The Academy of Medical Sciences

Beyond the paper

Navigating Academic Publishing now and in the future

Chair: Dr Lee-Ann Coleman

acmedsci.ac.uk

@AMS_Careers
#BeyondThePaper

Open Research at Wellcome…

…and the current publishing landscape

Aki MacFarlane

24th June 2021

A little about me

- Background:
  - Biology
  - Epidemiology

- Previously worked
  - At BioMed Central helping to run ISRCTN clinical trials registry
  - In Wellcome's Population Health funding team

- Currently working in the Open Research team at Wellcome

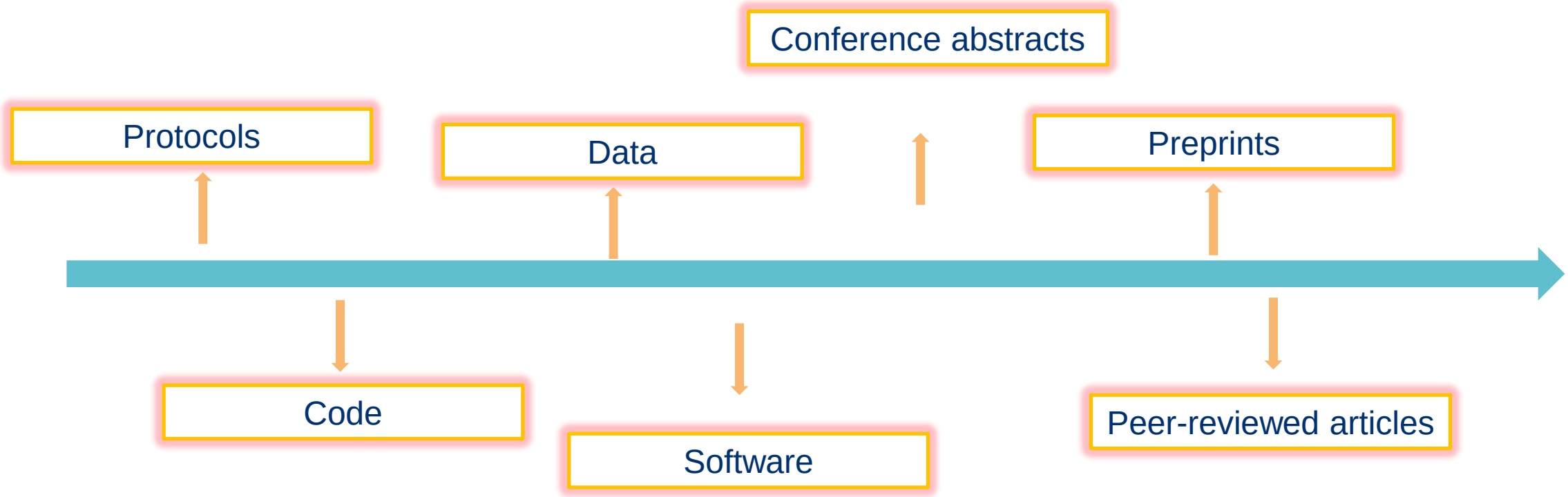
Current publishing landscape

- There are many types of open access publishing, including:

- **Gold:** published in a fully-OA journal
- **Hybrid:** published in a toll-access journal, available on the publisher site, with an OA license
- **Bronze:** published in a toll-access journal, available on the publisher site, without an OA license
- **Green:** published in a toll-access journal and the only fulltext copy available is in an OA repository
- **Closed:** everything else

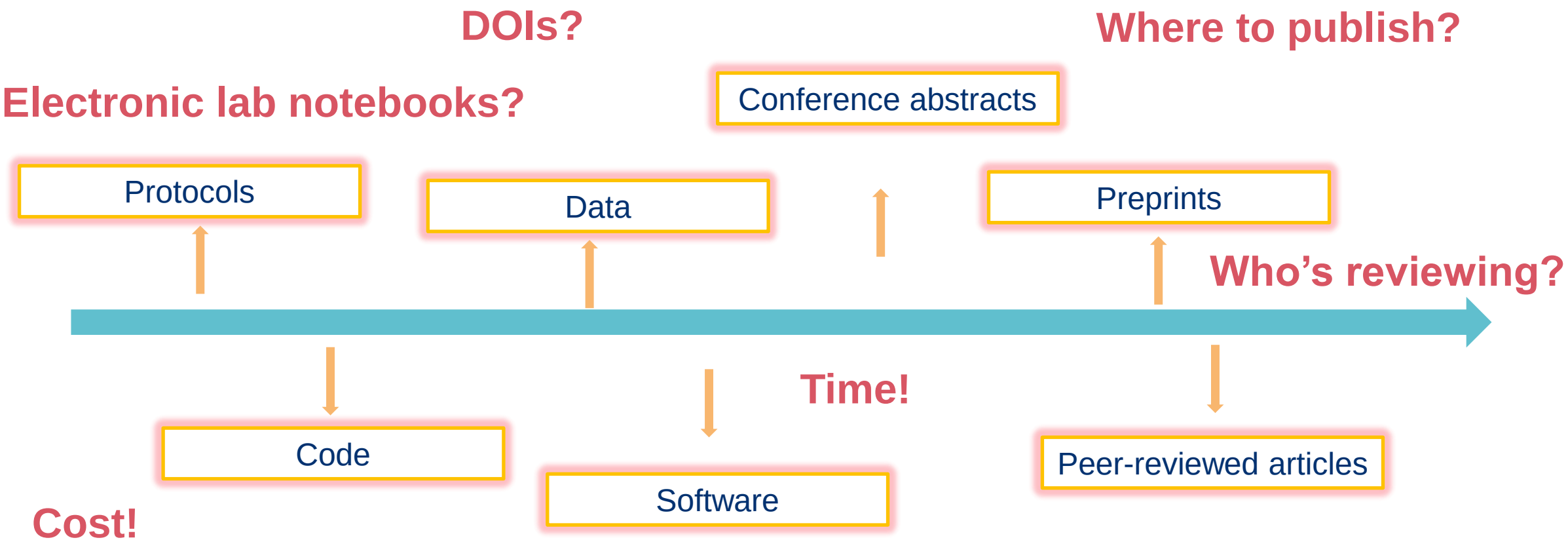
Adapted from Piwowar et al (2019) https://doi.org/10.1101/795310

What can you publish in research?



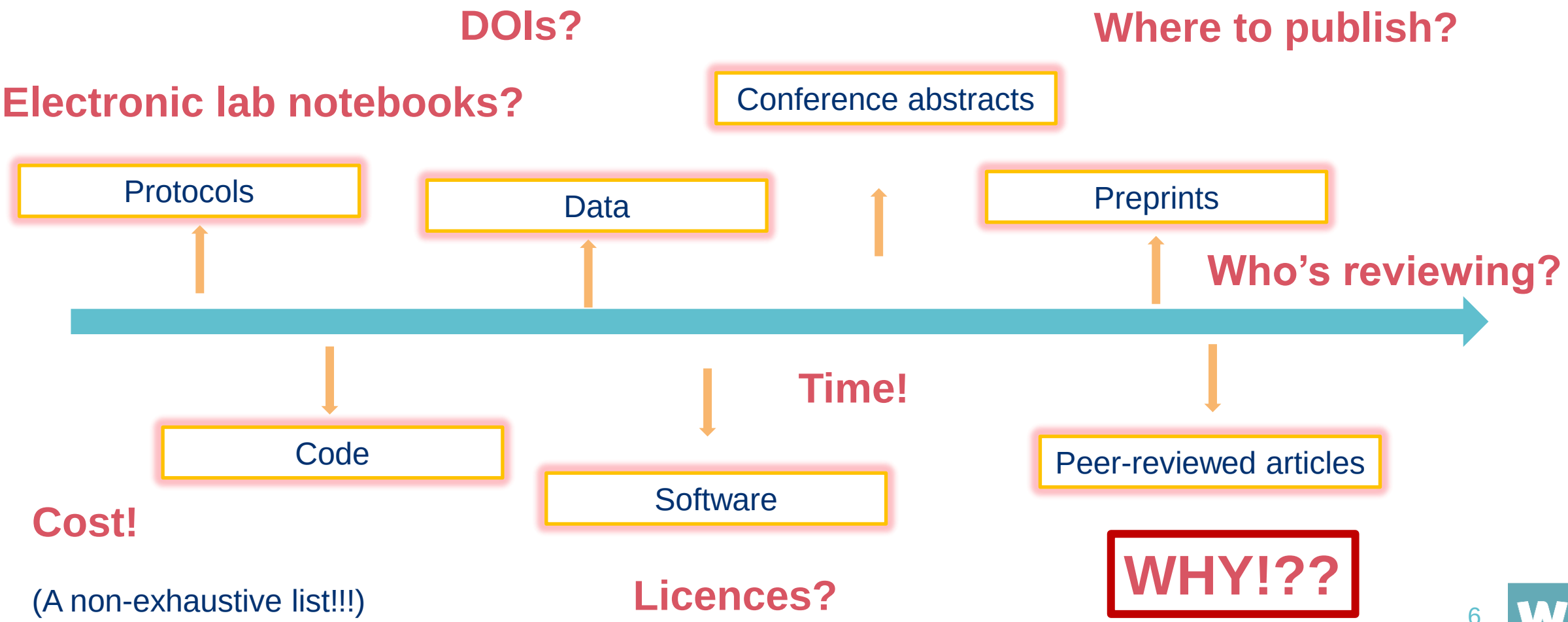
(A non-exhaustive list!!!)

What do you need to think about to publish in research?



(A non-exhaustive list!!!)

What do you need to think about to publish in research?



(A non-exhaustive list!!!)

Why publish openly?

- Reproducibility
- Trust
- Re-usability
- Maximising value
- Maximising the speed of discovery & public benefit
- Establish provenance

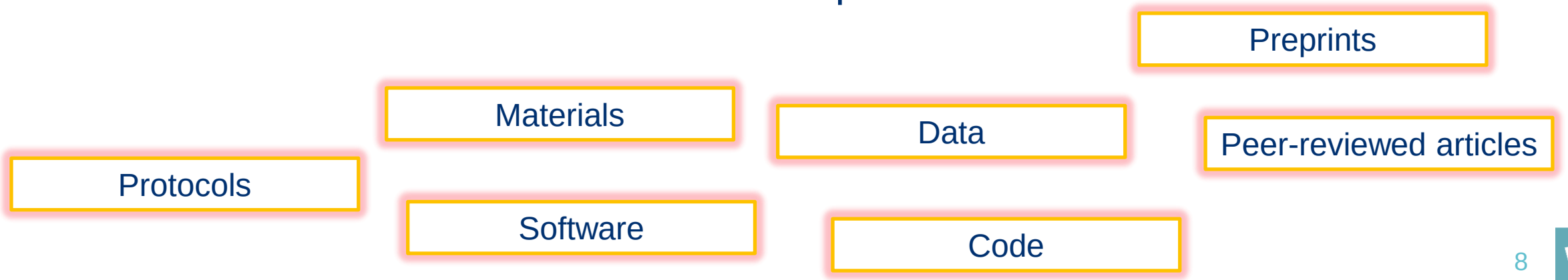
The big one for many people…

- Career progression – but are we there yet…?

Wellcome's place in the open research landscape

For Wellcome, it's important that knowledge and discoveries resulting from our funding are shared, accessed and used in a manner that maximises health benefit.

- This can mean through appropriate **use of intellectual property**
- Also means through ensuring the **outputs of research are accessed and used** to their full potential



Wellcome's place in the open research landscape

- The open research landscape is rapidly changing and considerable barriers remain.
- Key priorities are to work towards a world where:
    - Research outputs are **F**indable, **A**ccessible, **I**nteroperable and **R**e-usable (FAIR)
    - Researchers are equipped, empowered and motivated to make research outputs open
- Different communities/disciplines/regions are at very different points on the journey!

Wellcome's place in the open research landscape

Major collaborative initiatives include

- cOAlition S – aligning funder open access policies globally
- DORA - worldwide initiative developing and promoting best practice in the assessment of scholarly research
- WHO Statement on Clinical Trials Transparency

www.sfdora.org

www.coalition-s.org

https://www.who.int/news/item/18-05-2017-major-research-funders-and-international-ngos-to-implement-who-standards-on-reporting-clinical-trial-results

Wellcome's place in the open research landscape

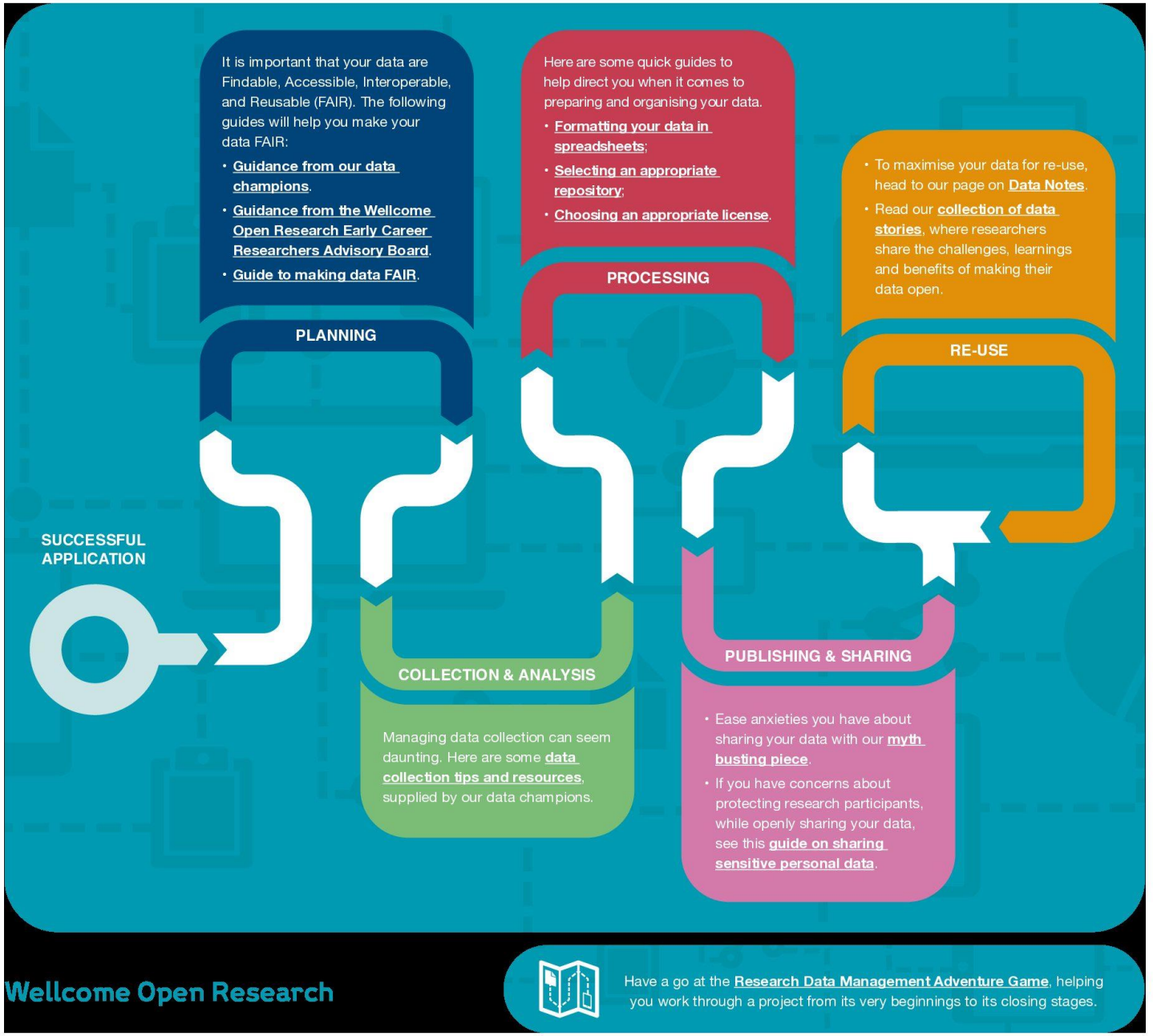
Some of our other activities:

- Lots of work around the updated open access policy!
- Incentives, recognition and reward for openness
- Outputs management plans in grant applications
- Funding opportunities for pilot projects
- Work with other teams across Wellcome to fund larger initiatives
- Statements and action at key times e.g. Zika, COVID

Wellcome Open Research's Early Career Researcher Advisory Board:

Growing a culture of data sharing

https://think.f1000research.com/ecrab-data-sharing/



What can you do?

- Encourage your peers, supervisors, students
- Challenge poor practice
- Celebrate good practice
- Practice openness yourselves!
- Share the opportunities and challenges
    - Share with your funders, publishers, institutions
    - So we can work to support you!

Thank you!

a.macfarlane@wellcome.org

Thriving in the shifting landscape of scientific publishing

Prachee Avasthi, PhD
Associate Professor of Biochemistry & Cell Biology
Geisel School of Medicine at Dartmouth College

@PracheeAC

June 24, 2021
UK Academy of Medical Sciences

ASAPbio

a 501(c)(3) promoting transparency & innovation in life sciences publishing

THE LEONA M. AND HARRY B. HELMSLEY CHARITABLE TRUST

CZI hhmi wellcome SIMONS FOUNDATION

MRC Medical Research Council

CIHR IRSC

Support provided by the Open Society Foundations

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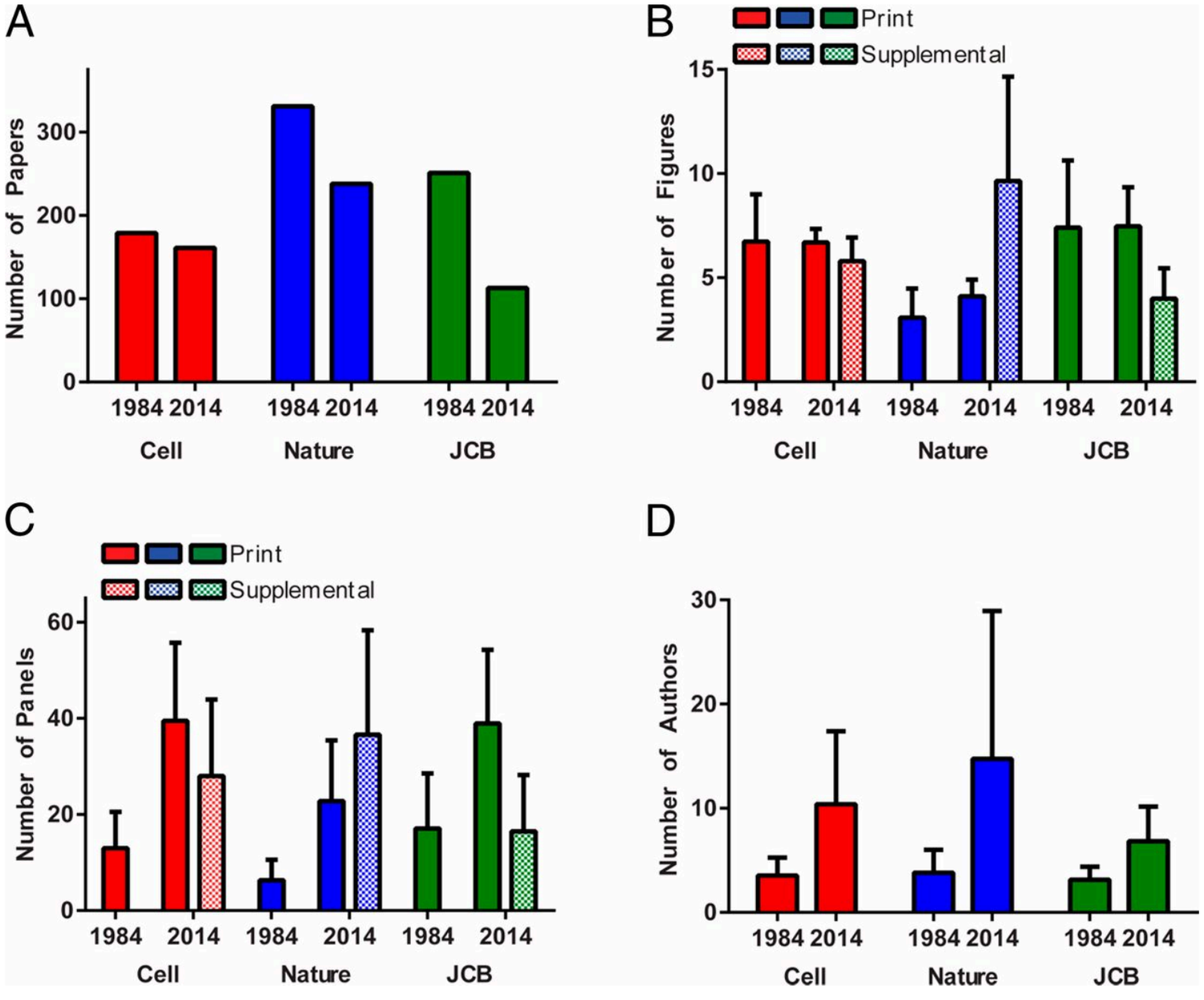
Disclosures

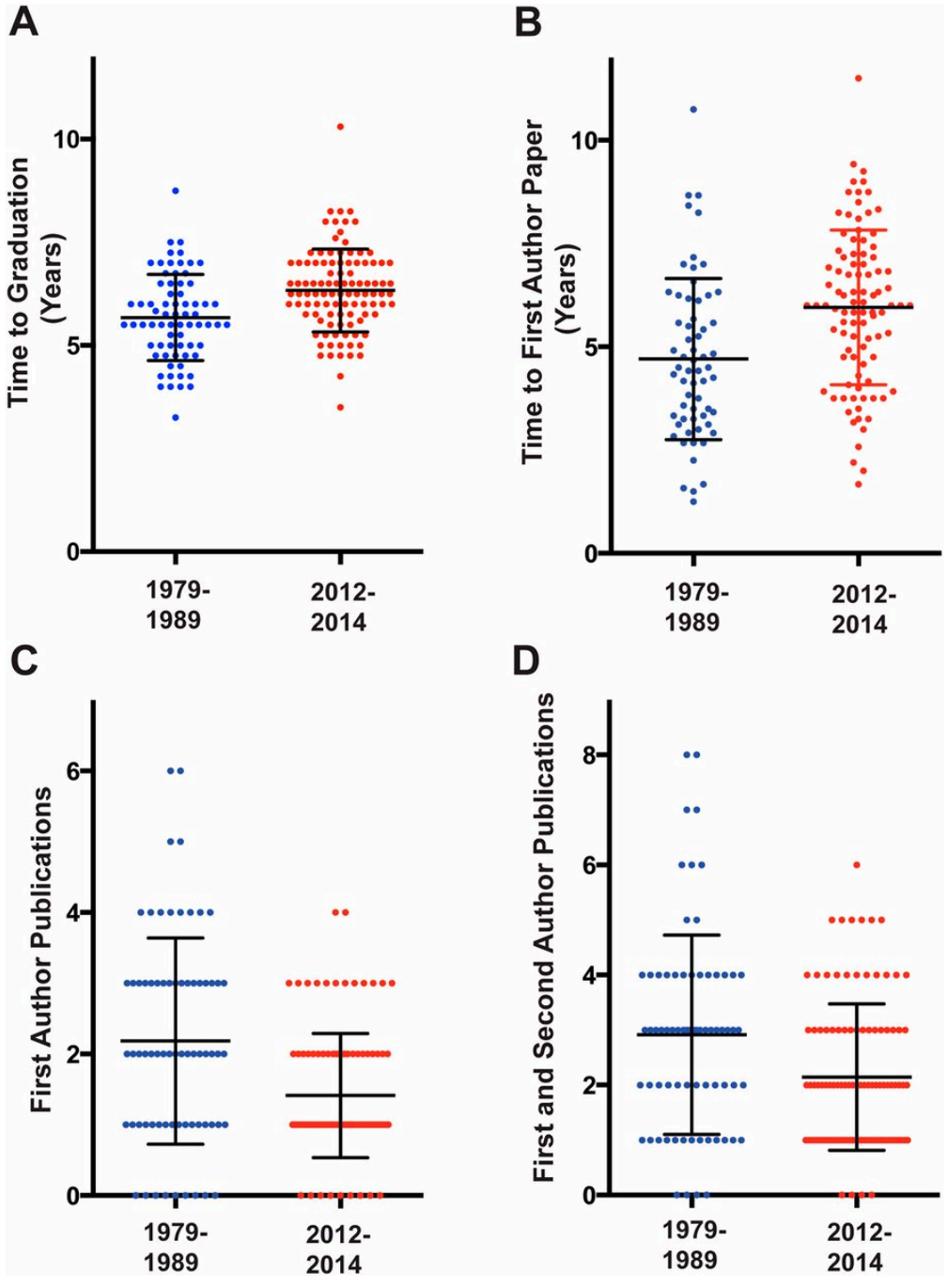
ASAPbio ***president***
eLife ***director***
bioRxiv ***affiliate***
THE PREPRINT SERVER FOR BIOLOGY

Papers are getting longer and more bloated



Vale, PNAS 2015

Paper bloat is slowing careers



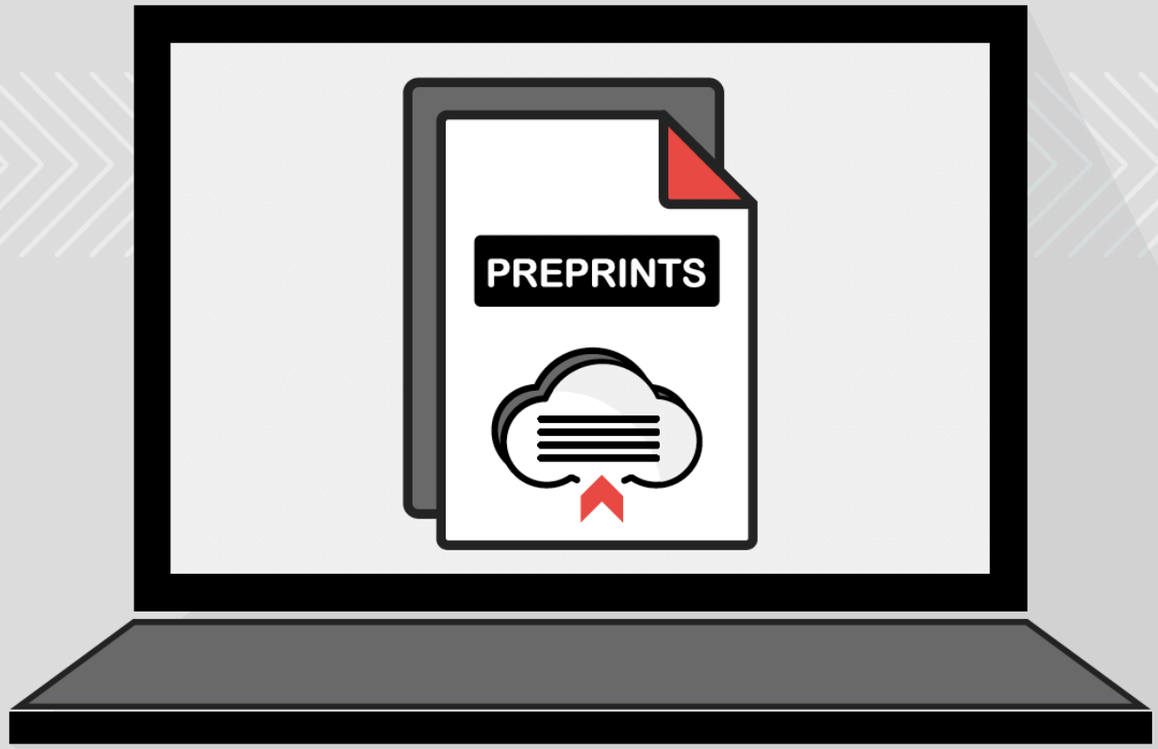
Vale, PNAS 2015

What is the alternative?

Preprints

What are they?

A preprint is a **scientific manuscript** that is uploaded by the authors to a **public server** prior to peer review



bioRxiv

THE PREPRINT SERVER FOR BIOLOGY

Anatomy of a preprint

A version of your manuscript prior to editorial peer review

How open is your preprint?

The license you choose has a big impact on how your work will be shared & reused.

The Creative Commons (CC) licenses described here break down the barriers to sharing by communicating rights and permissions up front with everyone.

OPEN — CLOSED

CC0 waiver	CC BY	-SA,-NC,-ND	No license

These terms can be added to the CC BY license to produce 5 other licenses https://creativecommons.org/licenses/

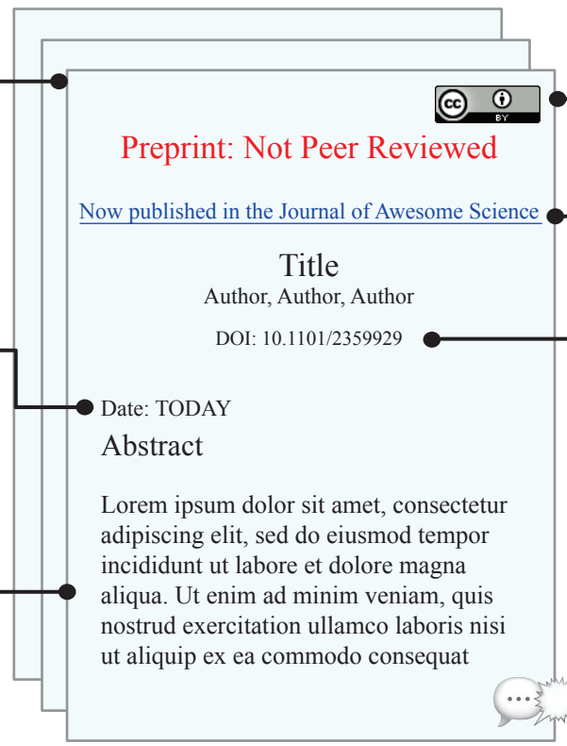
Habitat

Online Servers like bioRxiv, arXiv Preprints.org, and many others!

OPEN ACCESS

Licensing

You keep the copyright and can choose a license to make it open to reuse



Journal Policies

Look up SHERPA/RoMEO to learn more about journals' policies

★Journal Instructions for Authors!

Rapid Posting

Lightweight screening in <48hrs

Citable

On NIH grants and elsewhere

Complete

Contains all the information of a scientific manuscript

Early Feedback

From comments, social media, and journal clubs (e.g. PREreview.org)

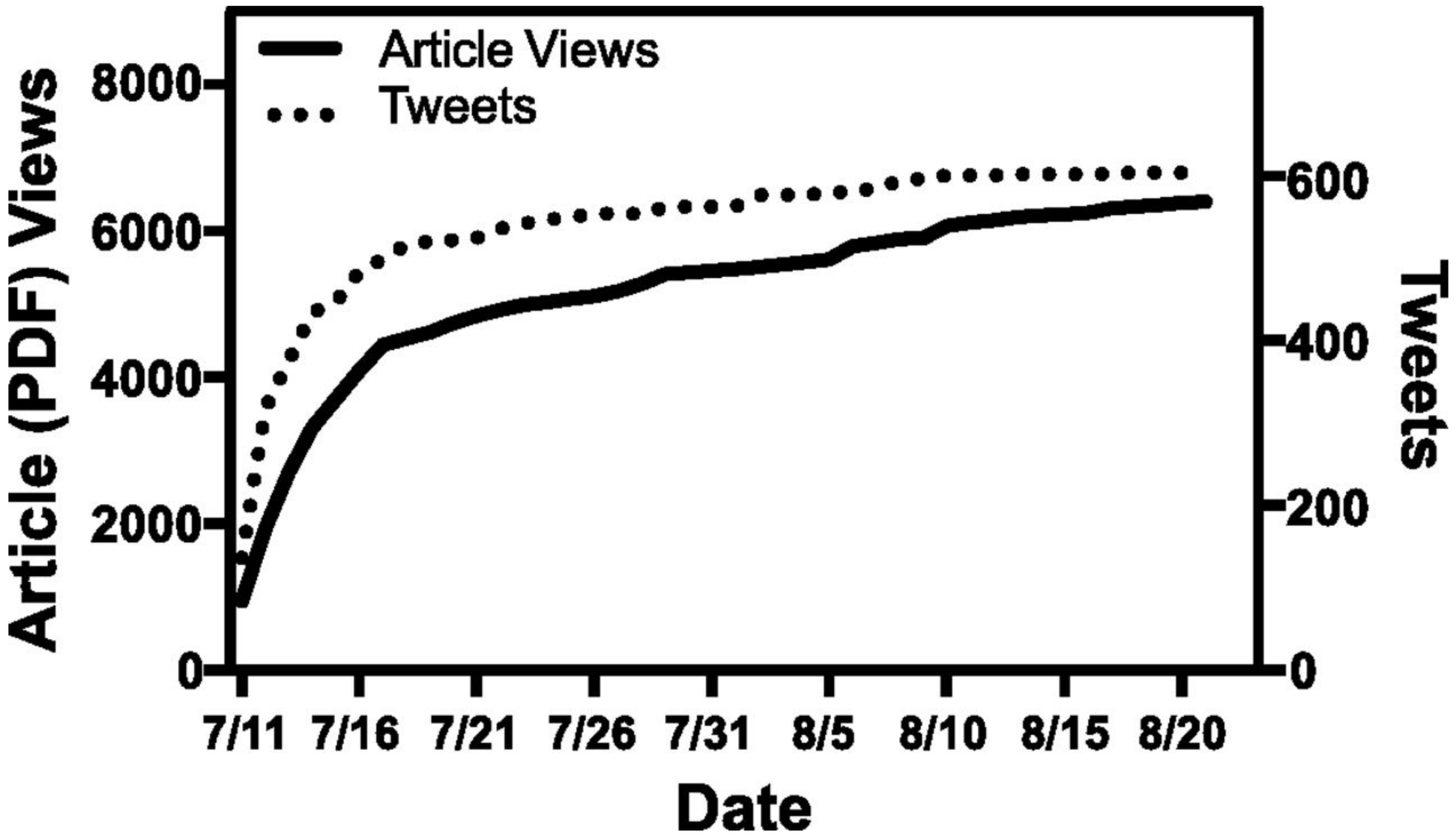
Permanent but Versioned

Because preprints are part of the scholarly record and can be cited, they can't be removed, but you can add a new version

Learn more on ASAPbio.org

ASAPbio

Preprints increase visibility

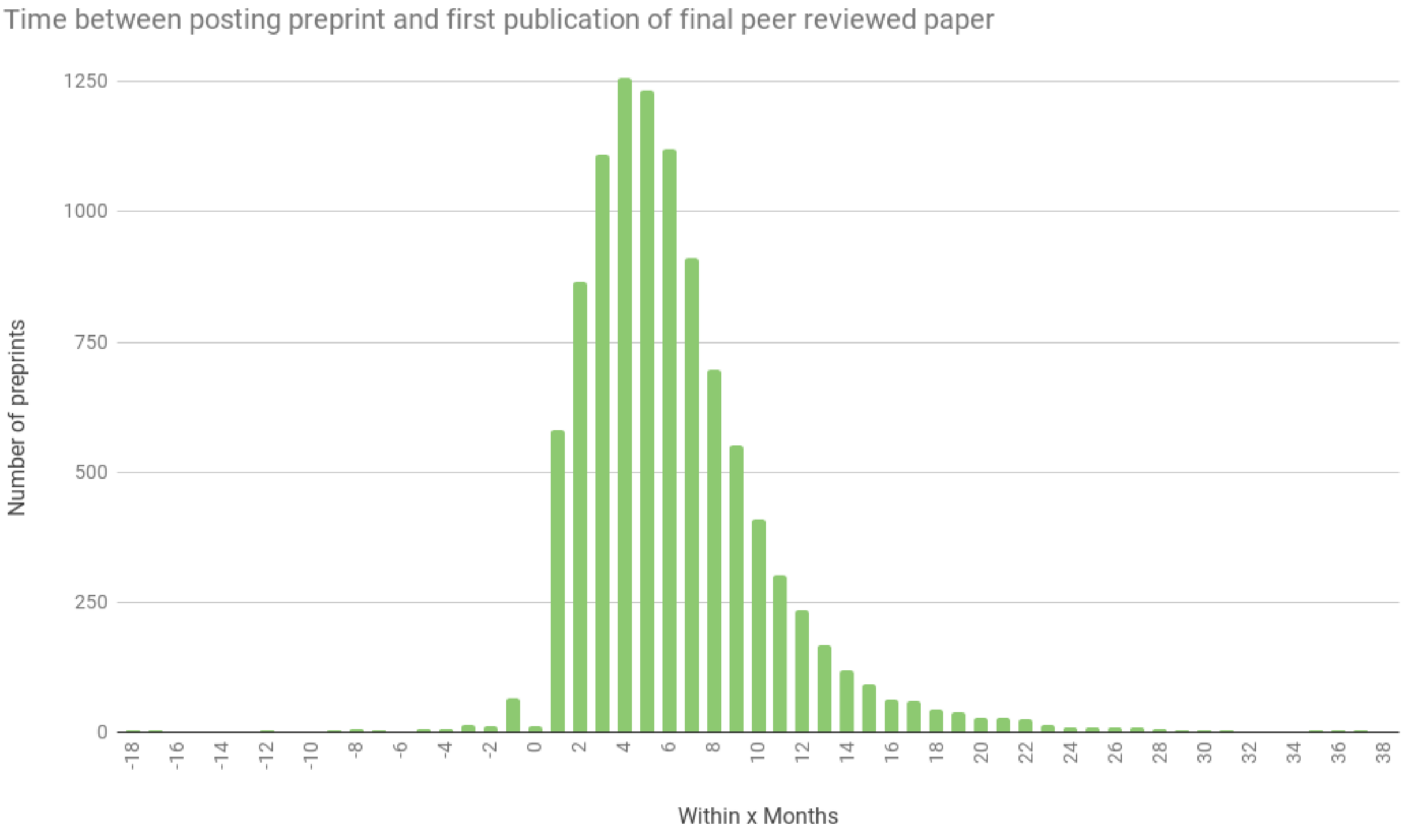


Knowledge grows only as fast as shoulders to stand on

Photo by calafellvalo — CC BY-NC-ND

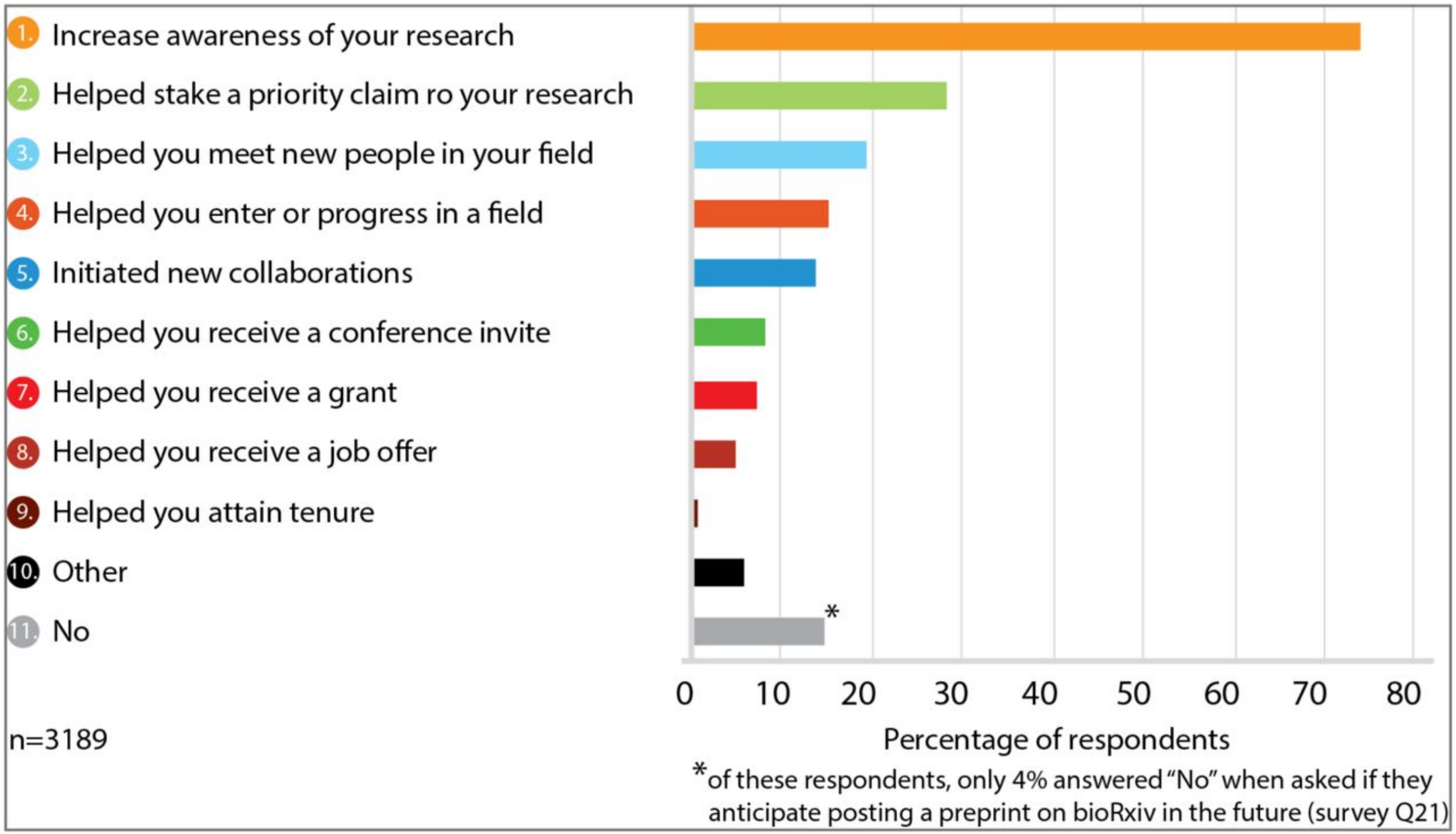
Preprints make work available almost immediately

Median 4-5 months before journal publication (life sci)



http://blog.europepmc.org/2018/07/preprints.html

Benefits of Preprints



bioRxiv: the preprint server for biology
Richard Sever, Ted Roeder, Samantha Hindle, Linda Sussman, Kevin-John Black, Janet Argentine, Wayne Manos, John R. Inglis
bioRxiv 833400; doi: https://doi.org/10.1101/833400

Funders like and allow preprints

NIH: Reporting Preprints and Other Interim Research Products; Notice Number: NOT-OD-17-050

Citing interim research products in applications, proposals and reports

Interim research products can be cited anywhere other research products are cited. These sections include the following:

- R&R Other Project Information Form, Bibliography & References Cited
- R&R Senior/Key Person Profile (Expanded) Form, Biographical Sketch
- PHS 398 Research Plan, Progress Report Publication List
- PHS 398 Career Development Award Supplemental Form, Progress Report Publication List
- PHS Fellowship Supplemental Form, Progress Report Publication List
- RPPR, section C - Products

wellcome

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News

Open access

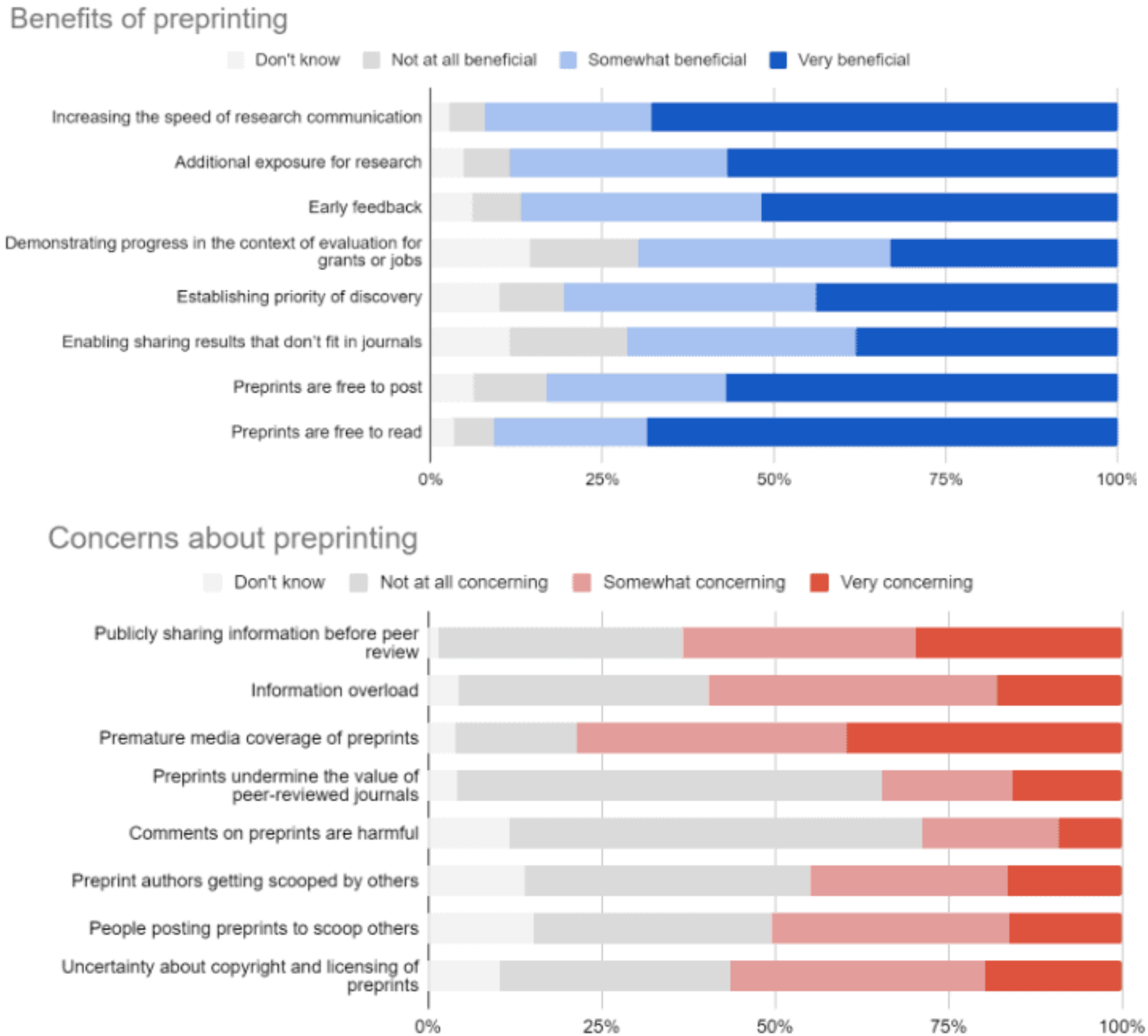
We now accept preprints in grant applications

As of January 2017, we will permit researchers to cite preprints, or pre-peer reviewed manuscripts, in their grant applications and end-of-grant review reports.

Preprints for all disciplines, languages, & communities

Image compiled by Jeroen Bosman (@jeroenbosman) via Bianca Kramer (@MsPhelps)

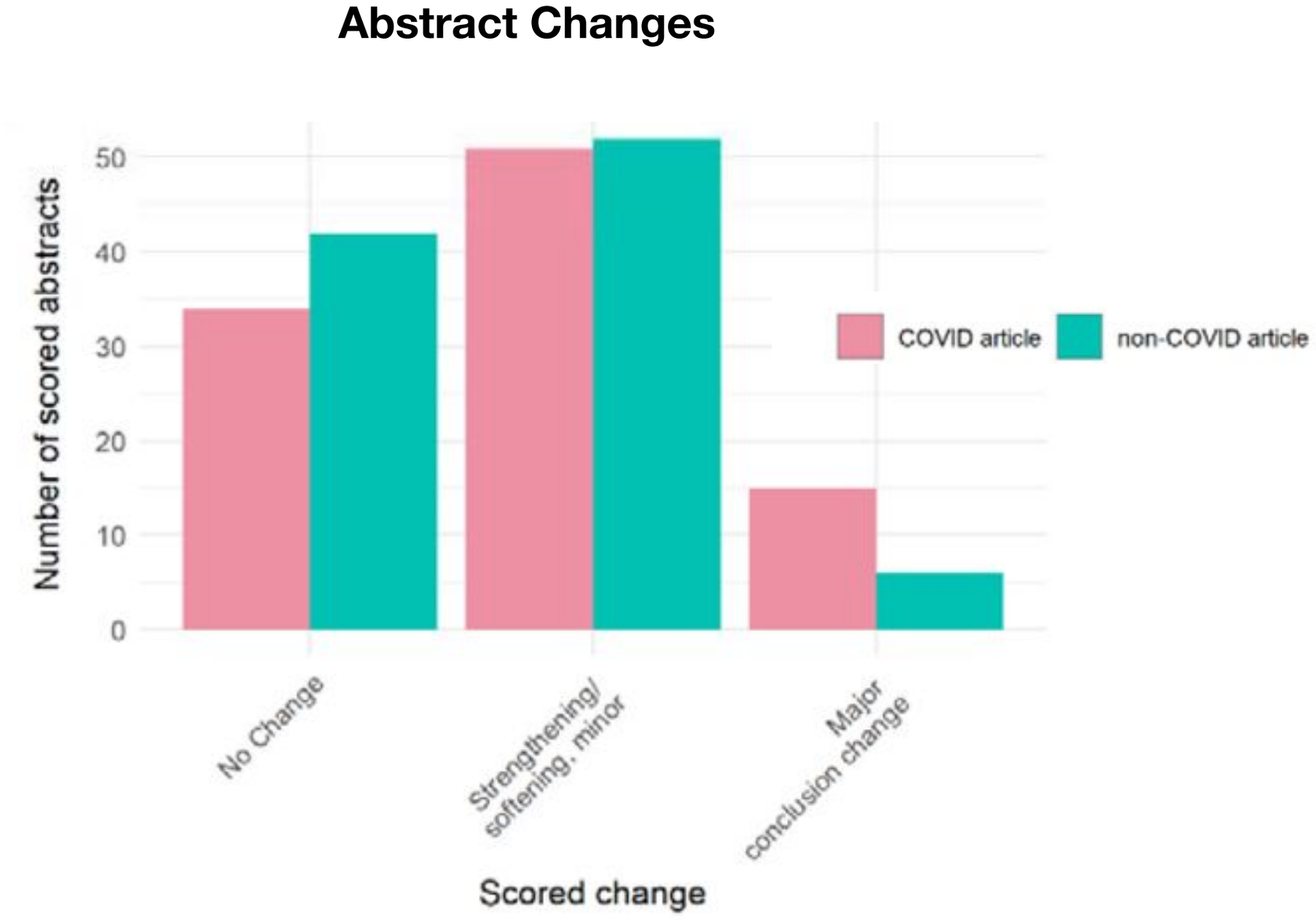
Benefits and Concerns About Preprints



https://asapbio.org/biopreprints2020-survey-initial-results

How can we mitigate risks of mis/disinformation from preprints?

How much do preprints changes between first posting and journal publication?



Preprints in motion: tracking changes between posting and journal publication
Jessica K Polka, Gautam Dey, Máté Pálfy, Federico Nanni, Liam Brierley, Nicholas Fraser, Jonathon Alexis Coates
bioRxiv 2021.02.20.432090; doi: https://doi.org/10.1101/2021.02.20.432090

Preprints in the public eye

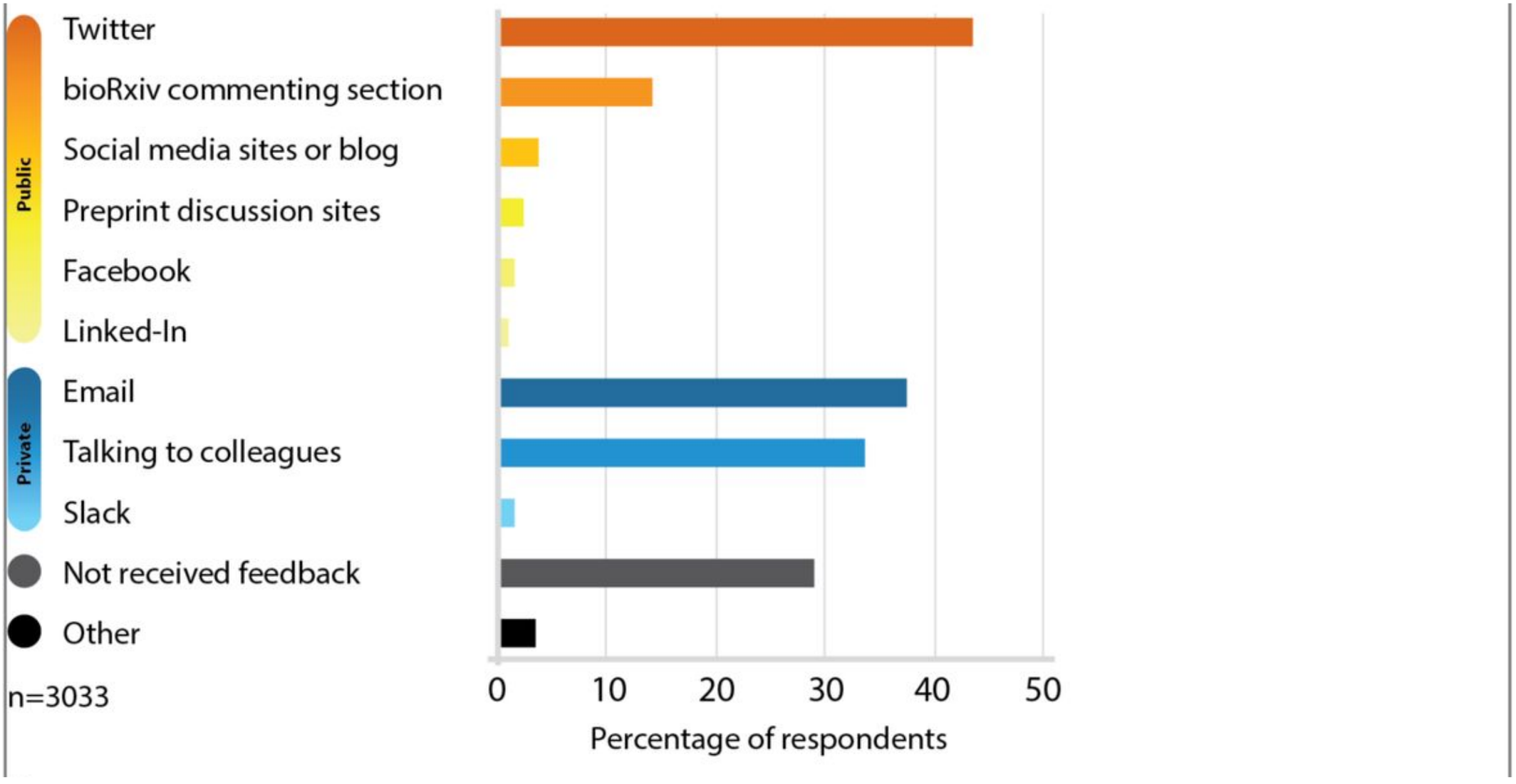
Best practices for labeling preprints

Explaining peer review and preprints to journalists and non-specialists

https://asapbio.org/preprints-in-the-public-eye

What is the nature of preprint feedback?

Feedback is not just in the comment section



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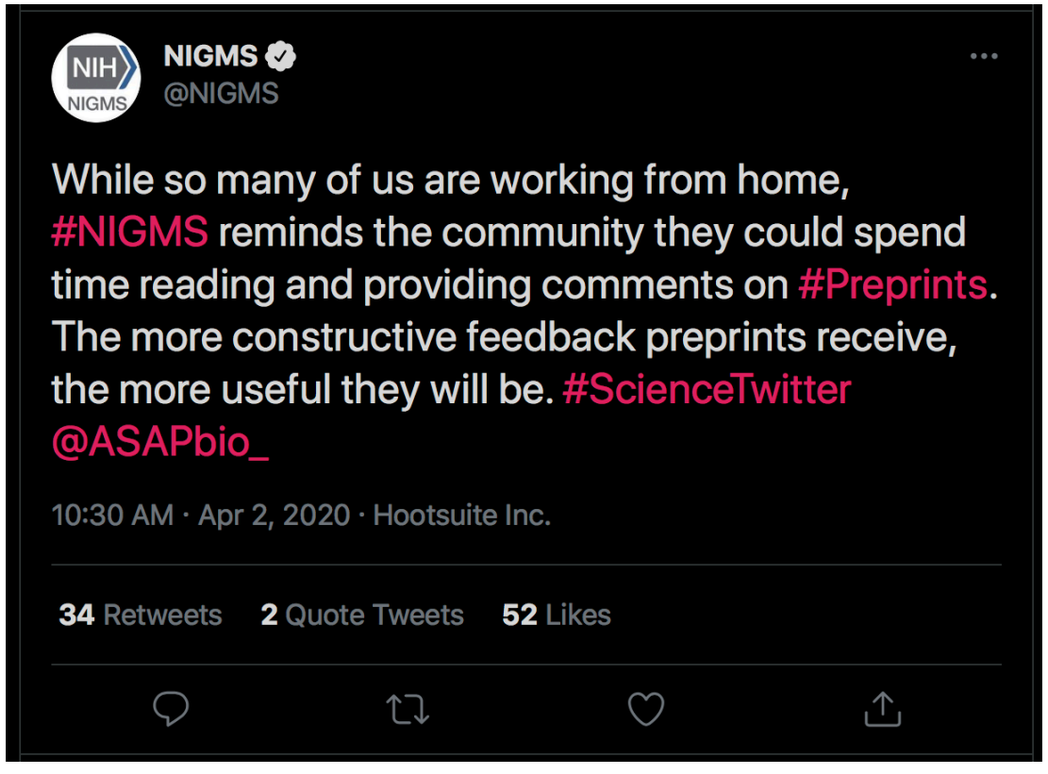
Funder, publishers calls for preprint review



https://twitter.com/NIGMS/status/1245720201741709312

Scholarly publishers are working together to maximize efficiency during COVID-19 pandemic

April 27, 2020 by Claire Redhead

https://oaspa.org/scholarly-publishers-working-together-during-covid-19-pandemic/

A better model

We, the authors, **publish** on a preprint server when *we* are ready

The community/ peer reviewers perform post-publication peer **review**

CC BY icon from the Noun Project: article by i cons

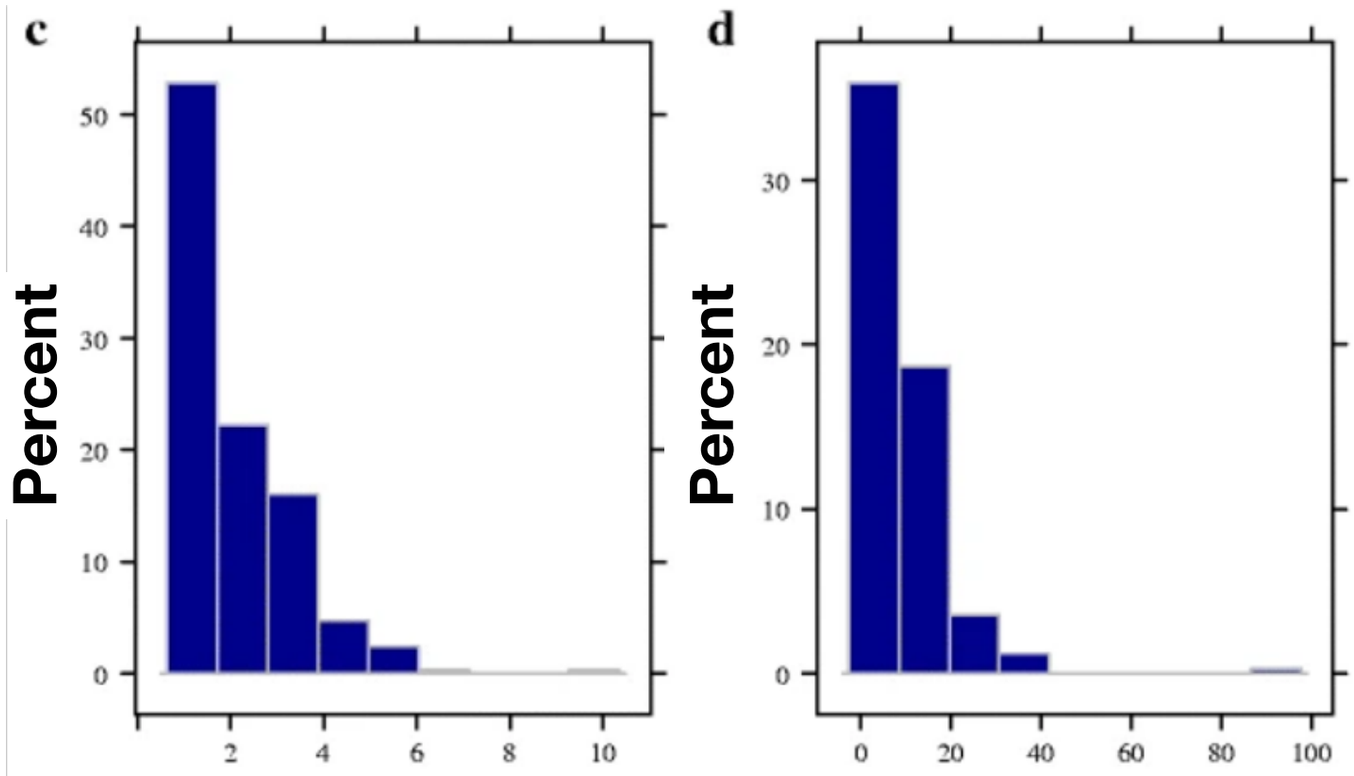
Goals:

1. Reducing cycles of re-review
2. More constructive review
3. Transparency

Duplicated peer review wastes time and resources

15 million hours are wasted each year on duplicate peer review

https://www.aje.com/en/arc/peer-review-process-15-million-hours-lost-time/



Submissions necessary prior to acceptance

Times from first submission to publication (months)

Wallach et al 2018
https://doi.org/10.1186/s41073-017-0045-8

Review COMMONS

preprint or manuscript → selection & peer-review → manuscript & reviews → journal submission

+ response

'refereed preprint'

+ revision

paper & reviews

Benefits

- Papers are evaluated as they stand.
- Faster dissemination.
- No serial re-reviewing cycles.
- Improved transparency.

98%

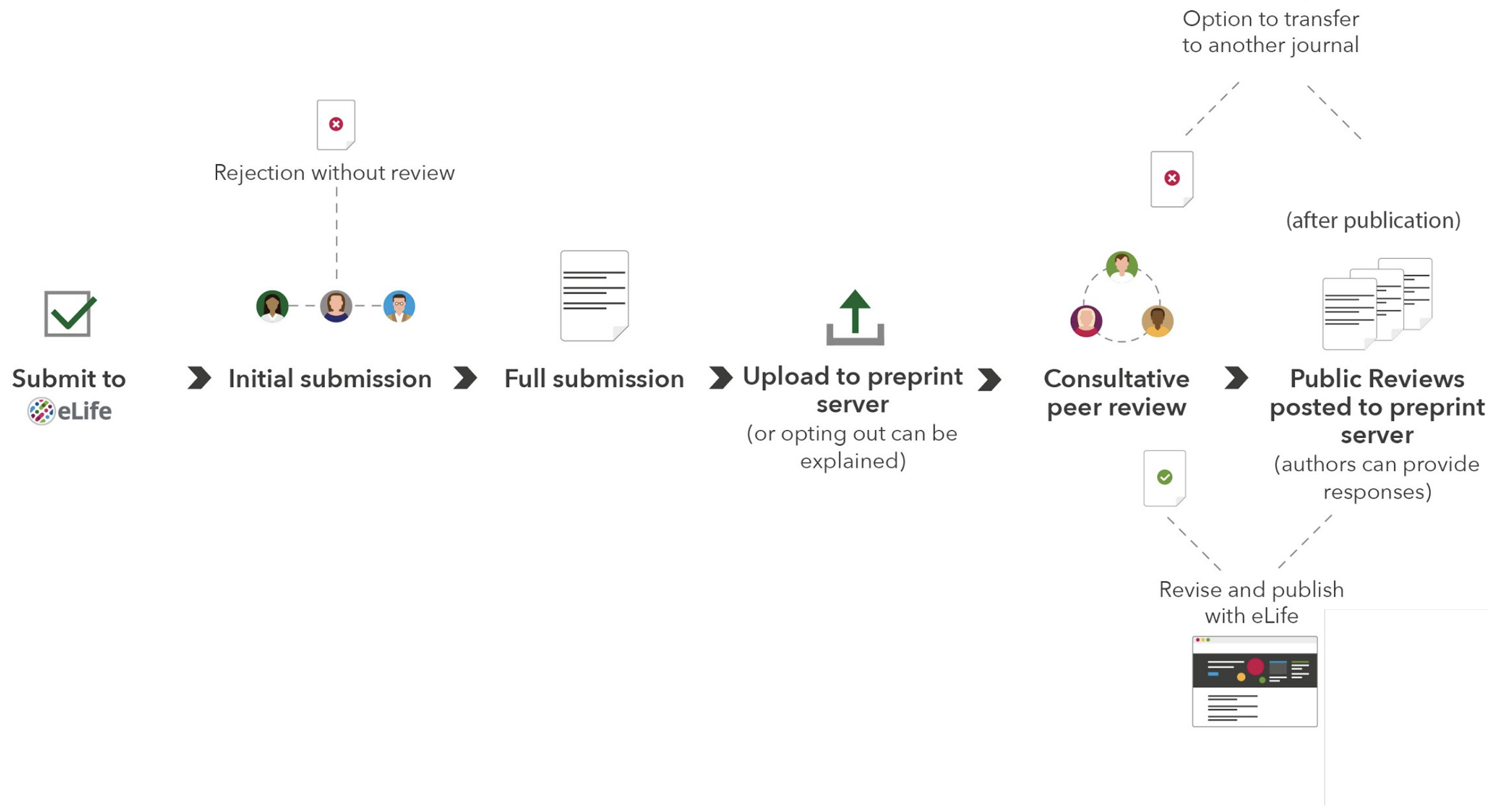
Manuscripts **accepted** by affiliate journals that had no new peer reviewers

Life Science Alliance · eLife · The EMBO Journal · EMBO reports · EMBO Molecular Medicine · molecular systems biology

MBoC · JCB · Biology Open · Development · Disease Models & Mechanisms · Journal of Cell Science

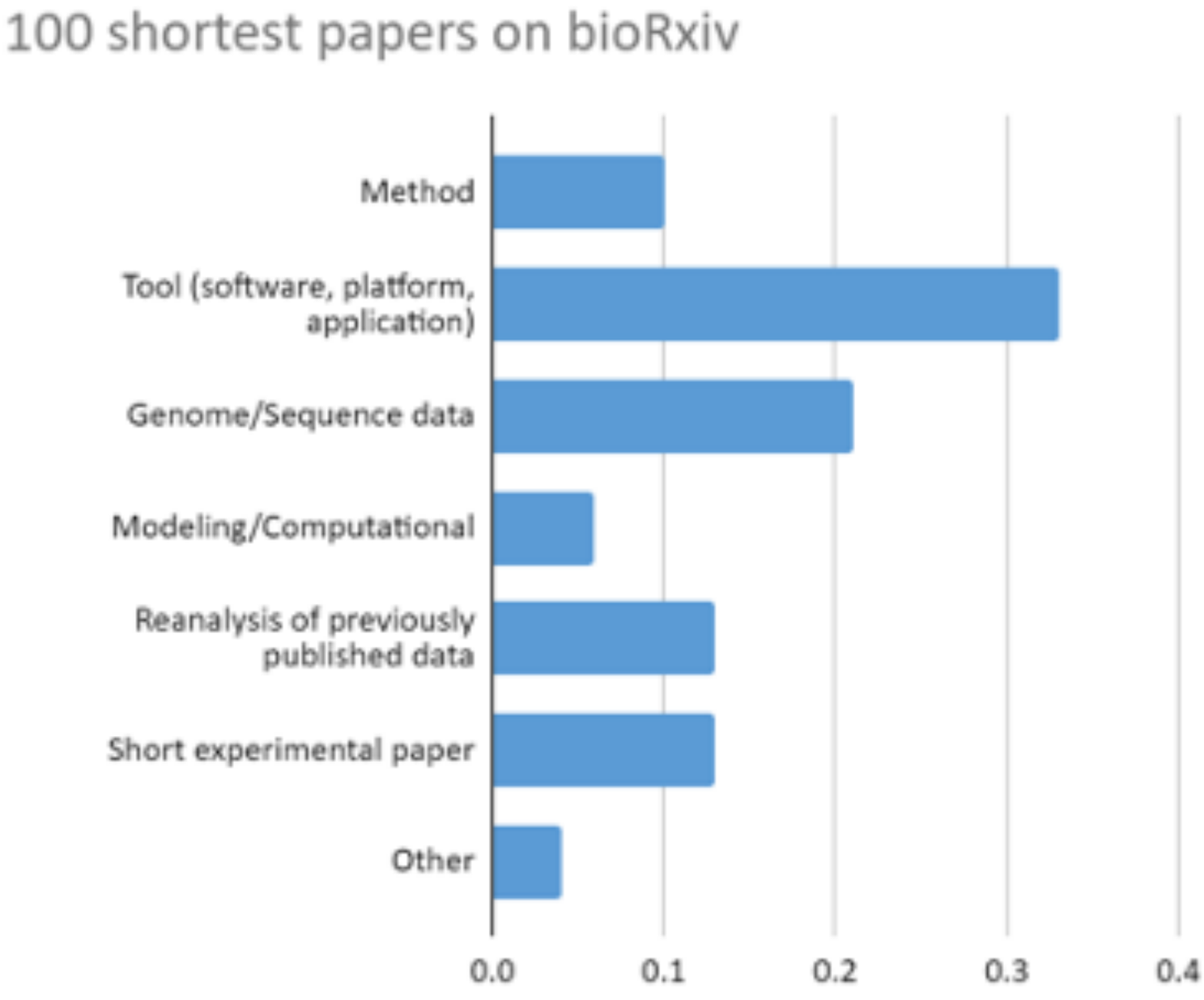
PLOS Pathogens · PLOS Biology · PLOS Computational Biology · PLOS Genetics · PLOS One

Preprint review and public posting of reviews of all papers at eLife



What does the future of preprints look like?

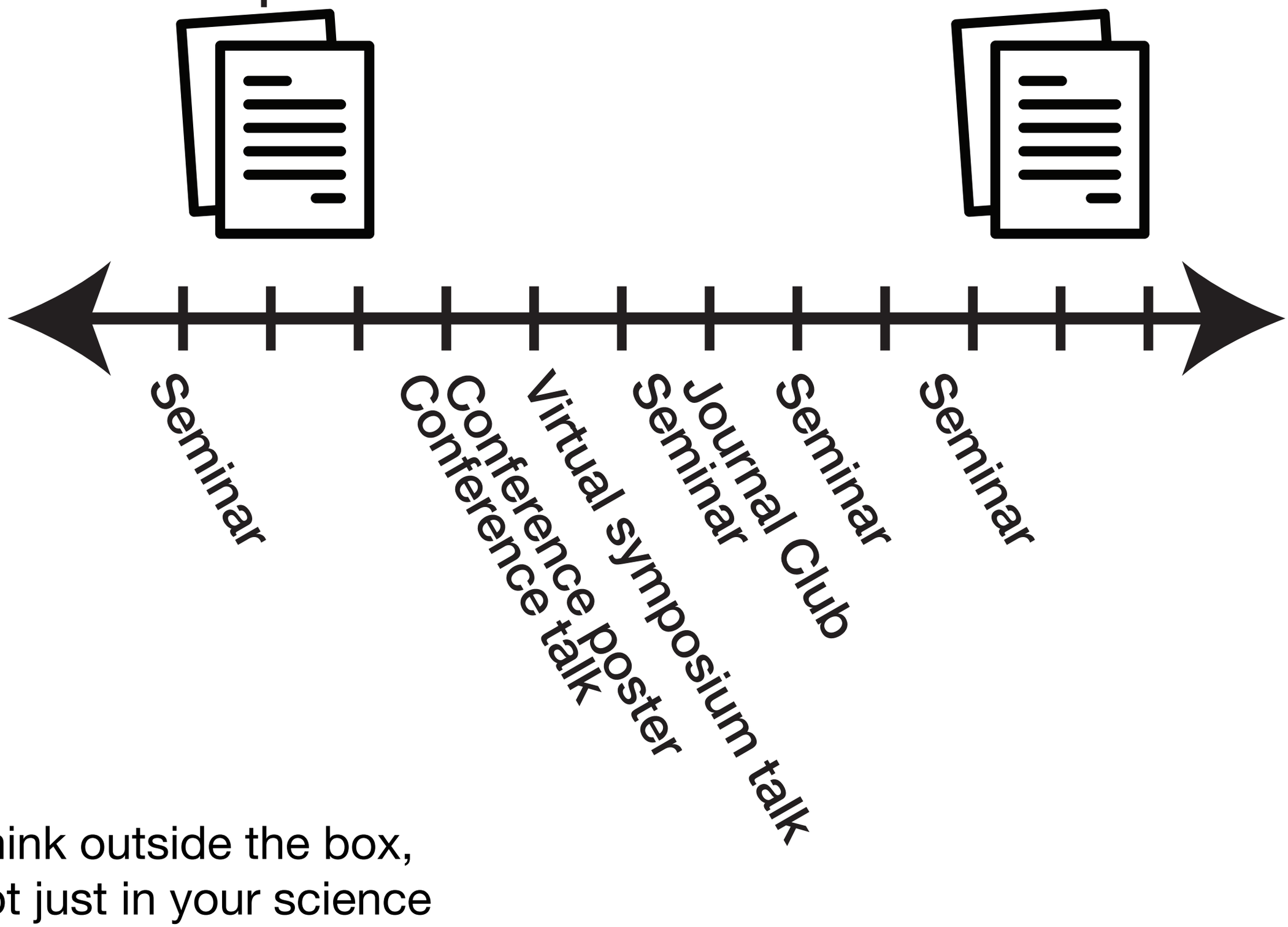
Preprints beyond the traditional journal article



My workflow

Preprint

Preprint v2.0
+
Journal Submission



Think outside the box,
not just in your science

My Preprint Advocacy Journey

Watched ASAPbio meeting from my sofa

Organized ASAPbio Session ASCB

Started Preprint JC + TOLD EVERYONE

Joined boards of ASAPbio, PREreview, eLife

Elected President ASAPBio

Take Home Messages

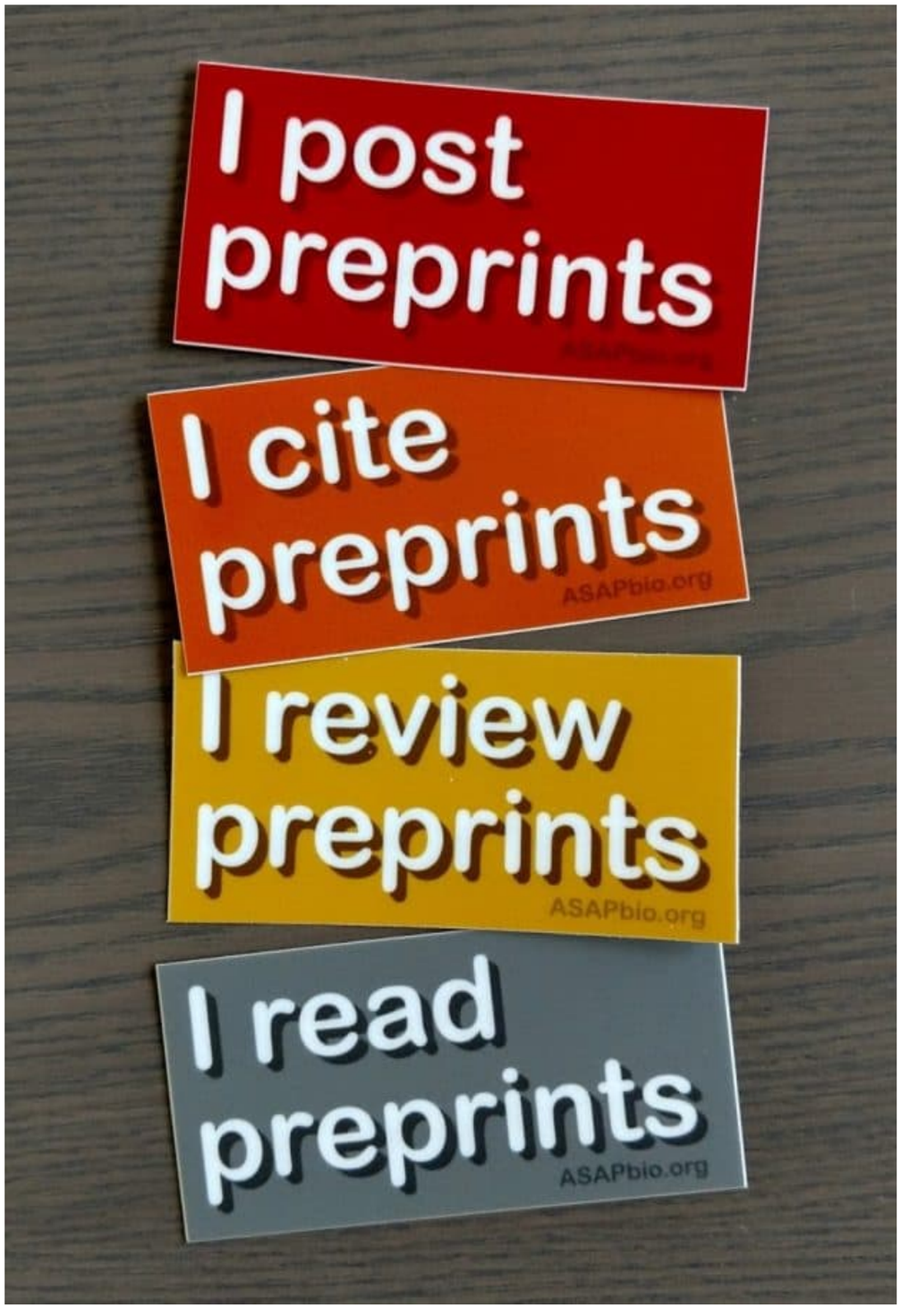
Share your work early (for free!)

Be proactive in seeking (and giving) feedback

You can create change around you

Reclaim joy!

Questions?



asapbio.org

prachee.avasthi@dartmouth.edu

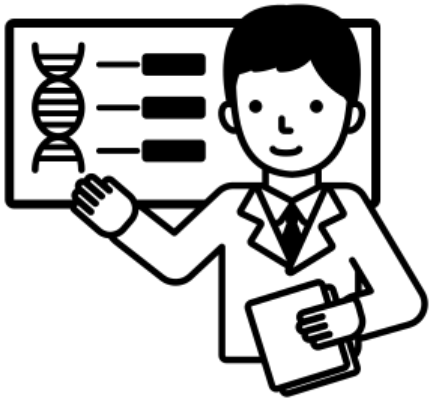
@PracheeAC

Publish Faster

Paul Wicks, PhD

Paul Wicks? Who he? Independent Consultant

- Academia in ALS/MND -> 20 years in digital health (PatientsLikeMe)
- Independent Consultant - Medical Affairs Strategy for 6x companies (Ada, Woebot, Kheiron, Constant Therapy, Thread, Bold Health)
- 163 publications and 6 book chapters
- Work cited >5,000 times with Google Scholar H-Index of 39
- Publications in top journals include 4 pieces in Nature Biotechnology (Impact Factor (IF): 37), 1 in Nature Reviews Neurology (IF: 27), 10 in the BMJ (IF: 30), 8 in BMC Medicine (IF: 9), and 7 in Neurology (IF: 8).
- Editorial board member
  - The BMJ, BMC Medicine
  - Journal of Medical Internet Research (JMIR), The Patient, Digital Biomarkers

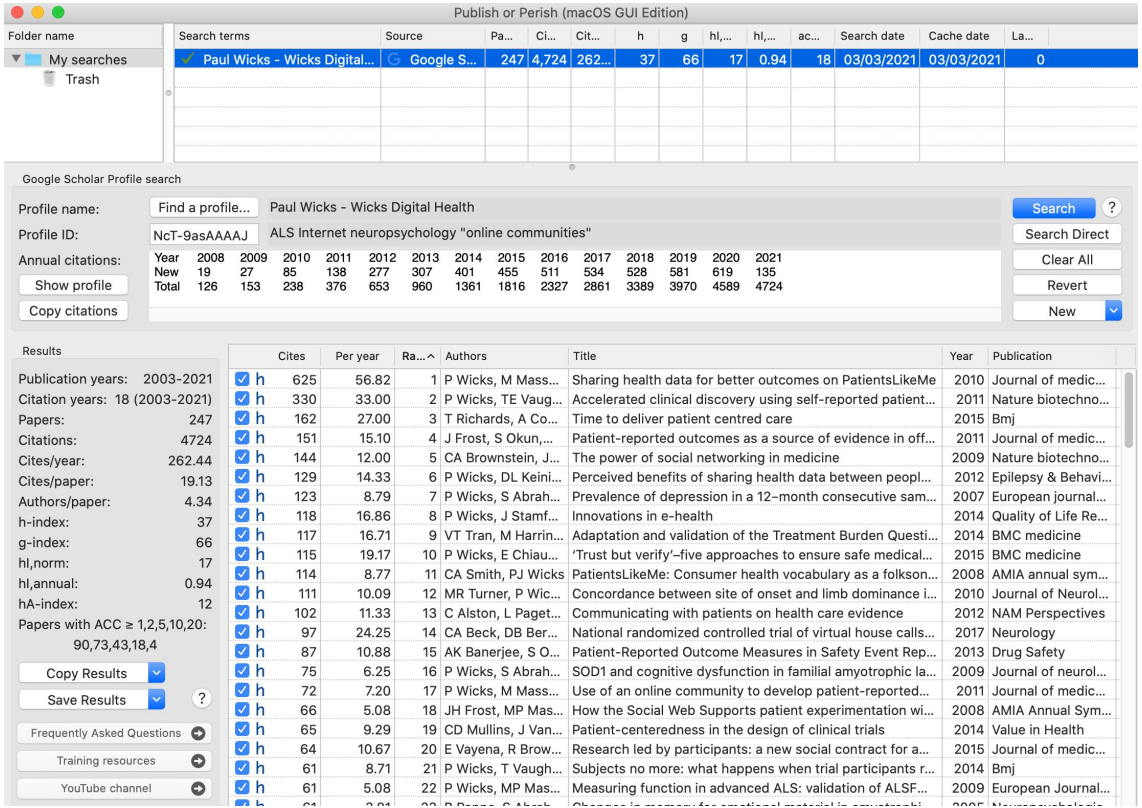


Timeline of My First Peer-Reviewed Article

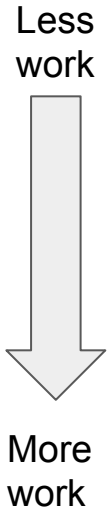
	2002	2003	2004	2005	2006	2007	2008	2009
Grant Awarded & Researcher Recruited								
Data Collection								
Brain (Impact Factor 11.337)				Writing	Writing	Submitted, Rejected		
Archives of Neurology (Impact Factor 13.608)						Rewritten, Submitted, Rejected		
Neurology (Impact Factor 8.055)						Rewritten, Submitted, Rejected		
Annals of Neurology (Impact Factor 9.037)						Rewriting	Submitted, Rejected	
Lancet Neurology (Impact Factor 30.039)							Rewritten, Submitted, Rejected	
JNNP (Impact Factor 8.234)							Rewritten, Submitted, Rejected	
Journal of Neurology (Impact Factor 3.783)							Rewritten, revised, accepted	Published

DOI: 10.1007/s00415-009-0078-0

Publish Or Perish - The Motto, The Software



What Type of Studies?

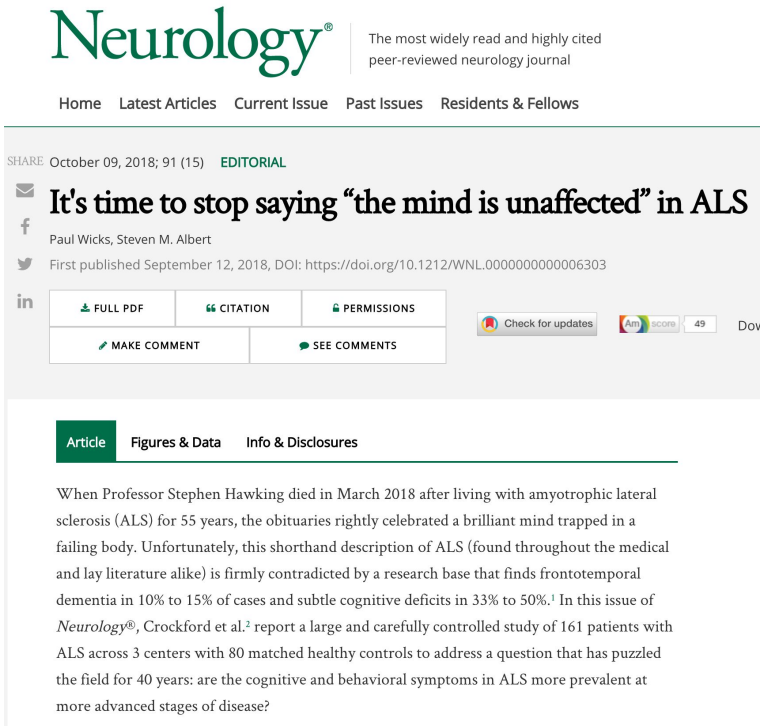


- Editorials
- Retrospective analysis of existing data
- Systematic reviews of the field
- Prospective usability & acceptance study
- Prospective analysis of simulated data
- Prospective real-world RCT deployment

Editorial Hack #1 - A Good Review

"REVIEWER #2: For many decades it was a widely held belief that while the motor neurons degenerated in ALS, cognition and the brain were spared. Whether this was masked by disability or merely wishful thinking, it is clearly known not to be the case now, and the discovery of C9ORF72 causing ALS and/or FTD put the final nail in the coffin of this collective error. As recognition of the issue developed, calls went out for a rigorous, standardized, but brief instrument with which to assess cognition in a way that took physical disability into account.

The authors of the current study have developed such a tool, the ECAS, and have deployed it in a large multicenter study to answer an important question that has remained a topic of debate for many years; does cognitive functioning deteriorate with the rest of disease progression? This is a large and well-designed study which addresses a key question for clinicians and researchers far more conclusively than earlier, smaller, efforts."



Reviewed January 2018

Published October 2018

Editorial Hack #2 - Timely Controversy

BMJ

OBSERVATIONS

CLINICAL TRIALS

Subjects no more: what happens when trial participants realize they hold the power?

OPEN ACCESS

Patients will hold us all accountable in new and necessary ways

Paul Wicks *vice president of innovation*, Timothy Vaughan *director of data science*, James Heywood *cofounder and chairman*

PatientsLikeMe, Cambridge, MA 02141, USA

Wicks and Chiauzzi *BMC Medicine* (2015) 13:205
DOI 10.1186/s12916-015-0451-z

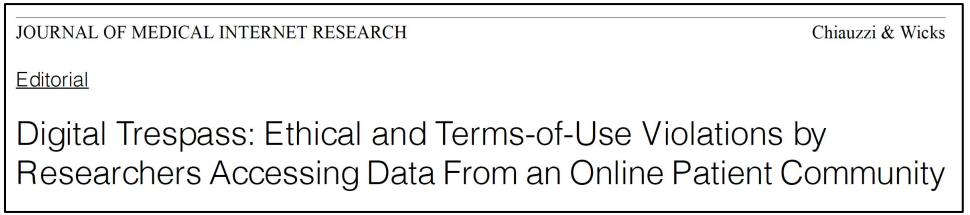
BMC Medicine

COMMENTARY Open Access

CrossMark

'Trust but verify' – five approaches to ensure safe medical apps

Paul Wicks* and Emil Chiauzzi



JOURNAL OF MEDICAL INTERNET RESEARCH Chiauzzi & Wicks

Editorial

Digital Trespass: Ethical and Terms-of-Use Violations by Researchers Accessing Data From an Online Patient Community

Editorial Hack #3 - Editorial boards

Car *et al. BMC Medicine* (2019) 17:143
https://doi.org/10.1186/s12916-019-1382-x

BMC Medicine

Beyond Big Data to new Biomedical and Health Data Science: moving to next century precision health

EDITORIAL Open Access

Beyond the hype of big data and artificial intelligence: building foundations for knowledge and wisdom

Check for updates

Josip Car[1†], Aziz Sheikh[2†], Paul Wicks[3*†] and Marc S. Williams[4†]

BMC Medicine

Home About Articles Submission Guidelines Join The Editorial Board

Commentary | Open Access | Published: 09 September 2020

Going on up to the SPIRIT in AI: will new reporting guidelines for clinical trials of AI interventions improve their rigour?

Paul Wicks, Xiaoxuan Liu & Alastair K. Denniston

BMC Medicine **18**, Article number: 272 (2020) | Cite this article

1064 Accesses | **7** Altmetric | Metrics

BMJ

ANALYSIS

SPOTLIGHT: PATIENT CENTRED CARE

Commentary: Measuring what matters: the case for patient generated PROMS

BMJ

EDITORIALS

SPOTLIGHT: PATIENT CENTRED CARE

Time to deliver patient centred care

We must harness the energy, insight and expertise of patients, carers, and the communities that support them to help drive change

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Editorial Hack #4 - Letters

COMMENT & RESPONSE

JAMA
The Journal of the American Medical Association

Conversational Agents in Health Care

To the Editor The Viewpoint by Dr McGreevey and colleagues[1] drew attention to the increasing use of conversational agents (CAs) in health care. However, they suggested a less mature field than we find in practice, and their call for CA-specific regulations risks creating confusion.

Although the field of CAs is nascent, it is more developed than the article might suggest, and recent systematic reviews of CAs have been setting clear standards and quality frameworks.[2,3]

nature biotechnology

Getting stem cell patients 'on the grid'

To the Editor:

The Editorial in your September issue, entitled "Off the grid," highlighted the risks of direct-to-consumer stem cell clinics and attempts by the US Food and Drug Administration (FDA; Rockville, MD) to enhance oversight of the sector[1]. There is a dearth of clinical data collected on the thousands of patients undergoing treatments marketed as 'stem cells' around the world in unlicensed clinics. As researchers and advocate members of the amyotrophic lateral sclerosis (ALS) community, we believe in patients' right to self-determination, but we have also despaire at how ALS patients have sometimes been exploited by individuals practicing bad medicine.

Some clinics that purport to have treated hundreds of ALS patients have not even taken the basic step of quantifying changes in progression by administering a 12-question clinical outcome measure like

Setting out your Stall: Theme for 3-5 papers

1. Define the problem: e.g. Analyse retrospective symptom data, review statistics in the literature, highlight the challenges, **define your view of "what good looks like"**
2. Share your protocol: e.g. Usability and acceptance testing of an app with a small sample or a simulation and how you upgraded it with feedback, **show your working and our rigorous processes**
3. Establish Feasibility: e.g. *in controlled conditions*, what sort of benefits, harms, and risks do you find? **Be realistic and adaptable**
4. Establish Efficacy: e.g. *in the real world*, what happens when you deploy this solution at greater scale? Compared to what? **Try and pre-empt the most obvious limitations**
5. Health economics: e.g. what is the cost/benefit of how your approach changes the economics workflow? **Key for reimbursement and business development case studies**

Where to Publish? - Overview of Journals

- There are some 20-30k medical journals which vary widely in their quality, acceptance rates, credibility, turnaround times
- Audience
  - Who reads the journal? Do you? How many articles similar to the one you've written have they published? How many people downloaded them? How often do they get media pickup?
- Impact factor & Index
  - IF: Roughly, what is the average number of times that a given paper published in the last 2 years is cited by another paper?
  - IF>5 is widely used as "good" but many niche journals will have IF~2 and many newer journals will have none at all
  - Indexed on Pubmed? Web of Science? Google Scholar?

Where to Publish? - Overview of Journals

The NEW ENGLAND JOURNAL of MEDICINE

BMJ JAMA

JBIS Journal of the British Interplanetary Society

Prestigious ("vanity") journals have ~5% acceptance rates for research, much easier for editorials / news pieces, usually end up wasting time

Traditional society journals have ~30% acceptance rates and have high readership within your field. Typically slow, outdated systems, reluctance to preprint or engage in social media / comms

npj Digital Medicine

THE LANCET Digital Health

JMIR Publications Advancing Digital Health Research

Niche: e.g. Digital health journals are growing in rigour and credibility. They understand your position from the get-go, but preach to the converted and have relatively little clinical readership at the moment - could take years to get an impact factor

PLOS ONE

BMJ Open eLife

JAMA Network Open

Online mega-journals have ~50% acceptance rates, are online only, and accept valid work across fields; your study doesn't need novel findings (in fact they encourage negative findings) doesn't need to be high impact

Example Timeline from Repeated Rejection

- Not unusual for 2 year timeline from first draft to published PDF
- “Journal shopping” i.e. sending to NEJM / Nature and then letting it bounce down the impact factor list substantially adds to wait time
- Increasingly difficult to find peer reviewers to accept reviews
- Peer review takes from ~2-8 months (longer in COVID times)
- Responding to reviewers takes place at inconvenient times, and can be challenging coordinating co-authors or re-analyzing data
- Between acceptance and publication takes about 3 months

Where Can I Publish? - Turnaround Hacks

- Know your journals:
  - Where have we published before?
  - Develop an internal journal database
  - Check public turnaround times, check SciRev
- Presubmission enquiries - write to 3 target journals asking editor if within scope and preferred format; enthusiasm and speed of response is a good proxy for interest
- Preprints
  - Does the journal allow preprints? E.g. MedRxiv / JMIR
  - Grants can reference as soon as the work has been submitted
  - Can cite more easily in forthcoming papers

e.g. Targets for a Clinical Simulation Study

Name (Fee)	Scope / Readership	Journal type	Impact Factor + Indexed	Comments
Selected journal				
BMJ Open **($2,200)**	Clinical mega-journal	Open access online only	2.4, all major indexes	421 simulation studies More clinical, bit slower than JMIR, higher bar, preprints
Other possible journals				
BMC Health Services Research **($2490.00)**	"Broad scope public health journal"	Open access online only	1.9 (2018), all major indexes	400 simulation studies Abstract 350 words Quite slow (3m to first decision)
JMIR **($2,500 +optional fast-track)**	all aspects of digital health	Open access online only	4.9 + some sister journals have one	18 simulation studies If not high impact enough will get filtered to "cascade journal"
npj Digital Medicine **(2,290 euro)**	all aspects of digital medicine	Online Open Access	Not yet	2 simulation studies Main text: 4,000-4,500 words. The abstract: 150 words, unreferenced.

Where Can I Publish? - Not Predatory Journals!

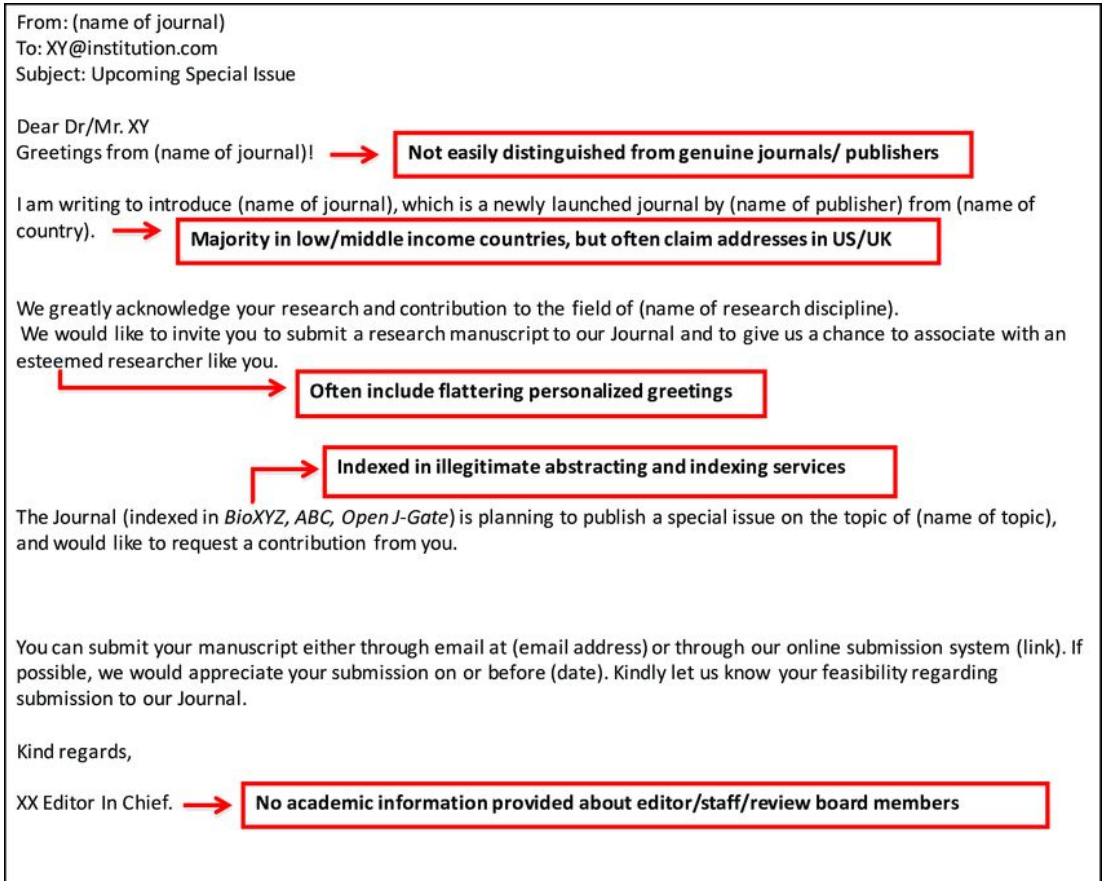
- High acceptance rates
- Poor peer review
- Minimal error checking, proofreading
- Not indexed, no impact factor
- High publication fees
- **Potentially damaging to our reputation**

The definition

The consensus definition reached was: "Predatory journals and publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices."

https://www.nature.com/articles/d41586-019-03759-y

Where Can I Publish? - Predatory Phishing



From: (name of journal)
To: XY@institution.com
Subject: Upcoming Special Issue

Dear Dr/Mr. XY
Greetings from (name of journal)!

Not easily distinguished from genuine journals/ publishers

I am writing to introduce (name of journal), which is a newly launched journal by (name of publisher) from (name of country).

Majority in low/middle income countries, but often claim addresses in US/UK

We greatly acknowledge your research and contribution to the field of (name of research discipline).
We would like to invite you to submit a research manuscript to our Journal and to give us a chance to associate with an esteemed researcher like you.

Often include flattering personalized greetings

Indexed in illegitimate abstracting and indexing services

The Journal (indexed in *BioXYZ, ABC, Open J-Gate*) is planning to publish a special issue on the topic of (name of topic), and would like to request a contribution from you.

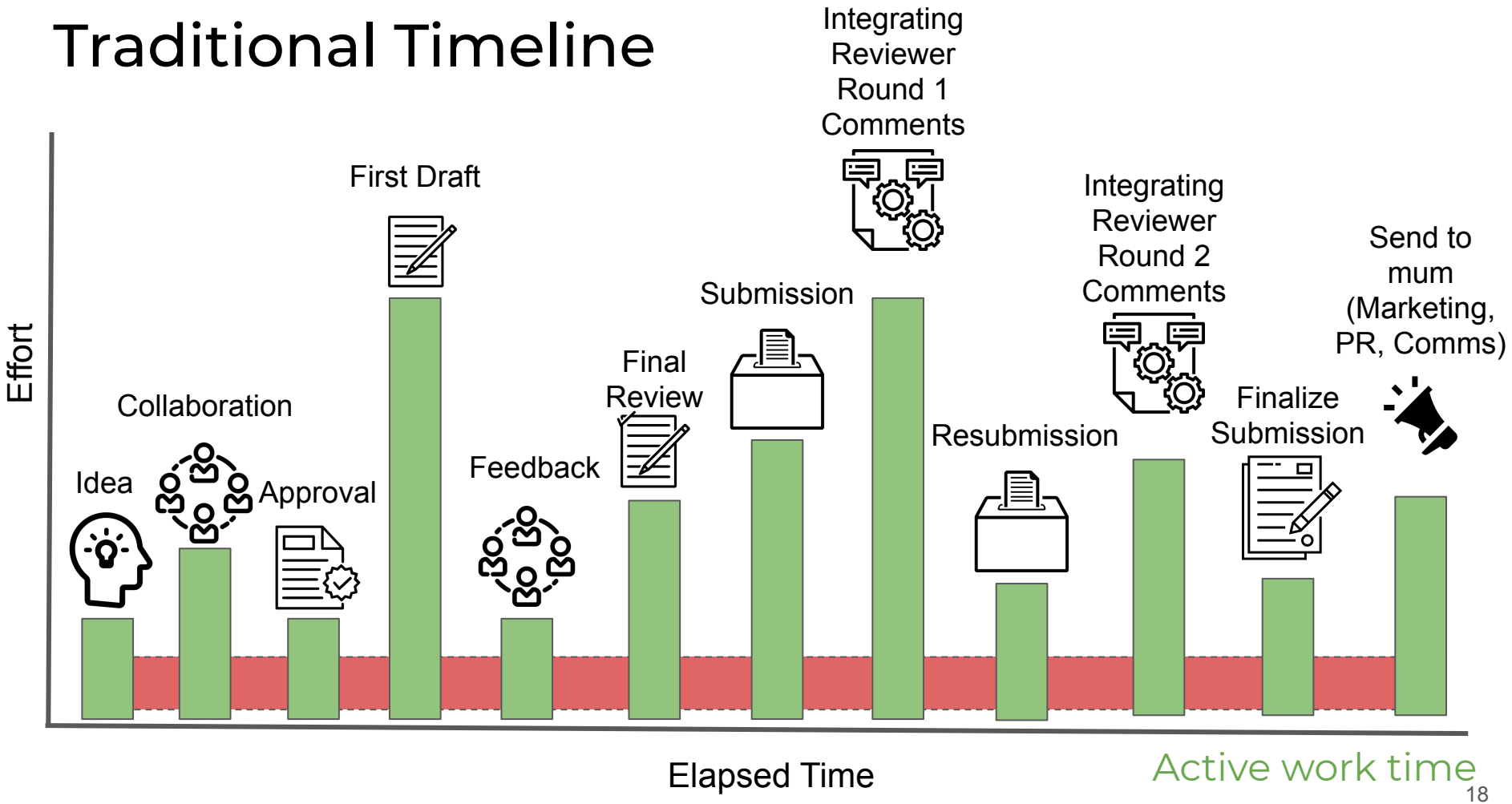
You can submit your manuscript either through email at (email address) or through our online submission system (link). If possible, we would appreciate your submission on or before (date). Kindly let us know your feasibility regarding submission to our Journal.

Kind regards,

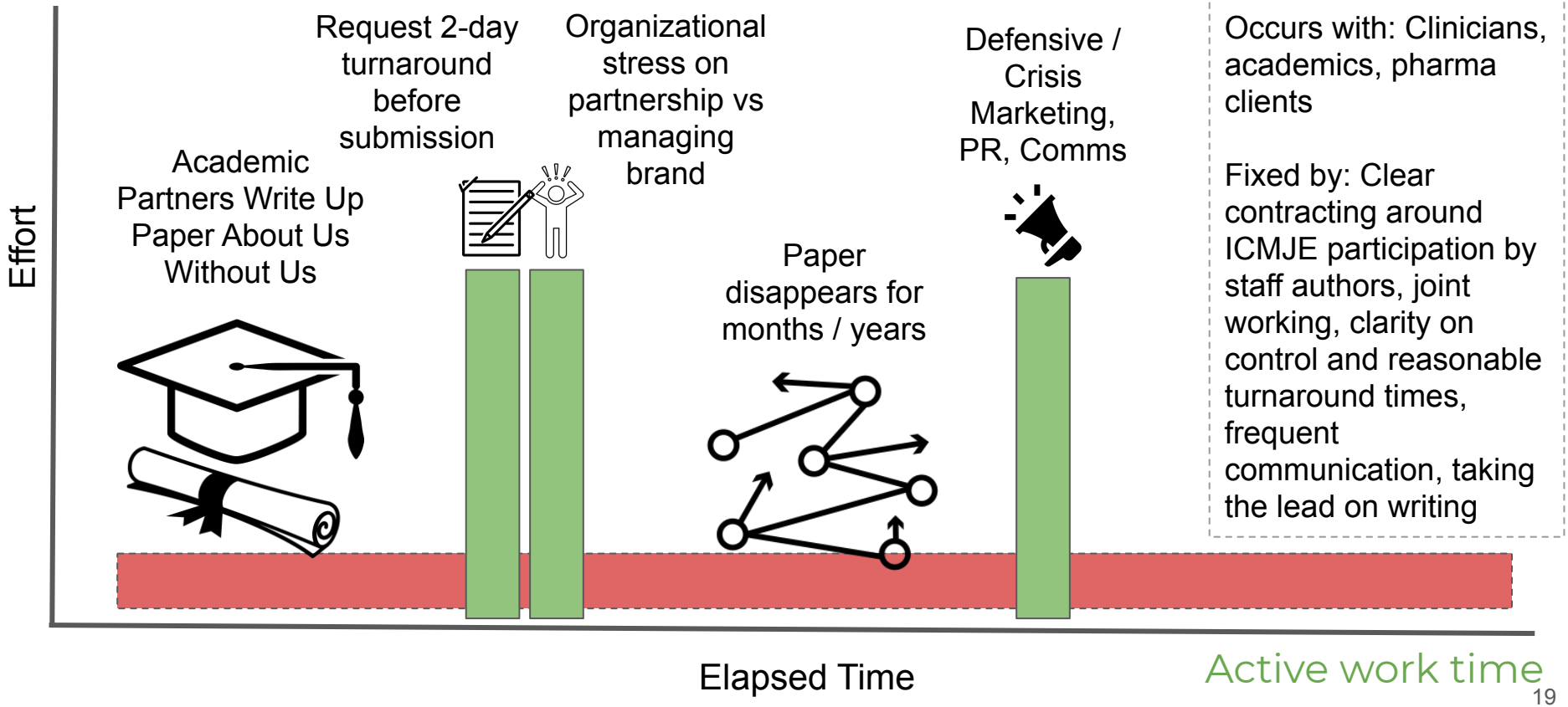
XX Editor In Chief.

No academic information provided about editor/staff/review board members

Traditional Timeline



Bad Timeline for Industry - Rogue Academics



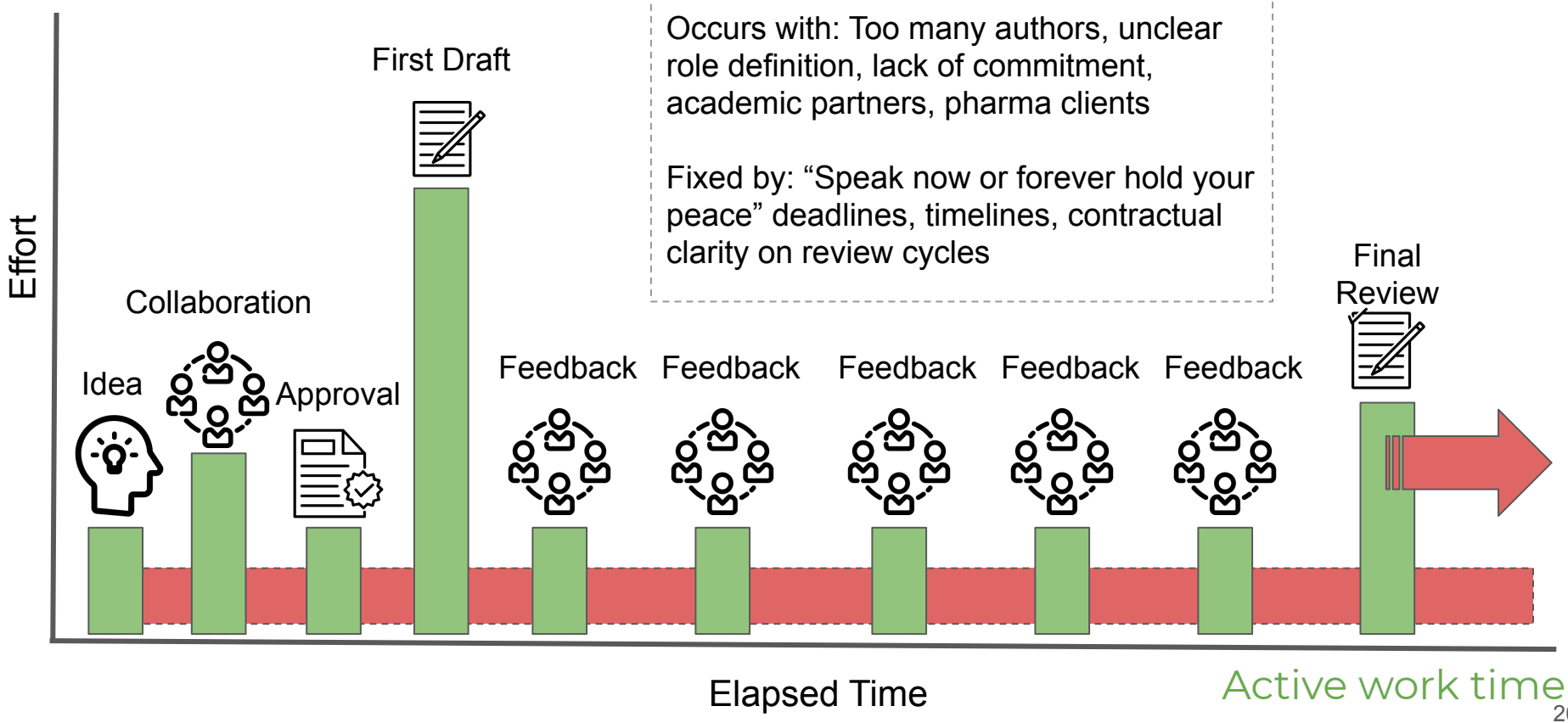
Occurs with: Clinicians, academics, pharma clients

Fixed by: Clear contracting around ICMJE participation by staff authors, joint working, clarity on control and reasonable turnaround times, frequent communication, taking the lead on writing

Active work time

Waiting time

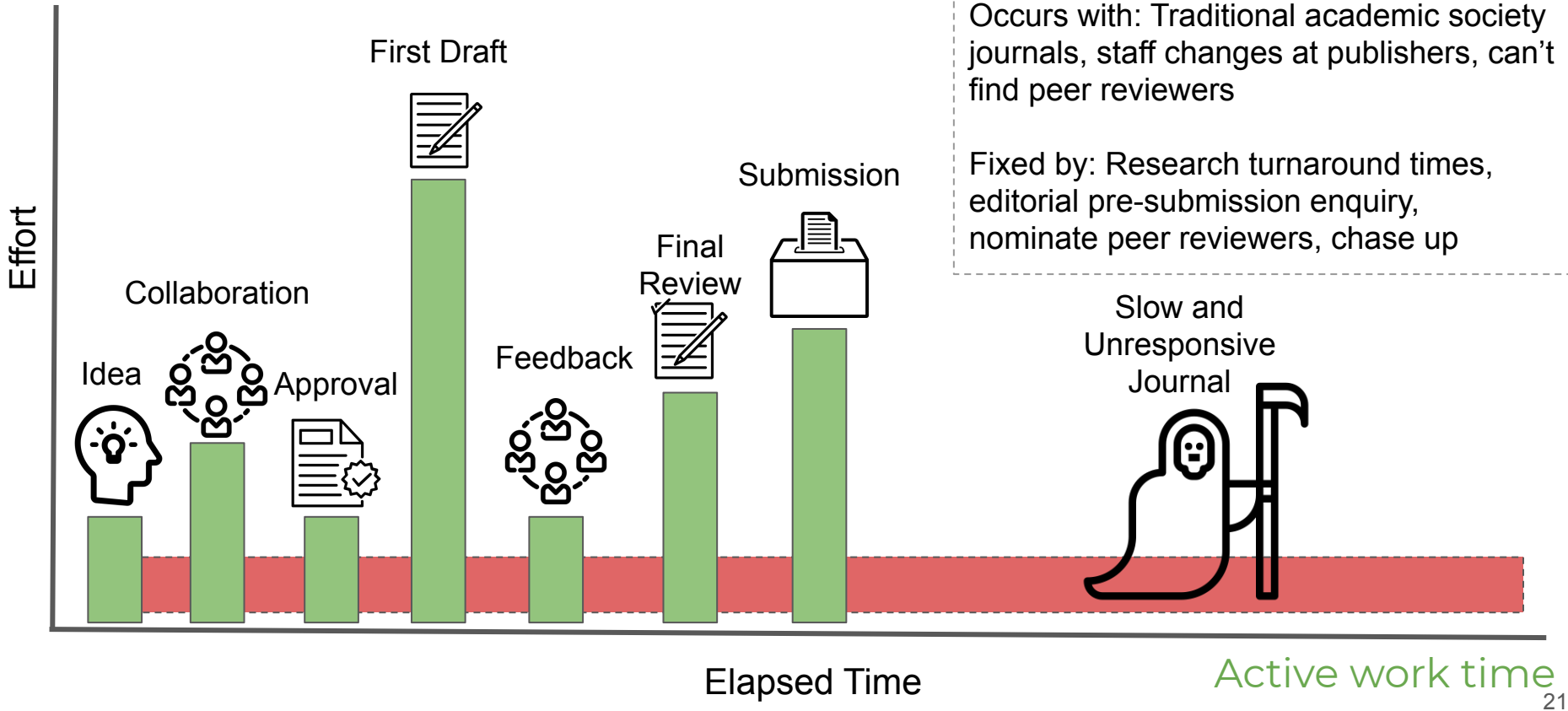
Bad Timeline - Neverending Feedback Loop



Occurs with: Too many authors, unclear role definition, lack of commitment, academic partners, pharma clients

Fixed by: “Speak now or forever hold your peace” deadlines, timelines, contractual clarity on review cycles

Bad Timeline - Slow Journal



Occurs with: Traditional academic society journals, staff changes at publishers, can't find peer reviewers

Fixed by: Research turnaround times, editorial pre-submission enquiry, nominate peer reviewers, chase up

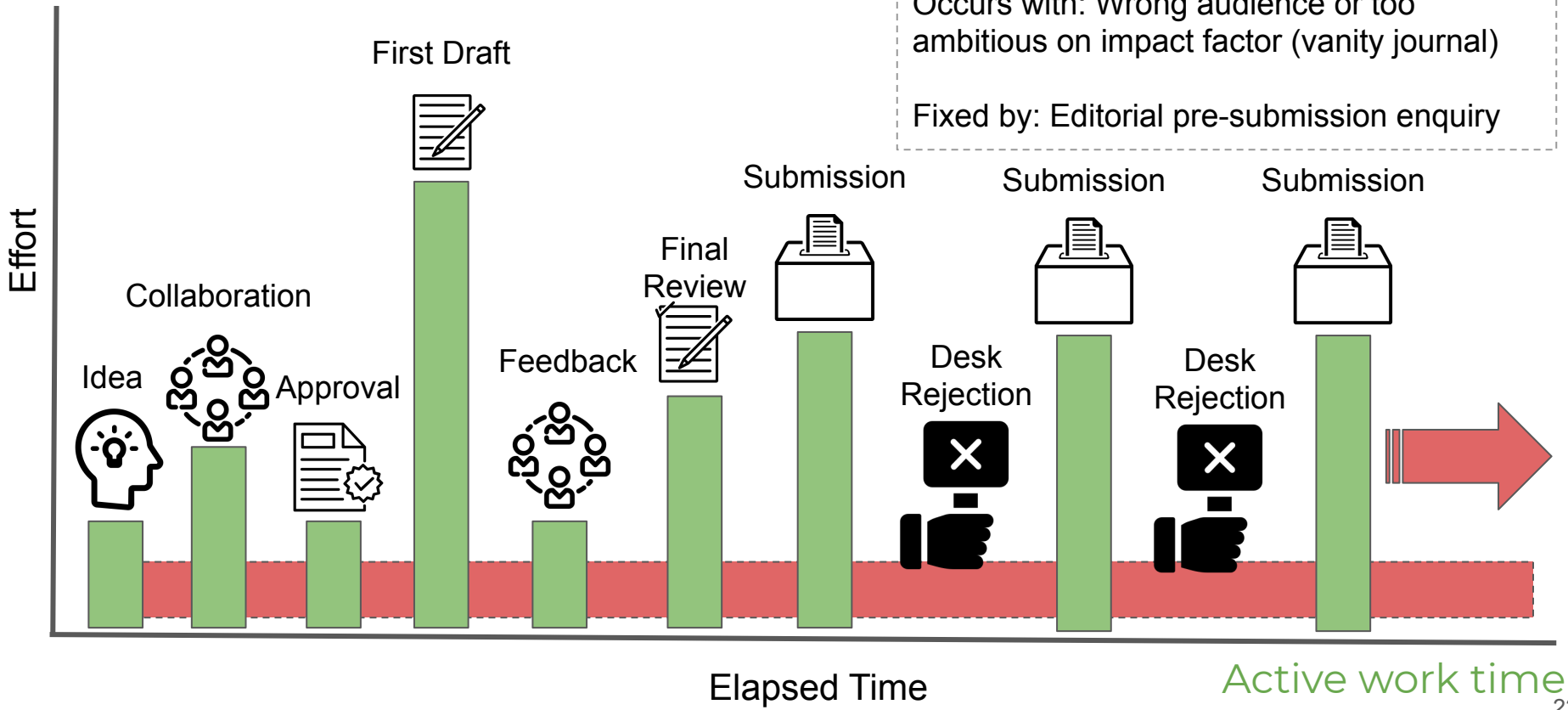
Active work time

Waiting time

Bad Timeline - Multiple “Desk rejections”

Occurs with: Wrong audience or too ambitious on impact factor (vanity journal)

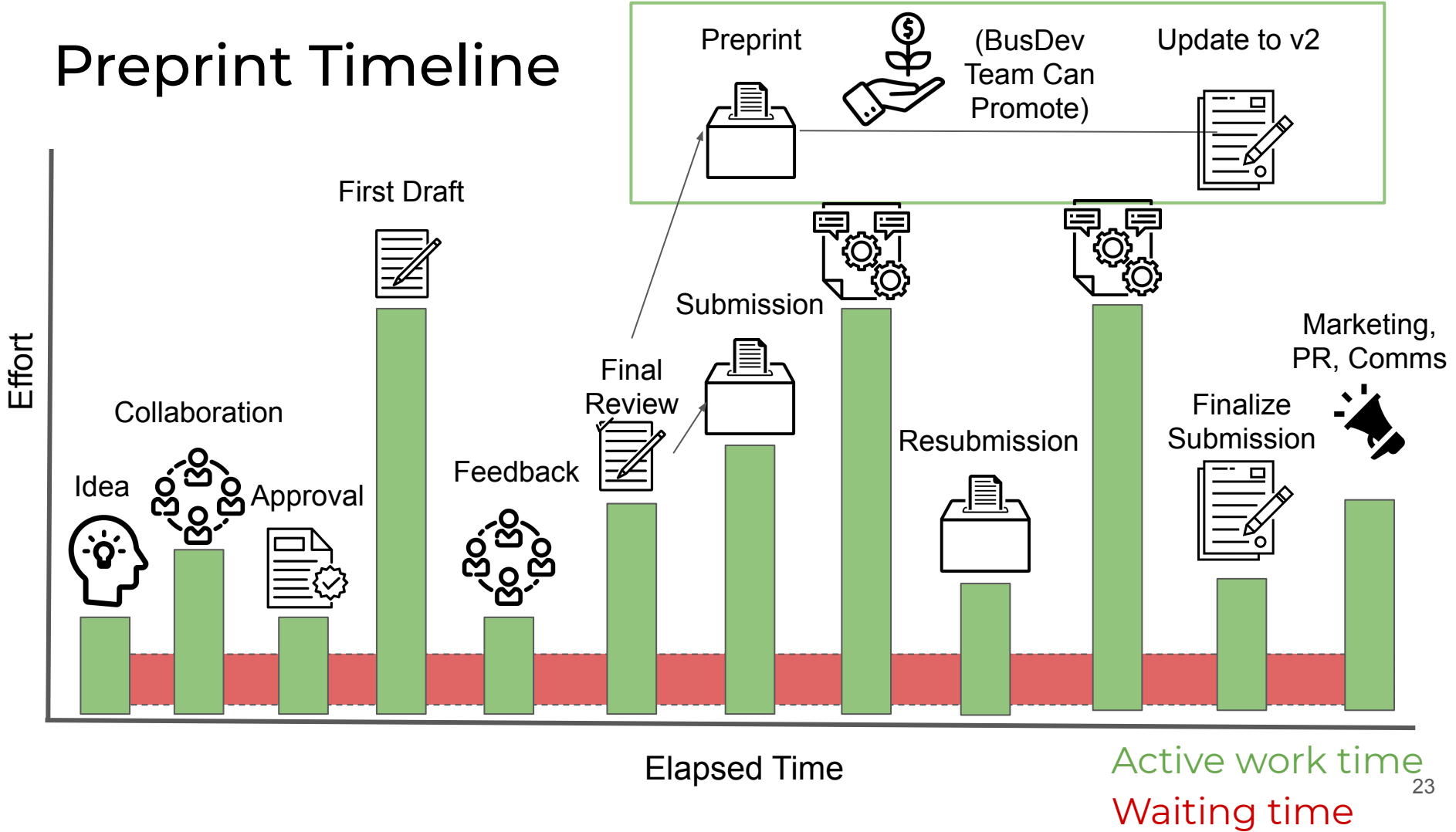
Fixed by: Editorial pre-submission enquiry



Active work time

Waiting time

Preprint Timeline



Practical Tips for Submission

- Read the guidance for authors **very** carefully especially around references, word count, tables, structured / unstructured abstract
- Download and fill out any checklists / declarations
- Look at 2-3 recent similar papers to yours in the same journal to get a sense of length, figures, claims, balance of IMRAD word count
- Gather the ORCID IDs of your co-authors in advance
- Write a brief cover letter outlining why this work is relevant, exciting, or of particular interest to *this* outlet
- Propose peer reviewers who have recently published similar work in the same journal, and who you admire *but* have no conflict of interest
- Once submitted, celebrate (!) and check in every couple of weeks on the submission process
- If peer reviewers haven't been assigned after 2 weeks, or if a paper remains under peer review for 2 months, check with the editorial team on progress (politely!)

Dealing with Rejection and Feedback

- Almost no paper is accepted without comments
- Your “final” submission was only ever ~70% done and needs peer reviews, editorial input, and proofreading & copy-editing (plus your own further thoughts in reaction to feedback!) to get to 100%
- Tips for responding to comments:
  - Article 1 - Editor’s perspective
  - Article 2 - Professor w/424 papers, 60k citations
  - Article 3 - From a Publisher
- Humo(u)r
  - S*it my reviewers say
  - @PhD Comics
  - @AcademicsSay

😑 (Via Science Shinanigans Tumblr)

Conclusions

- Publishing can seem daunting at first but it gets easier (eventually!)
- Try activities such as journal club or volunteering to peer review
- Plenty of great resources online e.g.
  - Duke Graduate School (free)
  - Coursera (some free, some fee)
  - Elsevier Researcher Academy (free)
- Questions? paul@wicksdigitalhealth.com