

Comment Form: Measuring and Rewarding Scientific Impact

I am responding:	On behalf of an organization
Name	Caroline Sutton
Name of Organization	STM (The International Association
Type of Organization	Professional Organization/Association
Type of Organization - Other	
Role	Organizational Official
Role - Other	
1. Rigor and Reproducibility	STM welcomes NIH's efforts to strengthen rigor, reproducibility, and replication across the biomedical research enterprise. These goals are central to public trust in science and to NIH's mission of generating knowledge that enhances health, lengthens life, and reduces illness and disability. NIH's Replication and Reproducibility Initiative recognizes the need to elevate replication and reproducibility studies as foundational to "gold standard science" and identifies data standardization, public availability of research findings, independent replication research, and sustained infrastructure as part of NIH's approach. These goals also mirror concrete efforts and contributions by STM and its member publishers across the research ecosystem. For example, STM's research integrity work supports editorial standards, integrity checks, stewardship of the Version of Record, post-publication corrections and retractions, and transparent communication when concerns arise. STM's Integrity Hub provides a shared infrastructure to help publishers detect paper-mill activity, duplicate submissions, references to retracted work, and other

1. Rigor and Reproducibility

enter the scientific record. STM's research data initiatives catalyze action to advance FAIR data practices by promoting data availability policies, links between articles and datasets, persistent identifiers, community metadata standards, repository workflows, and best practices for data citation and reuse. These publisher-led activities are complemented by third-party frameworks such as COPE guidance on publication ethics and stewardship of the scholarly record, the Center for Open Science TOP Guidelines on transparency and verifiability, and responsible research-assessment initiatives such as DORA and CoARA.

Together, these efforts demonstrate that reproducibility depends not only on actions by individual researchers, but also on the shared systems, standards, editorial practices, and infrastructure that make research findings reliable, discoverable, correctable, reusable, and trustworthy. They also demonstrate that publications are a key part of this system.

STM encourages NIH to adopt a broad, evidence-based framework for recognizing and supporting activities that improve the reliability, transparency, and trustworthiness of biomedical research. Potential indicators include:

- Publication of replication studies, negative results, null findings, and confirmatory research. Many publishers provide options to support the communication of such reports.
- Use of preregistration, registered reports, reporting guidelines, and other transparency-enhancing practices. Such practices are increasingly supported and enabled by publishers.
- Availability of underlying data, code, protocols, and materials, where appropriate. STM, in coordination with others in the research community, have provided best practices for supporting code and data sharing.
- Adherence to field-specific reporting standards and methodological best practices. These are often communicated and stewarded by journal communities sustained by publishers.
- Reliance on the integrity-enhancing practices of publishers, including peer review, editorial assessment, research integrity screening, corrections, retractions, and post-publication stewardship of the scientific record.
- Documented efforts to reproduce, validate, or extend prior research findings, which could be included in journal articles or elsewhere.

NIH should be careful not to replace one narrow assessment framework with another, nor should NIH ignore the importance of publications in achieving NIH's core mission of supporting high-quality research and ensuring its impact. While overreliance on publication counts,

1. Rigor and Reproducibility

distort incentives, under reliance on the scholarly record as an integral contributor to the impact of research would be inappropriate.

With both traditional and alternative metrics, care must be taken to ensure that any metric is not overly rigid or treated as compliance targets rather than contextual evidence of scientific contribution. As noted in DORA's guidance on responsible use of quantitative indicators, indicators are inherently reductive and require careful contextualization when used in research assessment. CoARA similarly seeks to reform assessment systems, promoting a broader understanding of research quality and contribution, but not ignoring the importance of publications as expressions of research quality and impact.

Integrity depends on coordinated action across the research ecosystem, with publishers, funders, institutions, policymakers, and researchers fulfilling distinct but interconnected responsibilities. Accordingly, NIH should recognize not only researchers who produce reproducible findings, but also contributions that strengthen the systems through which reproducible science is evaluated, communicated, corrected, preserved, and reused. This is particularly important because replication and reproducibility depend on access to reliable, well-documented, and discoverable research outputs. Research cannot be reproduced or validated if findings, methods, data, and related materials are not effectively communicated and maintained. This again emphasizes the importance of publication to achieving NIH's core goals.

NIH should also account for disciplinary variation. Replication may look different in clinical research, laboratory science, computational biology, population health, epidemiology, and translational research. A flexible framework that recognizes field-specific norms and methodological constraints will be more effective than a uniform checklist.

STM and its members would welcome opportunities to collaborate with NIH on incentives and infrastructure that achieve our shared goals of advancing trusted research.

References and resources:

STM Research Integrity:

<https://stm-assoc.org/what-we-do/strategic-areas/research-integrity/>

STM Integrity Hub:

<https://stm-assoc.org/what-we-do/strategic-areas/research-integrity/integrity-hub/>

STM Research Data Program: <https://stm-researchdata.org/>

Joint Statement of Best Practices for Research Data Sharing:

<https://stm-assoc.org/what-we-do/strategic-areas/open-research/research-data/best-practices/>

COPE Guidance and Tools:

<https://publicationethics.org/guidance-and-tools>
Center for

1. Rigor and Reproducibility	https://www.cos.io/initiatives/top-guidelines DORA Guidance on Responsible Use of Quantitative Indicators in Research Assessment: https://sfdora.org/resource/guidance-on-the-responsible-use-of-quantitative-indicators-in-research-assessment/ CoARA Commitments: https://www.coara.org/agreement/the-commitments/
2. Data, Software, and Model Sharing	STM supports NIH's efforts to incentivize and reward responsible sharing of data, software, models, and related research objects. Effective sharing can accelerate discovery, enable validation, promote reuse, and increase the return on public investment in biomedical research. NIH's Public Access materials state that access to NIH-supported research can accelerate research, generate higher quality scientific results, encourage greater scientific integrity, and enable future inquiry, discovery, and translation. STM agrees, and this is a key focus of STM's research data initiatives and many of our members' commitments to support data sharing, linking, citation, and use. As NIH seeks to incentivize and reward these activities, it should again take a comprehensive approach, incentivizing not just sharing but appropriate sharing, citation, linking, and use. The STM, DataCite, and Crossref's "12 Best Practices for Research Data Sharing" provides a roadmap for assessment of whether data is shared in ways that make them findable, accessible, interoperable, reusable, and appropriately stewarded. Potential indicators include: • □ Deposition of datasets, software, models, protocols, and related materials in trusted repositories and linking to the primary literature. • □ Use of persistent identifiers, metadata, and community standards to improve findability and reuse. • □ Evidence that shared resources have been accessed, reused, cited, and incorporated into downstream research. • □ Clear documentation, versioning, licensing, and maintenance practices. • □ Use of appropriate safeguards for privacy, confidentiality, security, intellectual property, and ethical obligations. • □ Contributions to infrastructure,

2. Data, Software, and Model Sharing

model sharing more reliable and useful.

NIH should avoid incentives that reward superficial compliance. For example, measuring only the number of datasets deposited could encourage quantity over quality. A dataset that is incomplete, poorly documented, difficult to access, unconnected from scholarly literature, or not maintained may do little to advance scientific impact. NIH should instead encourage meaningful sharing that supports validation, reuse, and long-term stewardship.

NIH should also recognize that not all data, models, or software can or should be shared in the same manner. Legal, ethical, privacy, security, proprietary, and participant-protection considerations may limit what can be made publicly available. Researchers should not be penalized when they apply appropriate protections or when responsible sharing requires controlled access rather than unrestricted access.

Scholarly publishers increasingly support these goals through data availability policies, repository integrations, links between articles and datasets, persistent identifiers, metadata improvement, software citation practices, reporting standards, and editorial checks. These practices help connect publications to the broader research objects that underlie them, making research more transparent, reproducible, and reusable.

STM's Research Data Program (started in 2020) helped some publishers implement these practices and still provides guidance to promote the sharing, linking, and citation of research data alongside scholarly articles. STM and its members heavily contributed to the development of the Scholix framework for linking publications with datasets by the Research Data Alliance (RDA) and continues to champion data linking and citation to ensure findability and utilization of research data. STM and its members are also coordinating with related initiatives, such as the State of Open Data project, which tracks the evolution of open science practices globally.

As it considers changes to assessing research, NIH should consider how its assessment framework and policies align with its public access and metadata initiatives. NIH has stated that its efforts to increase public access are intended to make it easier for researchers, clinicians, students, and the public to find and use research results, including through metadata and persistent identifiers (PIDs). Publishers are critical to ensuring that articles and data related to NIH research are reliable, usable, findable, and preserved, including through peer review, editorial assessment, research integrity checks, transparency standards, corrections and retractions, metadata

2. Data, Software, and Model Sharing

of Record. It is therefore critical that NIH policy continue to ensure support for the publishing enterprise as well as assessment of data, software, and model sharing: impact depends not only on availability, but on usability, discoverability, integrity, and stewardship.

STM is developing voluntary recommendations to help journals and publishers clarify data sharing guidance for medical and health science researchers, where generic data sharing policies may be insufficient because of privacy, regulation, and ethics considerations. These recommendations are expected to be released later this year. STM and its members would welcome additional discussion on how we can support NIH's efforts to incentivize and reward these activities in line with our shared commitment to increase the impact of NIH-funded research on public health and improve the return on investments, particularly in the health and medical space.

References and resources:

STM Research Data Program: <https://stm-researchdata.org/>

Joint Statement of Best Practices for Research Data Sharing:

<https://stm-assoc.org/what-we-do/strategic-areas/open-research/research-data/best-practices/>

State of Open Data: <https://stateofopendata.com/>

Scholix Framework:

<https://casrai.org/guides/scholix-scholarly-link-exchange-framework>

2. Data, Software, and Model Sharing	
3. Training and Mentorship	
4. Collaboration	
5. Entrepreneurship and Translation	
6. Foundational Scientific Exploration	
7. Public Impact	STM agrees that public impact is a critical dimension of scientific success. NIH-funded research generates public value when it contributes to better health outcomes, improved clinical practice, innovation, economic growth, public trust, workforce development, and broader societal benefit. However, public impact should be assessed carefully, over appropriate time horizons, and with recognition that many important discoveries produce benefits only after years of cumulative research, validation, dissemination, and translation. NIH should explicitly recognize the role of trusted scholarly communication in enabling public impact. Scientific discoveries produce public benefit only when they can be found, evaluated, trusted, corrected when necessary, and reused. Peer-reviewed publication provides an essential mechanism for making biomedical knowledge visible, scrutinized, structured, preserved, and connected to the broader scientific record. NIH's own public access policies strongly support this point. In its Public Access Policy, NIH states that increasing access to publications resulting from NIH funding offers benefits to the scientific community and the public, including patients, families, healthcare providers, researchers, students, and members of the public. NIH's Office of Science Policy adds that public access can accelerate research, generate higher quality scientific results, encourage

7. Public Impact

discovery, and translation. These statements reflect NIH's longstanding recognition that publication and dissemination are not peripheral to impact; they are core pathways through which research investments generate public benefit.

The peer-reviewed Version of Record is especially important for public impact. It provides a stable, curated, and citable record of research findings; links findings to underlying evidence; supports metadata and indexing; enables discovery through trusted databases; and provides mechanisms for correction, expression of concern, and retraction when needed. These functions are essential to public trust and to the responsible use of biomedical research in clinical, policy, and innovation contexts.

Public impact should therefore be measured not only by immediate translational outcomes, commercial products, or media attention, but also by contributions to the trusted knowledge infrastructure that makes later public benefits possible. Articles reporting on basic research, replication studies, negative results, data resources, methods papers, standards development, and editorial or peer-review contributions may all generate significant public value even when their effects are indirect or long-term.

NIH should be particularly cautious about short-term indicators of public impact. Measures such as media coverage, downloads, social media attention, or public engagement may provide useful signals in some contexts, but they should not be treated as proxies for scientific quality, reliability, or health benefit. Public impact should be assessed through a portfolio of evidence that recognizes both immediate and long-term contributions.

Finally, NIH should recognize that the public benefits described above depend on sustained and appropriate support for the publishing enterprise. Peer review management, editorial assessment, research-integrity screening, metadata creation, indexing, preservation, data and article linking, public access workflows, corrections, retractions, and long-term stewardship of the Version of Record all require ongoing investment. Publication charges, subscriptions, and other sustainable publishing models are mechanisms through which the research ecosystem supports these services and infrastructure. If NIH wishes to maximize the public impact of NIH-funded research, it should avoid policies or assessment frameworks that inadvertently undermine the financial sustainability of trusted scholarly communication and should instead recognize reasonable publishing costs as part of the infrastructure required to make biomedical knowledge reliable,

7. Public Impact	public. References and resources: STM’s submission to NIH on limiting publication charges: https://stm-assoc.org/document/stm-submission-to-nih-rfi-allowable-publishing-costs-sept-2025/ STM’s statement on proposed OMB revisions affecting publication and dissemination of federally funded research: https://stm-assoc.org/stm-statement-on-proposed-omb-revisions/ NIH Public Access Pages: https://grants.nih.gov/policy-and-compliance/policy-topics/public-access/nih-public-access-policy-overview and https://osp.od.nih.gov/policies/public-access/
8. Other Areas	STM encourages NIH to ensure that any future framework for measuring scientific impact explicitly recognizes publication and dissemination as fundamental components of the research process and as essential pathways for achieving NIH’s mission. Fundamentally, NIH’s mission is not accomplished when an experiment is completed. It is advanced when knowledge generated through NIH-supported research can be evaluated, trusted, disseminated, replicated, translated, and ultimately used to improve health. Publication is one of the central mechanisms through which that process occurs. STM therefore urges NIH to recognize that the Version of Record, robust peer review, and ongoing integrity maintenance are essential to NIH’s research priorities and to maximizing the return on NIH’s scientific investments and to explicitly affirm that dissemination through trusted scholarly communication channels advances NIH’s core mission, and provide appropriate support for those activities. Several recent NIH statements and RFIs, including this one, appear to distinguish between conducting

8. Other Areas

distinction should be approached with caution. While publication is a private sector activity that is not directly funded through core research activities, biomedical research does not achieve its full value at the point of discovery alone. It achieves value when findings are evaluated, communicated, preserved, disseminated, made discoverable, corrected when necessary, and used by others to advance science, clinical practice, innovation, and public health.

Publication is therefore not merely an administrative byproduct of research or a narrow productivity measure. It is one of the principal mechanisms through which scientific knowledge enters the research ecosystem. Research findings that are not effectively communicated cannot be scrutinized, replicated, synthesized, incorporated into guidelines, translated into products or practices, used by clinicians, or accessed by the public.

NIH's own policies support this conclusion. NIH's Public Access Policy ensures that the public has access to published results of NIH-funded research in PubMed Central. NIH's public access materials state that access to publications resulting from NIH-funded research benefits the scientific community and the public and supports patients, families, healthcare providers, researchers, students, and members of the public. NIH's Office of Science Policy further states that public access can accelerate research, generate higher quality scientific results, encourage greater scientific integrity, and enable future inquiry, discovery, and translation.

NIH's Replication and Reproducibility Initiative also recognizes the importance of making research findings freely and quickly available to the public as part of NIH's ongoing efforts to strengthen rigorous and reproducible science. This is because replication, validation, reuse, correction, and translation all depend on effective communication and preservation of research findings.

Accordingly, STM urges NIH not to interpret responsible research assessment reform as a reason to diminish the role of publication. Initiatives such as DORA and CoARA rightly caution against overreliance on publication counts, journal impact factors, and citation-based proxies. But these efforts do not imply that publication itself is unimportant. Rather, they support a more nuanced approach that assesses research and researchers based on the substance, reliability, transparency, openness, integrity, and societal value of their contributions. The appropriate conclusion is that assessment should recognize what high-quality publication and scholarly

8. Other Areas

assessment, research integrity, discoverability, public access, metadata creation, preservation, correction, reuse, and long-term stewardship of the scientific record.

This point is also consistent with STM's recent submissions on federal research policy. STM has emphasized that research is not complete at the point of discovery; it achieves value only when findings are validated, communicated, and made accessible. In comments on NIH's strategic plan, STM has urged NIH to recognize that the Version of Record, robust peer review, and ongoing integrity maintenance are essential to NIH's research priorities and to maximizing the return on NIH's scientific investments.

STM is concerned that any policy framework suggesting publication does not advance NIH's core mission is inconsistent with NIH's own public access, reproducibility, metadata, and stewardship policies. Publication and dissemination are not separate from NIH's mission of improving health. They are among the principal mechanisms through which NIH-supported research becomes useful, trustworthy, accessible, and actionable.

In addition to recognizing the importance of publication to NIH's core mission, NIH should also ensure that policies related to allowable costs, research assessment, public access, and reproducibility are aligned. Specifically, NIH should continue to ensure that appropriate and sustained funding continues to be available for publishing costs and subscriptions as part of NIH grants. More information on these issues can be found in STM's previous submissions on these topics, which are linked below.

References and resources:

STM submission on NIH Strategic Framework:

<https://stm-assoc.org/document/stm-response-to-nih-strategic-framework-may-22-2026-docx/>

STM's submission to NIH on limiting publication charges:

<https://stm-assoc.org/document/stm-submission-to-nih-rfi-allowable-publishing-costs-sept-2025/>

STM's statement on proposed OMB regulations affecting publication and dissemination of federally funded research:

<https://stm-assoc.org/stm-statement-on-proposed-omb-revisions/>

8. Other Areas	
File Upload	
Description	
If you would like to have a copy of your submission emailed to you, please check here	1
Email	weinreich@stm-assoc.org