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Re: Comment Request: National Science Foundation Proposal/Award; Information—NSF Proposal and Award Policies and Procedures Guide (Federal Register Doc. 2015-12086)

The Professional and Scholarly Publishing Division of the Association of American Publishers (AAP/PSP) and the International Association of Scientific, Technical, and Medical Publishers (STM) appreciate the opportunity to comment on the National Science Foundation's (NSF) revisions to the Proposal and Award Policies and Procedures Guide (PAPPG), in particular the opportunity to comment on NSF's Public Access Plan (the Plan) as implemented through the PAPPG. AAP/PSP and STM are the major US and international trade associations for professional and scholarly publishers; like NSF, our 150+ members are guided by a commitment to supporting a high-quality research enterprise. Our members focus on creating and preserving the best scholarly communication, validated through peer review and disseminated worldwide to inspire new avenues of thought and advance discovery and innovation.

AAP/PSP and STM members include non-profit professional societies, commercial publishers, and university presses that create books, journals, computer software, databases, and electronic products in virtually all areas of human inquiry and activity. Collectively, they represent tens of thousands of publishing employees, editors and authors, and other professionals throughout the country who regularly contribute to the advancement of American science, medicine, learning, culture, and innovation. They comprise the bulk of a $10 billion publishing industry that contributes significantly to the U.S. economy and enhances the U.S. balance of trade.

Our members publish the vast majority of materials used in the U.S. by scholars and other professionals in the sciences and other areas of scholarship, and they are the worldwide disseminators, archivists and shapers of the scholarly record in both print and electronic form. They make significant intellectual contributions and investments that improve the quality, discoverability, and availability of peer-reviewed articles and other publications. A major goal of our members' publishing activities is to help produce and provide access to high-quality peer-reviewed articles in a useful and user-friendly digital environment that enables researchers and other readers to discover, analyze, and link to the latest breakthroughs and developments in scholarly research. In particular, publishers of scientific and medical journals have, for more than 100 years, played an integral role in building and documenting the U.S. scientific research enterprise. Our members therefore see themselves as integral partners with the

scholarly research community in the U.S. and with the NSF as it seeks to promote research and innovation.

AAP/PSP, STM, and our members have supported the principle that the public should have access to articles that report on federally funded research. AAP/PSP publicly supported the February 22, 2013 Executive Office of the President Office of Science and Technology Policy memo on "Increasing Access to the Results of Federally Funded Scientific Research" (the OSTP memo), and our members have been working for years on efforts to promote sustainable public access. These efforts include free or low-cost access to articles for target communities through Research4Life (in partnership with the United Nations), the Emergency Access Initiative (in partnership with the National Institutes of Health), patientINFORM (in partnership with health advocacy organizations), and patientACCESS, among others. They also include innovative business models like article rental and delayed access that allow for easy free or low-cost access in a sustainable system. Many of our members voluntarily provide free access to all articles that they publish after a delay that is appropriate for their journals' disciplines and practices. Our members, as well as AAP/PSP and STM on their behalf, have participated in and supported many public-private partnerships to deliver value to the public, and they are supporting the collaborative effort of CHORUS (the Clearinghouse for Open Research of the United States) to deliver public access in a way that minimizes costs for the public, agencies, researchers, and publishers alike.

In this spirit, we welcome the opportunity to comment specifically on NSF's Public Access Plan as it is intended to be implemented in the revised PAPPG. At the outset, we note that NSF's approach – emphasizing flexibility, an incremental process, and a desire to leverage existing resources – is a robust, thoughtful framework. We appreciate that NSF has recognized the potential impact of its plan on the scholarly communication ecosystem and has incorporated significant flexibility in the Plan. Below, we provide recommendations designed to support NSF's successful implementation of the Plan in collaboration with all scholarly communication stakeholders

1. Maintain commitment to proceed carefully, incrementally, and in close consultation with stakeholders to avoid unintended consequences

We appreciate the Plan's careful articulation of the issues involved in providing public access to private sector articles that report on federally funded research. We recognize that the implementation schedule takes an incremental approach and provides for regular reviews of the impact of the policy, which we believe is appropriate. We also appreciate the opportunity for all who are affected by the policy to comment, including through this Federal Register notice.

Section 7.1 of the Plan, in particular, contains several concrete steps to consult with the scientific community, including publishers, and maintain ongoing discussions. Our associations and their members have engaged in consultations with a coalition of agencies at the National Academies (in May 2013) and the Forum on Open Science and look forward to continued engagement. We would welcome even more open communication as the Plan is implemented.

We strongly support NSF's implementation of the OSTP memo's directive that agencies "provide a mechanism for stakeholders to petition for changing the embargo period for a specific field by presenting evidence demonstrating that the plan would be inconsistent with the objectives articulated in this memorandum." The diversity of research supported by the government—and by NSF in particular—calls for diverse solutions to the embargo question, which we discuss in detail below. NSF

should be applauded for taking this call for science-based policymaking seriously and asking for "factually and statistically based evidence." We also believe that NSF's criteria for evaluating such petitions are critical and correct: to implement a policy that meets public access objectives while also promoting the quality and sustainability of publications. We look forward to working with NSF towards this goal.

2. Ensure flexible approach to managing unique discipline communities to sustain the quality, integrity, and availability of high-quality peer-reviewed articles reporting on scientific research

NSF funds research in a wide range of disciplines, research that is undertaken by many different communities. Its policies, and in particular the NSF Public Access Plan, will have a wide-ranging impact on the practice of research in many scholarly communities. Therefore, it is appropriate that the Plan recognize the differences between and among research communities and manners of communication about research.

Accordingly, we are very concerned with the Plan's initial implementation of a 12-month embargo for all articles, in part because such a starting point is contrary to evidence-based decision making and evidence already available to NSF. An evidence-based policy would recognize the differences among practices in various fields and set embargoes appropriately. We note that the Plan takes a cautious approach where it comes to the sharing of data, avoiding one-size-fits-all prescriptions. We hope that NSF will treat publications with an equal measure of consideration for each discipline-community's needs.

Suggestive evidence comes from a study undertaken by Dr. Phil Davis that looked at usage patterns in more than 2800 journals across 10 disciplines.[1] Dr. Davis found that the majority of journals took more than 3 years to experience half of the lifetime downloads for the articles published in a volume, but that this "half-life" varied considerably by discipline. This is important information, because usage is a key criterion for library subscription decisions.[2] Surveys[3] and informal conversation further indicate that short embargoes could reduce the incentive to subscribe.

These results are consistent with the experiences of some of our members and with what is known about the use of articles by researchers. The American Psychological Association (APA) found that less than 16 percent of the usage of APA psychology journals occurs in the first year, and the American Mathematical Society (AMS) found that only 10 percent of the citations in the mathematics literature were to articles published in the previous three years combined. In addition, as reported by NSF-supported researchers at Indiana University, some papers in some fields can "remain dormant for years and then suddenly explode with great impact upon the scientific community."[4] This indicates that usage varies significantly between and among journals.

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[1] Phil Davis, "Journal Usage Half-Life." www.publishers.org/usagestudy.

[2] For a survey of the research on cancellations related to usage data, see J. Williamson, P. Fernandez, and L. Dixon, "Factors in Science Journal Cancellation Projects: The Roles of Faculty Consultations and Data," *Issues in Science and Technology Librarianship* 78, Fall 2014. http://www.istl.org/14-fall/refereed4.html.

[3] See, e.g., http://blog.alpsp.org/2009/10/alpsp-survey-of-librarians-report.html

[4] NSF News from the Field, "Like Sleeping Beauty, Some Research Lies Dormant for Decades, IU Study Finds," May 25, 2015. http://www.nsf.gov/news/news_summ.jsp?cntn_id=135258&WT.mc_id=USNSF_195&WT.mc_ev=click.

The importance of such evidence to the sustainability of journals and maintenance of subscriptions is supported by experience. To cite a few examples:

- The Genetics Society of America piloted a 3-month embargo for *GENETICS* and had "a high rate of subscription cancellations";[5]
- The *American Journal of Pathology* tried a 6-month embargo, and "subscription renewals declined precipitously";[6] and
- The *Journal of Clinical Investigation* found a too-short embargo unsustainable. After a 10-year experiment that saw the journal lose 40 percent of its institutional subscriptions, it had to reinstitute the subscription model to survive.[7]

Although each of these examples involves an embargo shorter than 12 months, each of them also involves a journal that publishes in the health sciences, which is the fastest-moving field and has the highest level of federal support. We would expect that journals in other fields would have similar issues with uniformly imposed 12 month embargoes.

Throughout the world, funders have implemented policies that recognize inherent differences among the practices of different disciplines, and we urge NSF to do the same. As one example, in the United Kingdom, policymakers have instituted as a starting point a 24-month embargo for articles in social science and humanities journals and 12 months for other disciplines. We recommend that NSF use the Davis study and other evidence to set differentiated embargoes by discipline, as suggested in the OSTP memo.

The wrong policy carries the risk of undermining the quality and sustainability of scholarly communication and thereby reducing the availability to NSF-funded researchers of established, high-quality journals in which to publish. While we understand and agree with NSF's assertion that "potential economic harm to publishers must be weighed against other public access objectives and science research goals," we also urge NSF to include in the equation the impact of economic harm to publishers on the quality and integrity of the scholarly record. We welcome the opportunity to work with NSF as it implements the Plan to provide additional flexibility for embargoes.

3. Expand on opportunities to minimize administrative and researcher burdens and costs by using flexible approaches and public-private partnerships

Throughout the Plan, NSF ensures ongoing communication and consultation with the research community. Consistent with this commitment and other emphasis in the plan, we urge NSF to maintain and expand on its desire to leverage existing resources and public-private partnerships to enable implementation. Solutions that have been offered by non-governmental organizations, particularly CHORUS (the Clearinghouse for Open Research of the United States),[8] could significantly reduce the regulatory burden of the Plan, lower costs for the government and grantees, and support the sustainability of scholarly communication.

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[5] http://www.whitehouse.gov/sites/default/files/microsites/ostp/scholarly-pubs-(%23293)%20gsa.pdf.
[6] http://www.whitehouse.gov/sites/default/files/microsites/ostp/scholarly-pubs-(%23259)%20ASIP%20response.pdf.
[7] Reported in http://scholarlykitchen.sspnet.org/2009/02/26/end-of-free-access.
[8] www.chorusaccess.org.

The potential regulatory burden of the Plan should not be underestimated. According to the Association of American Universities, it takes "23 steps and several emails for authors to submit manuscripts to PubMed Central" to comply with the National Institutes of Health's Public Access Policy, and others have suggested that the requirement is even more burdensome. A major study of the experience in the United Kingdom in implementing public access mandates quantifies the burden on UK researchers. The study found that the cost to research organizations of implementing mandates put in place by Research Councils UK and the Higher Education Funding Councils in 2013/14 was at least £9.2m and an amount of time equivalent to 110 fulltime staff members. The study also found that the compliance burden "falls disproportionally on smaller institutions." NSF should take steps to minimize any unnecessary costs and burdens in its implementation.

Some may argue that the goal articulated in the Plan to "integrate publications, data, and other products of NSF funding into a single management system" is inconsistent with distributed systems like CHORUS. However, our members have found that integrating links to articles hosted by other publishers is in fact possible in a single management system, and that services like CrossRef (which underlie some CHORUS services) facilitate such linking. The power of CHORUS directly supports two other goals in the Plan: (1) it builds on the current policies and practices of researchers and publishers in providing access to articles, and (2) it leverages resources already invested in by publishers. We appreciate NSF's acknowledgment that it is actively exploring opportunities to work with CHORUS and develop other public-private partnerships.

Our members look forward to collaborating with NSF on additional opportunities for collaboration, both with respect to linking to publications and to providing access to data. As we do so, we would welcome clarification of the requirement for articles to "be deposited in a public access compliant repository designated by the NSF," as well as how additional repositories or solutions can be designated by NSF as "public access compliant."

Finally, we are concerned that the current plan requires authors themselves to deposit copies of their articles in the NSF repository, rather than allowing automated access through CHORUS or other systems. While we understand that future iterations of the plan may enable automated compliance, we hope that such development occurs sooner rather than later to avoid unnecessary investments and compliance burdens on researchers and their institutions.

4. Keep flexible data requirements that recognize the unique research practices of different fields, and encourage collaborative private sector solutions that minimize costs and burdens

Publishers use their high level of understanding of the difficulties in communicating, sharing, and ensuring access to quality data for the creation of data solutions with and for the scientific community. In addition to publisher efforts to create and disseminate publications that report on and analyze the latest research, publishers have considerable experience and have made significant investment in digital technology, metadata standards, and tools to help users understand and work with data. Publishers support the discoverability and reuse of scholarly data and are actively working with researchers and standards organizations to develop tools and processes to ensure the availability and utility of such data. This makes publishers uniquely positioned to collaboratively support NSF's plans for access to digital data, ensure the long-term stewardship and discoverability of data, and support the innovation and economic development that are derived from scholarly advancements.

We appreciate NSF's careful consideration of this issue and encourage NSF to follow the Plan's approach to incremental implementation. In particular, we encourage NSF to retain the requirement that data "be deposited in accordance with the policies of the publication" and to standard citation practices, such as those being developed by the National Information Standards Organization (NISO) and others. In addition, we applaud NSF for recognizing the need for different repositories for different communities. We support NSF's indication that it will carefully consider intellectual property rights and the need for varied embargo dates and conditions for data release.

NSF's commitment to leveraging existing efforts and investments is as critical in the area of access to data as it is in the area of publications. Publishers are working with repositories to better link to data, ensure quality citation, and develop metadata standards, and we look forward to continuing our partnerships with research communities in ensuring the quality and integrity of available data collections. We are also actively engaged in discussions about data as it relates to reproducible research. Our members would be happy to share their experiences with data and their work in partnering with data repositories where it would be helpful to support NSF's development of its requirements. AAP/PSP and STM also submitted comments in response to National Institutes of Health's February 18, 2015, Request for Information regarding "Input on Sustaining Biomedical Data Repositories," and we refer you to that submission for general comments on data stewardship and how publishers might be able to work with NSF on the implementation of the Plan for data.

5. Ensure adequate resources are available to support allowable costs for access to publications and data

Existing NSF practice, articulated in the current PAPPG and expanded on in the Grant Proposal Guide, allows grant proposals to include funds for "making available to others the findings and products of the work conducted under the grant." We are pleased that the proposed PAPPG revisions do not make changes to the ability of grantees to include such expenses or put any limitations on their use.

However, grantees frequently need additional funds, for example for publication or for data access, that were unforeseen at the time of the proposal or for expenses that have been incurred after the grant period has ended. We encourage NSF to make sure that sufficient funds are available to cover all such expenses and also that "no-cost extensions" of grants are available without prejudice to enable the full communication of research findings whenever articles may be ready to be published.

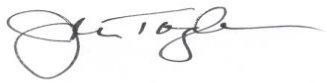
6. Continue clear communication and engagement with scholarly community

The Plan consistently and repeatedly indicates that NSF will be actively engaged in consultation with all parts of the scholarly community, and we are encouraged that the Plan explicitly notes that implementation will be an iterative process. We hope that the comments we have made here contribute helpfully to that process. We encourage NSF to make sure that all aspects of the research community are involved in the ongoing evaluation and impact assessment of the Plan. We all urge NSF to consider both positive and negative effects on scholarly communication and the availability of diverse, high-quality peer-reviewed articles and research data in any analysis of the Plan. The high-quality peer reviewed articles that our members produce represent significant investments by publishing organizations to improve, disseminate, interpret, and steward those reports, and the ability to continue

making those investments and ensuring the quality and integrity of the scholarly record depends on the sustainability of the publishing enterprise.

Thank you for the opportunity to comment on the Plan. We look forward to future opportunities to provide input on and collaborate in ensuring access to high-quality peer-reviewed scholarly communication.

Sincerely,



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