



Iain Hrynaszkiewicz, Director, Open Research Solutions

What can we
learn from
and what is
next for
PLOS' data
availability
policy?

JST-STM joint
seminar
November 2022

Empowering Researchers to Transform Science

PLOS is a nonprofit, Open Access publisher empowering researchers to accelerate progress in science and medicine by leading a transformation in research communication.

We've been breaking boundaries since 2001. We propelled the movement for OA alternatives to subscription journals. We established the first multi-disciplinary publication inclusive of all research regardless of novelty or impact. And we demonstrated the importance of open data availability.

PLOS' Data Availability Policy – a brief history

1

PLOS journals, which launched in 2003, have always required data sharing as a condition of publication

2

In 2014 the policy was updated to require public data sharing and Data Availability Statements (DAS)

3

The policy aims to increase availability of and access to research data, to advance scientific progress

4

Authors must share data that would enable replication of results reported in the article

PLOS Data Availability Policy – summary of requirements

1

Research data supporting the results of all research articles **must be** made publicly available, unless legitimate legal or ethical restrictions apply

2

All research articles must include a Data Availability Statement (DAS)

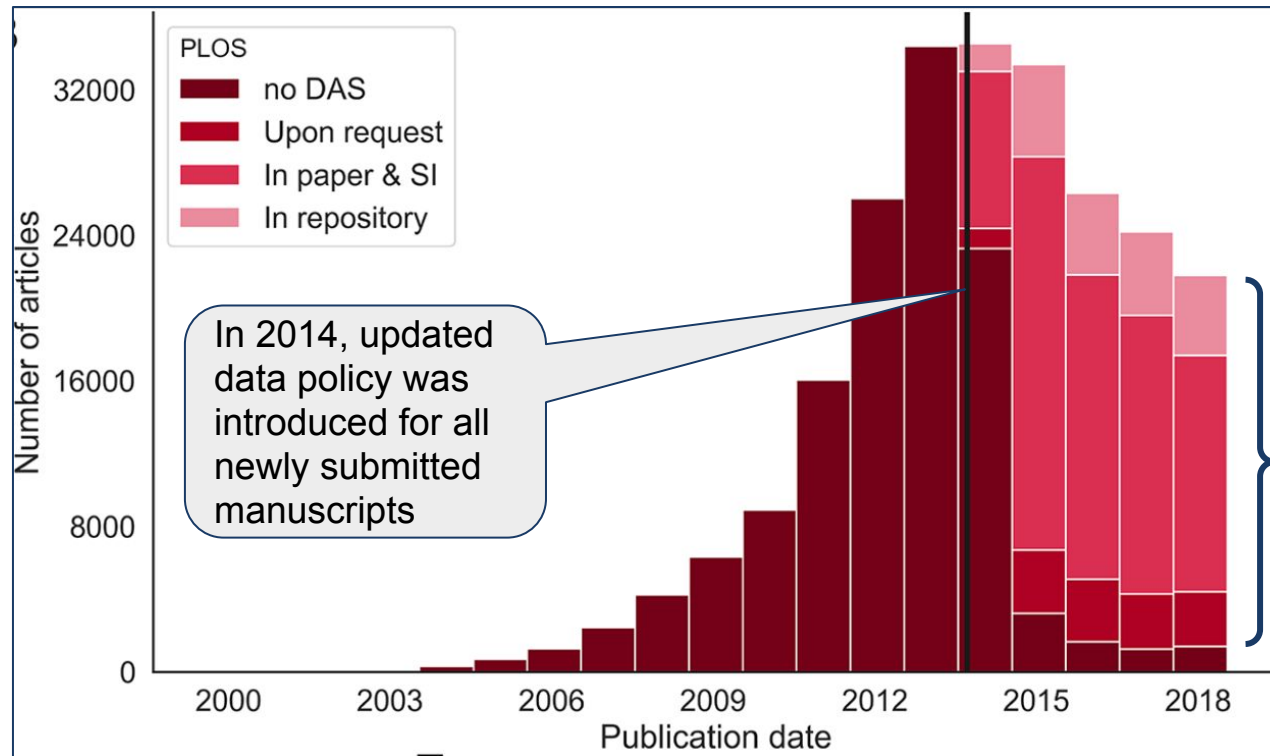
3

We **strongly encourage** data are shared in public repositories but it is, ultimately, the researcher who determines **how** their data are shared

4

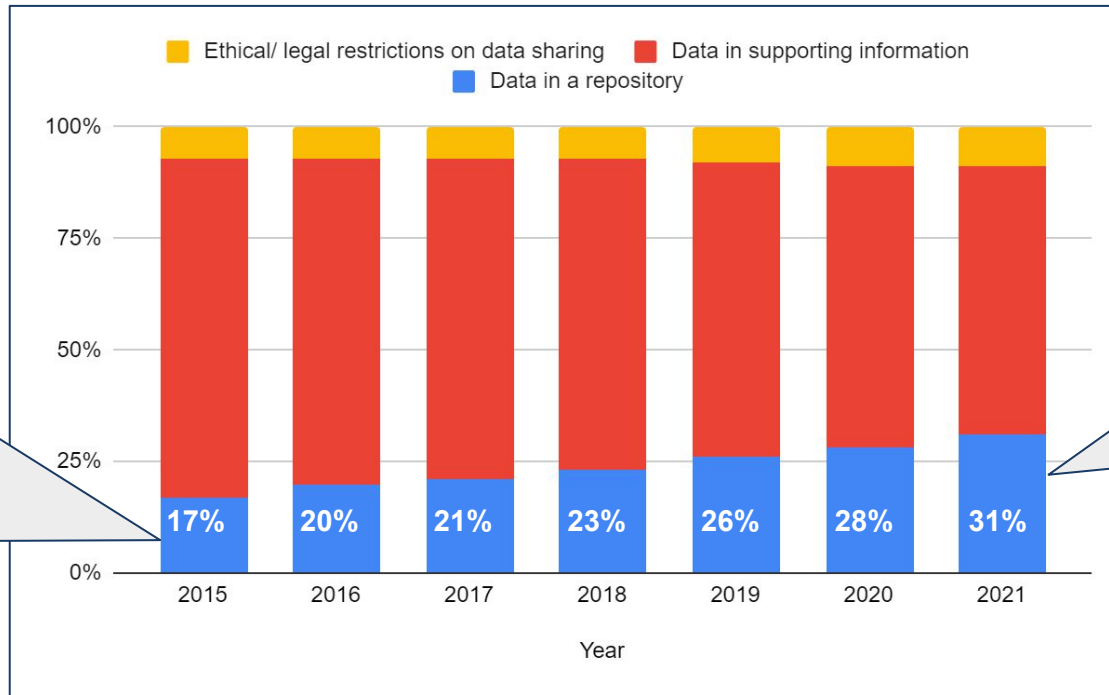
Linking of data to publications and citation of datasets in the reference list are **strongly encouraged**

Outcome of policy: Dramatic increase in Data Availability Statements (DAS) after the policy was introduced



3 main categories of DAS: (1) Data shared in repository (2) Data shared in Supporting Information (3) Data not publicly available

Outcome of policy: Steady increase in use of data repositories to share data supporting publications



% of PLOS publications that link to research data in a repository

Using data repositories to share data is considered the best practice

Linking articles to data in a repository correlated with a 25% increase in citations (Colavizza *et al.*, 2020)

Summary: What have we learned?

1

Mandatory data availability policies are effective and have benefits for research and researchers

2

But, mandatory policies incur costs (historically, an additional 25 minutes of work per article on average)

3

Researchers need support to understand and comply with journal data availability policies

4

Data sharing and access are important to researchers but different research communities have different needs and solutions for data sharing



PLOS

What is
next?

PLOS' data availability policy

Problem: Increase best practice in data sharing

- PLOS research published in 2021* found that researchers are ***satisfied with their own ability to share data***, despite data repositories being the least common method for public data sharing
- The research also revealed that more than half (52%) of researchers reuse other researchers' data but they are ***dissatisfied with their ability to access other researchers' data***
- Conclusion: Need to offer solutions that require minimal effort to adopt best practices
- In 2021-23 PLOS is testing 2 solutions to increase use of data repositories and/or increase access to research data – with funding from the Wellcome Trust

*Hrynaszkiewicz, I., Harney, J. and Cadwallader, L., 2021. A Survey of Researchers' Needs and Priorities for Data Sharing. *Data Science Journal*, 20(1), p.31. DOI: <http://doi.org/10.5334/dsj-2021-031>

Solution #1: Integrated data repository

- We have integrated the Dryad generalist data repository into the existing journal submission experience of the journal *PLOS Pathogens*
- It offers a data repository option to authors during manuscript submission and aims to steer authors towards best practice with minimal effort
- Other publishers (e.g. Springer Nature) are conducting similar experiments with general data repositories (e.g. Figshare)

Dryad integration in *PLOS Pathogens*' Editorial Manager manuscript submission system

PLOS PATHOGENS

em Editorial Manager
Role: Author Username: LCadwallader

HOME • LOGOUT • HELP • REGISTER • UPDATE MY INFORMATION • JOURNAL OVERVIEW
MAIN MENU • CONTACT US • SUBMIT A MANUSCRIPT • INSTRUCTIONS FOR AUTHORS • PRIVACY

✓

Article Type Selection

↓

Attach Files

!

General Information

Review Preferences

Additional Information

Manuscript Data

✓ Cover Letter
✓ Manuscript

Upload manuscript, figures, and supporting information files individually or combined in one PDF. Upload a cover letter separately.

- Cover letter
- Manuscript
- Figures
- Supporting Information

Accepted manuscript formats

- DOC, DOCX, or RTF. Editorial Manager will extract information from the manuscript to fill in details under Manuscript Data.
- Submit LaTeX manuscripts in PDF.

Insert Special Character

Select Item Type
Research data
Description
Research data

Select "Upload to Repository" and then select the Dryad Repository from the drop down menu. Click "Create Deposit and Go To Upload Page." Complete the deposit at Dryad and note the DOI provided. Do not close the Dryad pop-up window until the upload of the data is complete. If you have already uploaded your data to Dryad, select "Enter URL/URI" and enter the URL of the data that you have already uploaded. Read the [How to deposit to Dryad instructions](#).

☒ Upload to repository ☐ Enter URL/URI

Select a repository:

Dryad Digital Repository
Please Choose
Dryad Digital Repository

Create Deposit and Go to Upload Page


Solution #2: Prominent links to data on articles

- We developed a fully-automated experimental solution that provides a prominent visual link or “badge” on articles that link to data in repositories via their Data Availability Statement (see images on next slide)
- Intention is to meet researcher needs relating to data discovery and reuse*, as well as to offer a type of incentive that has been proven to work in other contexts**
- Worked with User Experience consultancy using an iterative process to test and optimise designs with active researchers
- We are monitoring effects of the solution on data usage and will share results in 2023

*Hrynaszkiewicz, I., Harney, J. and Cadwallader, L., 2021. A Survey of Researchers' Needs and Priorities for Data Sharing. *Data Science Journal*, 20(1), p.31. DOI: <http://doi.org/10.5334/dsj-2021-031>

**Kidwell MC, Lazarević LB, Baranski E, Hardwicke TE, Piechowski S, Falkenberg L-S, et al. (2016) Badges to Acknowledge Open Practices: A Simple, Low-Cost, Effective Method for Increasing Transparency. *PLoS Biol* 14(5): e1002456. <https://doi.org/10.1371/journal.pbio.1002456>

Assessment of transparency indicators across the biomedical literature: How open is open?

Styllanos Serghiou, Despina G. Contopoulos-Ioannidis, Kevin W. Boyack, Nico Riedel, Joshua D. Wallach, John P. A. Ioannidis 

Published: March 1, 2021 • <https://doi.org/10.1371/journal.pbio.3001107>

Article	Authors	Metrics	Comments	Media Coverage	Peer Review
					

Abstract

Introduction
Results
Discussion
Materials and methods
Supporting information
Acknowledgments
References

Reader Comments
Figures

Abstract

Recent concerns about the reproducibility of science have led to several calls for more open and transparent research practices and for the monitoring of potential improvements over time. However, with tens of thousands of new biomedical articles published per week, manually mapping and monitoring changes in transparency is unrealistic. We present an open-source, automated approach to identify 5 indicators of transparency (data sharing, code sharing, conflicts of interest disclosures, funding disclosures, and protocol registration) and apply it across the entire open access biomedical literature of 2.75 million articles on PubMed Central (PMC). Our results indicate remarkable improvements in some (e.g., conflict of interest [COI] disclosures and funding disclosures), but not other (e.g., protocol registration and code sharing) areas of transparency over time, and map transparency across fields of science, countries, journals, and publishers. This work has enabled the creation of a large, integrated, and openly available database to expedite further efforts to monitor, understand, and promote transparency and reproducibility in science.

Figures



Citation: Serghiou S, Contopoulos-Ioannidis DG, Boyack KW, Riedel N, Wallach JD, Ioannidis JPA (2021) Assessment of transparency indicators across the biomedical

29
Save

16
Citation

5,289
View

147
Share

Download PDF

Print

Share

 Check for updates

ADVERTISEMENT

PLOS
COLLECTION
Diagnostic tests in low-resource settings




Accessible Data

See the data



This article includes the Accessible Data icon, an experimental feature to encourage data sharing and reuse. [Find out how research articles qualify for this feature.](#)



Collaborating to increase positive impacts of journal data policies for all publishers and stakeholders

- PLOS is an active participant in:
 - The Research Data Alliance (RDA) data policy standardisation and implementation Interest Group
 - The production of guidance on designing and implementing journal data policies
 - The STM Research Data Committee, supporting increased adoption of data policies at many other journals and publishers
 - And numerous other community initiatives
- The PLOS publication corpus is regularly used for meta-research on data sharing policy and practice

Summary: What is next?

1

Measurably increase adoption of best practices in data sharing (use of repositories) and the benefits of data sharing (reuse of research data)

2

Collaboration with other stakeholders including publishers and funders to accelerate progress

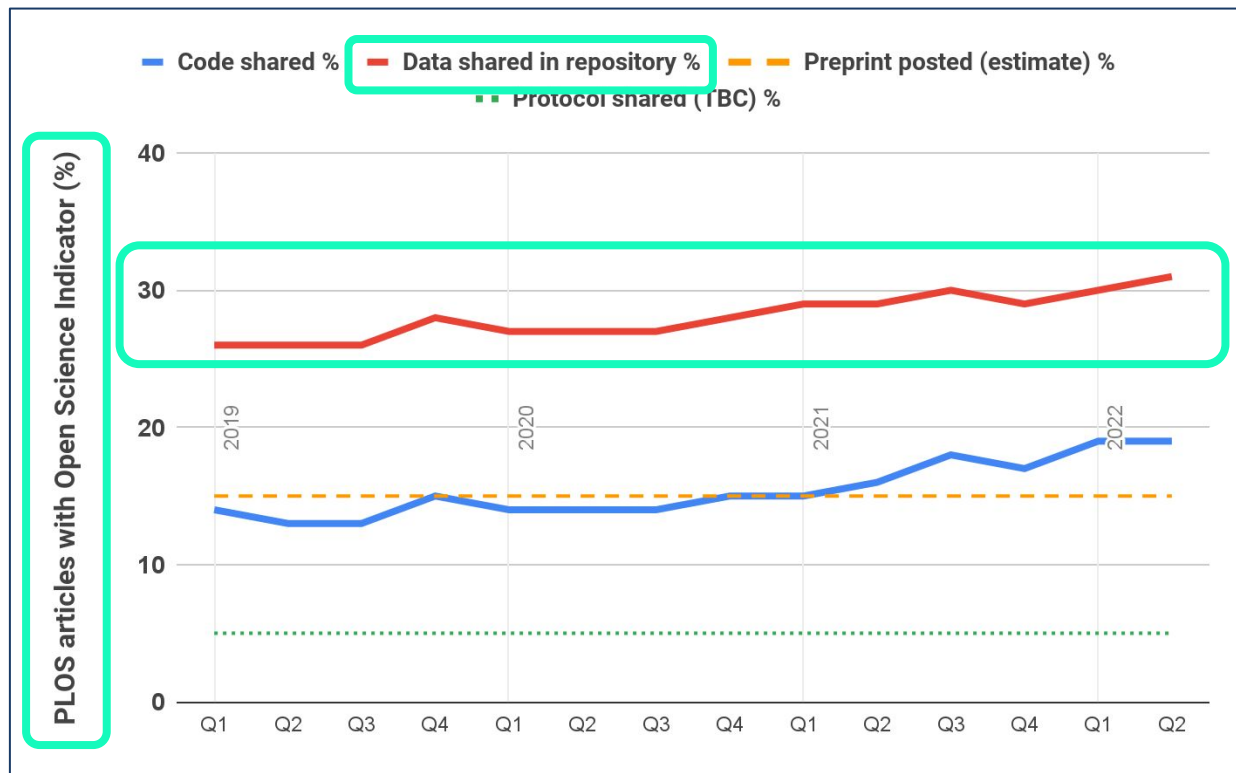
3

More research into how we can support different research communities/ journals in more specific ways

4

Share and publish data on our progress at increasing best practices in data sharing (see next slide)

Track PLOS' progress at increasing good Open Science practices with our “Open Science Indicators” project



Scan code to
access the blog



DataSeer





ihrynaszkiewicz@plos.org

**Thank
you for
listening**