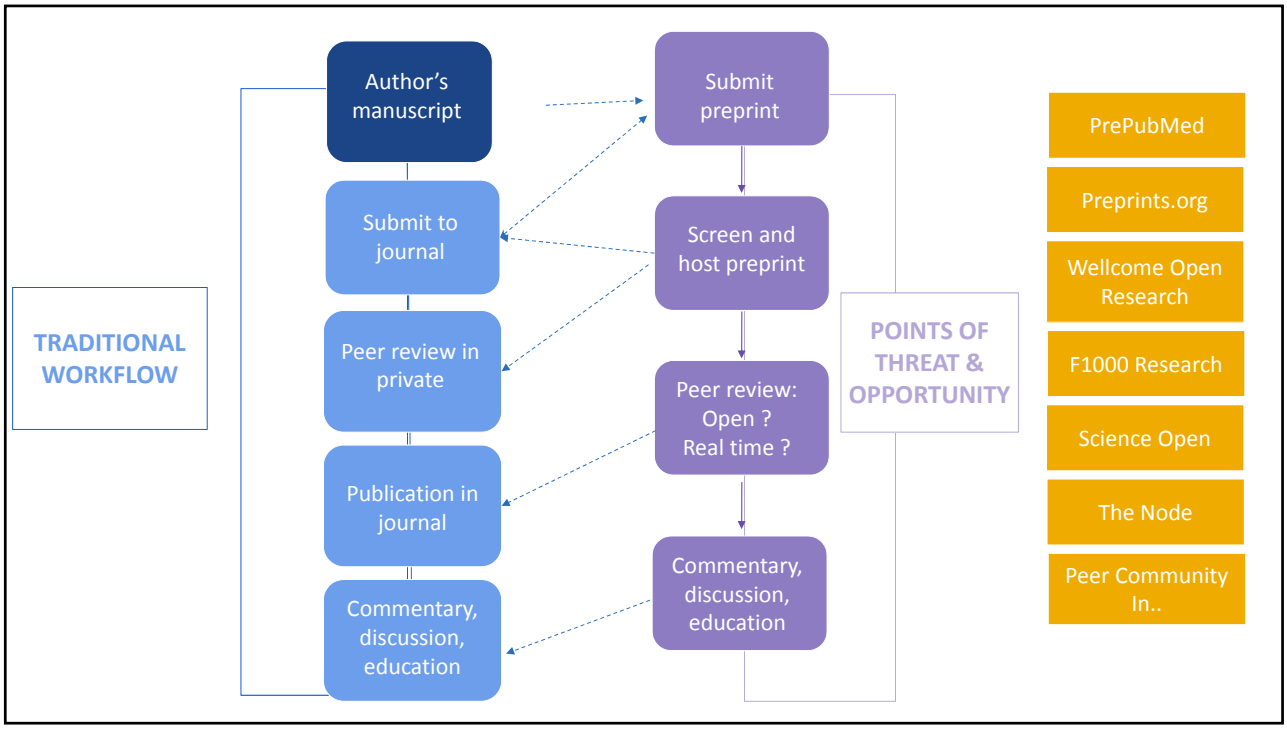


Too much science is locked behind paywalls. | Annette Elizabeth Allen



https://osc.universityofcalifornia.edu/open-access-at-uc/open-access-policy/





Thank You

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"...anyone who reads journals widely and critically is forced to realize that there are scarcely any bars to eventual publication. There seems to be no study too fragmented, no hypothesis too trivial, no literature citation 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."

Next Congress: 2021

Rennie D. *JAMA*.1986;256(17):2391–2392.

Open Peer Review DELETE?

- **Open pre-review manuscripts:** Manuscripts are made immediately available in advance of the formal peer-review process

F1000Research Open for Science

arXiv.org

bioRxiv THE PREPRINT SERVER FOR BIOLOGY

medRxiv THE PREPRINT SERVER FOR HEALTH SCIENCES

figshare

zenodo

PeerJ Preprints

Ross-Hellauer T. *F1000Research* 2017, 6:588

Type	Description	Pros/Benefits	Cons/Risks	Examples
Pre-peer review commenting	Informal commenting and discussion on a publicly available pre-publication manuscript draft (i.e., preprints)	Rapid, transparent, public, relatively low cost (free for authors), open commenting	Variable uptake, fear of scooping, fear of journal rejection, fear of premature communication, no editorial control	bioRxiv, OSF Preprints, PeerJ Preprints, Figshare, Zenodo, Preprints.org
Pre-publication (closed)	Formal and editorially-invited evaluation of a piece of research by selected experts in the relevant field	Editorial moderation, provides at least some form of quality control for all published work	Mostly non-transparent, difficult to evaluate, potentially biased, secretive and exclusive, unclear who "owns" reviews	Nature, Science, New England Journal of Medicine, Cell, The Lancet
Post-publication	Formal and optionally-invited evaluation of research by selected experts in the relevant field, subsequent to publication	Rapid publication of research, public, transparent, can be editorially-moderated, continuous	Filtering of "bad research" occurs after publication, relatively low uptake	F1000 Research, ScienceOpen, RIO, The Winnower, Publons
Post-publication commenting	Informal discussion of published research, independent of any formal peer review that may have already occurred	Can be performed on third-party platforms, anyone can contribute, public	Comments can be rude or of low quality, comments across multiple platforms lack inter-operability, low visibility, low uptake	PubMed Commons, PeerJ, PLOS, BMJ
Collaborative	A combination of referees, editors and external readers participate in the assessment of scientific manuscripts through interactive comments, often to reach a consensus decision, and a single set of revisions	Iterative, transparent, editors sign reports, can be integrated with formal process, deters low quality submissions	Can be additionally time-consuming, discussion quality variable, peer pressure and influence can tilt the balance	eLife, Frontiers series, Copernicus journals, BMJ Open Science
Portable	Authors can take referee reports to multiple consecutive venues, often administered by a third-party service	Reduces redundancy or duplication, saves time	Low uptake by authors, low acceptance by journals, high cost	BioMed Central journals, NPRC, Rubriq, Peerage of Science, MECA
Recommendation services	Post-publication evaluation and recommendation of significant articles, often through a peer-nominated consortium	Crowd-sourced literature discovery, time saving, "prestige" factor when inside a consortium	Paid services (subscription only), time consuming on recommender side, exclusive	F1000 Prime, CiteULike
Decoupled post-publication (annotation services)	Comments or highlights added directly to highlighted sections of the work. Added notes can be private or public	Rapid, crowd-sourced and collaborative, cross-publisher, low threshold for entry	Non-interoperable, multiple venues, effort duplication, relatively unused, genuine critiques reserved	PubPeer, Hypothesis, PaperHive, PeerLibrary

Table 3. **Pros and cons of different approaches to anonymity in peer review.**

Approach	Description	Pros/Benefits	Cons/Risks	Examples
Single blind peer review	Referees are not revealed to the authors, but referees are aware of author identities	Allows reviewers to view full context of an author's other work, detection of COIs, more efficient	Prone to bias, authors not protected, exclusive, non-verifiable, referees can often be identified anyway	Most biomedical and physics journals, PLOS ONE, Science
Double blind peer review	Authors and the referees are reciprocally anonymous	Increased author diversity in published literature, protects authors and reviewers from bias, more objective	Still prone to abuse and bias, secretive, exclusive, non-verifiable, referees can often be identified anyway, time consuming	Nature, most social sciences journals
Triple-blind peer review	Authors and their affiliations are reciprocally anonymous to handling editors and reviewers	Eliminates geographical, institutional, personal and gender biases, work evaluated based on merit	Incompatible with pre-prints, low-uptake, non-verifiable, secretive	Science Matters
Private, open peer review	Referee names are revealed to the authors pre-publication, if the referees agree, either through an opt-in or opt-out mechanism	Protects referees, no fear of reprisal for critical reviews	Increases decline to review rates, non-verifiable	PLOS Medicine, Learned Publishing
Unattributed peer review	If referees agree, their reports are made public but anonymous when the work is published	Reports publicized for context and re-use	Prone to abuse and bias similar to double blind process, non-verifiable	EMBO Journal
Optional open peer review	As single blind peer review, except that the referees are given the option to make their review and their name public	Increased transparency	Gives an unclear pictures of the review process if not all reviews are made public	PeerJ, Nature Communications
Pre-publication open peer review	Referees are identified to authors pre-publication, and if the article is published, the full peer review history together with the names of the associated referees is made public	Transparency, increased integrity of reviews	Fear: referees may decline to review, or be unwilling to come across too critically or positively	The medical BMC-series journals, The BMJ
Post-publication open peer review	The referee reports and the names of the referees are always made public regardless of the outcome of their review	Fast publication, transparent process	Fear: referees may decline to review, or be unwilling to come across too critically or positively	F1000Research, ScienceOpen, PubPub, Publons
Peer review by endorsement (PRE)	Pre-arranged and invited, with referees providing a "stamp of approval" on publications	Transparent, cost-effective, rapid, accountable	Low uptake, prone to selection bias, not viewed as credible	RIO Journal