NIH Public Access Working Group of the NLM Board of Regents
Meeting Summary
November 15, 2005

Members Present:
Dr. Thomas Detre, Chair; Dr. Deanna Marcum, Dr. Susan Buchanan, Dr. Jeffrey Drazen, Dr. Mark Kamlet, Dr. T.J. Koerner, Mr. Brian Nairn, Dr. Mark Sobel, Ms. Sharon Terry, Ms. Patricia Thibodeau, Mr. Donald Tykeson, Dr. Gary Ward, Ms. Ann Wolpert, Mr. James Williams
Members Absent:
Dr. Harvey Fineberg, Mr. Michael Stern, Dr. Annette Thomas

Staff:
Dr. Donald Lindberg, Ms. Betsy Humphreys, Dr. David Lipman, Dr. Dennis Benson, Dr. James Ostell, Mr. Kent Smith, Ms. Jane Griffith, Mr. Ed Sequeira, Dr. Bart Trawick, Dr. Tim Hays

Others:
J. Markovac, Robert Harington, Alice Raanan, Margaret Reich, Donna Krupa, Laura Brockway, Richard Johnson, Gavin Swanson, Crispin Taylor, Beth Rosner, Anthony Smith, Nancy Winchester, Janet Coleman, Chris Gunter, Eric Massant, Fran Steck, Nancy Rodnan, William Curtis, Colette Bean

Dr. Lindberg welcomed the members and noted that the Working Group will need to develop some opinions that can be used as the basis for reporting to the NLM Board of Regents and to Congress.

Dr. Detre also welcomed the participants and stated that a goal of the meeting would be to reach some conclusions that can be incorporated in the report to Congress due in February or March. To begin the discussion he asked members to offer their thoughts about the major issues associated with implementing the NIH Public Access Policy.

Dr. Drazen stated that most editors of medical journals want to have the final, published version of an article viewed by the public and also want to achieve the goal of availability six months after publication. At issue is the mechanism to accomplish these objectives. He favored searching the full database on PubMed Central (PMC), but allowing for the article to be viewed on the publisher's website to enable connection to related materials provided by the publisher and to ensure that readers have the advantage of knowing the "branding" of the journal.

Ms. Thibodeau stated that the library community favors mandatory deposit of manuscripts by investigators with no more than a six month delay before public access. She also endorsed the preference for having the final, published version of the manuscript to avoid having multiple versions.

Dr. Ward said that the key problem is that deposit of manuscripts is voluntary, rather than mandatory. He provided an example of a recent article that he published where he modified the copyright transfer agreement to allow for deposit in PMC and stated that this required substantial effort to accomplish. He favored keeping the investigator as the responsible party for deposit of a manuscript since these individuals are the ones with a legal relationship to NIH. He also noted that if the goal is to provide access to related materials, a central repository like PMC achieves this more effectively than individual repositories maintained by publishers.

Dr. Lipman responded to a question about the need for a central repository by explaining that PMC's experience with linking to individual publisher's sites to view articles resulted in loss of quality control and reduced the ability to effectively link disparate resources and successfully archive material for future access. As a result, publishers who previously had requested this approach are migrating to allowing their material to be viewed on PMC's site. He emphasized that continuous use of the material by a large volume of users enables problems to be discovered and facilitates maximum utilization of all the linked resources. As a result, it is possible to reap the benefits of the new computational tools for advancing research. In response to Dr. Drazen's question about the status of free access to the British Medical Journal (BMJ) and the impact free access has had on them, Dr. Lipman stated that BMJ continues to deposit all their research articles and make them available for free.

Dr. Ward provided data from the experience of the journal, *Molecular Biology of the Cell*, indicating that their subscriptions have increased as a result of making their information available within two months of publication in PMC. He noted that the vast majority of online "hits" were for articles published within the previous two months.

Dr. Sobel emphasized that because there is a great diversity in types of publications, frequency of publication, and disciplines, "one size does not fit all." He favored a policy of posting the final, published version since it reflects the additional editing and quality control performed by the publisher and didn't see a problem with having publishers, rather than investigators, deposit the article. He also commented on the importance of branding and said that he considers PMC to be engaged in publishing since they tag articles and provide links. He said that respect for copyright is a concern.

Ms. Wolpert provided a perspective from the broader research domain beyond strictly the medical community. She said that researchers are very interested in participating in PMC and are eager to use their own articles more freely in all of their work, including teaching and further research, without having to seek the permission of publishers. They want to be able to replicate at their institutional repositories what is being deposited in PMC.

Dr. Lipman presented a status report on manuscript submissions. On average, less than three percent of unpublished manuscripts authored by NIH investigators are being deposited. Of those, 59 percent allow immediate release to the public. The participation rate is consistent whether it involves intramural or extramural investigators. Most individuals who begin a submission complete it. The median amount of time spent from

start to finish of a first time web submission is about 13 minutes, including any time when the user may be away from computer or doing something else. Subsequent submissions take less than seven minutes. Overall, the median is 8.5 minutes and two thirds of submitters finish in less than 13 minutes.

Currently the turnaround for tagging a manuscript is about two weeks. Almost 60% of investigators approve their tagged manuscript within 1 week and 80% within 1 month. However, these numbers include many cases from early in the process when the tagging took two months or more. Therefore, as the turnaround time gets shorter (2 weeks or even 1 week) the response rate and time are expected to be better.

Dr. Lipman highlighted several issues concerning interactions with publishers in the deposit of material in PMC. Due to author inattention to - or misunderstanding of - copyright, some inappropriate material has been submitted to PMC. In response, NIH has modified its policy so that manuscripts will be removed if a publisher claims copyright. Investigators will be notified of these actions. To improve understanding of copyright issues the submission agreement statement has been clarified.

In response to a question from Mr. Williams, Dr. Lipman stated that since articles in journals currently deposited in PMC receive the special quality assurance associated with the journal's routine submission of published articles no additional review by authors is required. *[this doesn't apply in this context]* Dr. Sobel commented that if it is easier for publishers to work with PMC, they will be more willing to deposit articles.

To date, Nature, Elsevier, and Wiley have done initial testing of publisher deposit of manuscripts on behalf of authors, but authors still need to verify the tagged manuscript and release date. Publishers had an initial problem linking the manuscript to the correct grant number. By December publishers will be able to submit manuscripts without grant data and the author will link the manuscript to relevant grant numbers at the time he or she is asked to review the tagging. By February 2006, PMC will have a bulk submission process for publishers and other third party submitters. A question was asked about the possibility of publishers using the established PMC journal submission process for only NIH investigator articles. Dr. Lipman stated that it was feasible, but it required a major commitment by the publisher and raised potential legal concerns associated with the transfer of grantee responsibilities to publishers. Dr. Ward also stated the importance of ensuring that if publishers make deposits, that the material is made publicly available in a timely way. Ms. Thibodeau asked about ways of simplifying access by investigators to different publishers' public access policies. Dr. Lipman responded that while publishers could make this information more readily available, there are legal problems associated with NIH presenting such information to the public.

Dr. Hays presented a summary of the feedback on the NIH Public Access Policy and the issues that have been raised. He provided examples of disclaimers that some publishers are requiring for manuscripts that may be deposited in PMC, even though they don't put a similar disclaimer on author manuscripts that appear on their own websites. In addition, some publishers are attaching terms and conditions to the use of manuscripts that they are

submitting to NIH on behalf of grantees. Such language makes them unacceptable for inclusion in PMC, since NIH cannot legally comply with these restrictions.

Dr. Hays reviewed the FASEB proposal to NIH to link to publisher websites for access to final published articles, rather than to have access to manuscripts through PMC. He stated that to take this approach would prevent NIH from meeting the three core objectives of the policy, since it would fail to create a stable archive, would not enable the compendium of manuscripts resulting from NIH funding to be searched, and would limit public access. He also reminded the group that links from citations in PubMed to publishers' web sites already exist for almost 5,000 journals. Finally, the assertion that the FASEB proposed approach would reduce NIH's costs is not accurate since the major cost is in converting documents to XML for archiving purposes, not for providing public access to them.

Dr. Marcum asked whether NIH had received comments on the policy from users and librarians. Dr. Hays responded that NIH continues to receive emails and communication from many stakeholders, but the majority of comments have been from publishers.

Dr. Sobel commented that publishers have different policies for making prepublication manuscripts available publicly and therefore one can't generalize about this trend. He remarked that from his perspective having the final published article is needed to maintain the integrity of the literature. Dr. Lipman responded that NIH is in a difficult position since some publishers are unwilling to provide the final published article, while others prefer to have only the published version available for public viewing. While NIH would prefer to receive the final version, NIH will continue to accept manuscripts in cases where publishers do not permit the final article to be submitted. Dr. Sobel also stated that he does not find the data presented about the increase in subscriptions for the journal *Molecular Biology of the Cell* to be reflective of the lack of financial impact on publishers making their articles freely available after a limited embargo period.

Ms. Terry emphasized that NIH must take a leadership role in ensuring access to the results of federally funded research and development. She recommended that the Working Group look at the larger picture of the impact of public access on people's lives, potential cures, and the mission of NIH, rather than focus on small adjustments to the policy.

Ms. Thibodeau briefed the working group on the results of two informal surveys that have been conducted on university campuses about the NIH Public Access Policy. One survey yielded responses from medical library directors at 19 universities, and the other included responses from almost 50 faculty members at one institution (the University of Southern California). Both surveys found that almost all of the respondents knew of the NIH Public Access Policy and had learned about it from communications from NIH. However, most had not submitted manuscripts to date. The major reasons given for lack of participation were the unwillingness of investigators to spend the time or make it a priority. Other key issues were confusion over what was permissible under copyright and determination of the correct version to submit.

Dr. Hays then described NIH's continued outreach efforts. He distributed a new brochure about the Policy and stated that NIH is planning on conducting a focus group in December to get feedback on the brochure and other outreach materials, including additional material provided on NIH website. NIH also will be undertaking a formal evaluation of why the submission rate is low.

Mr. Williams asked about NIH outreach to publishers and Dr. Hays responded that the outreach efforts are targeted to investigators and not to publishers.

Mr. Gillikin presented a summary of information available on the University of Rochester Medical Center website on publisher policies related to the NIH Public Access Policy. They included information from 13 nonprofit publishers, five commercial publishers, and two open access publishers. Twelve of the nonprofit publishers allow the author to post the accepted manuscript to NIH, 1 allows the final article to be posted, and two already participate in PMC, providing the final version within six months. Seven of the nonprofit publishers require an embargo of 12 months and 3 have a six month embargo period. One did not state a time period, another allows posting after the "Publish Ahead of Print" version appears on their website, and one requested (but did not require) a 12 month embargo. Three require a specifically worded disclaimer to be added, as well as a link from PMC to the final version at the publisher's site. Two allow for immediate posting if the author pays for open access. Of the five commercial publishers all allow the accepted manuscript to be posted in PMC, with two requiring that they submit the manuscript on behalf of the author. Three of the commercial publishers require a 12 month embargo, 1 requires a six month embargo, and one varies from 6 to 13 months depending on the journal. One requires disclaimer language providing appropriate acknowledgement to the journal, publisher, and society along with bibliographic citation and link to the final published version. One stated that their policy allowing author deposit in PMC was still a test policy. Both open access publishers post the final version of the article to PMC upon publication.

Dr. Detre asked the members what they thought the embargo period should be and several offered their opinions. Dr. Sobel responded that he believes it needs to be flexible because there are so many variations among journals and that providing flexibility NIH will get more participation from publishers. In response to Dr. Detre's question about the amount of revenue publishers generally receive from reprints, Dr. Sobel responded that it is less than 1 percent with most of the revenue coming from institutional subscriptions, but that publishers add significant value to the results of federally funded research.

Dr. Kamlet stated he would prefer there be a requirement even if that meant a 12 month embargo, compared to if it were voluntary but with a 6 month embargo. Dr. Koerner agreed that if it is a requirement, a 12 month embargo should be allowed, but he suggested that the marketplace might push it to a shorter timeframe. Ms. Terry stated that she did not believe that there will be any change in the behavior of investigators unless deposit is a requirement and that the embargo period should be six months. Dr.

Buchanan raised the concern that researchers might be limited in where they can publish if deposit is mandatory and some journals do not allow their authors to deposit in PMC. Dr. Kamlet responded that receipt of federal funds involves certain requirements for investigators. Mr. Tykeson stated that a six month embargo should be mandatory with no exceptions. Dr. Ward proposed that the embargo period should be six months or less. He commented that using alternative approaches to access the literature, such as requiring people to request access to specific items for "special" cases, is not workable since people need the ability to browse more broadly. Ms. Terry provided an example to demonstrate that information is changing very quickly and therefore allowing for longer embargo periods does not meet the policy goals.

Mr. Nairn stated that commercial publishers have invested millions to improve dissemination of the scientific literature and raised concerns about the policy creating disincentives for publishers to invest further. He questioned whether publishers would be willing to invest in improvements in dissemination and speedier peer review processes if the lifetime revenue is substantially less. He noted what he saw as a dual agenda of enhancing public access and creating new research tools and stated that the first was Congress' major goal. He recommended that there should be an allowable embargo period of 12 months.

Ms. Wolpert reminded the group that their charge was to advise NIH on how to meet the objectives of the Public Access Policy and not how to sustain current publishing business models. She suggested that they look more broadly at the whole system of scholarly research and communication. Dr. Sobel commented that it remains important to get "buy-in" from the publishers in order to achieve the policy objectives.

Dr. Drazen remarked that he thought the group had conflated two things: improving public access and building a repository for advancing research and questioned whether a single mechanism is best for achieving both goals. Dr. Lindberg noted that there is also a third goal of ensuring preservation of the literature. Dr. Detre added that the "public" includes scientists as well as consumers. Dr. Ward emphasized the need to agree on the charge being a review of the policy to see if it is meeting its goals and the development of recommendations to accomplish these policy objectives.

Mr. Tykeson stated his belief that NIH will not get compliance unless the policy makes deposit mandatory. Given that no progress in the rate of submissions has been made in six months, he would recommend that deposit be mandatory for all manuscripts resulting from new and renewing grants. A representative from *Nature* commented that they believe that they will eventually get up to 50 percent compliance from their NIH funded authors. Dr. Lipman suggested that even if a larger percentage of manuscripts are deposited by publishers, investigators still need to review the final tagged version in PMC and they may be unlikely to do so. Dr. Koerner stated that he is now more comfortable with making deposit a requirement and that publishers should not be responsible for "selling" the policy. Dr. Kamlet noted that Congress is expecting a high level of participation to meet the policy objectives.

Dr. Detre asked which version---author manuscript or published article--is preferable. Dr. Lipman responded that there are two issues involved. One is whether the source document is the final copy-edited version and the other is whether the publisher or the author submits it. Mr. Tykeson commented that NIH has no control over publishers; only over investigators. Therefore requiring investigators to submit is the best approach. Dr. Drazen added that publishers want to make the process easier for authors. However, if the Working Group recommends that the best source document is the final copy-edited version, some publishers will not agree to participate. Dr. Lipman said that if the publisher allows it, the final typeset version is preferable and that PMC would provide the publisher's PDF if they would allow it.

Dr. Drazen raised several questions concerning the copyright of articles in PMC and stated that some confusion exists concerning both copyright and the citation of articles. Mr. Sequeira from the National Center for Biotechnology Information explained how copyright is attributed to the rights holder and not to PMC and that copyright statements on PMC clearly indicate this. Dr. Sobel noted that the confusion regarding citations may have been the result of PMC applying unique identifiers to manuscripts that did not yet have bibliographic citations.

Mr. Williams described the mindset of scholars on campus, whereby their goal is to have their work discoverable through Google searches and to have the document retrieved to look like the final version published in a journal. Dr. Lipman stated his belief that if NIH investigators were required to deposit their manuscripts in PMC, publishers would offer this as a service to them. However, the basic relationship remains between NIH and the grantees; not between NIH and the publishers. He outlined three major issues for discussion: 1) Should deposit be required? 2) What version should be deposited? 3) Should the "printable" version have the look and feel of the publisher? Ms. Terry responded that she believed deposit with no more than a six month embargo should be a requirement and that it is preferable for the journal to submit the final version. However, if publishers refuse to do so, this should not be a barrier to getting the information into PMC. Dr. Detre commented that he thought it would be in a publisher's interest to facilitate the process of providing the final PDF since this would give them visibility. However, if publishers did not choose to provide this, the author's manuscript would still have to be submitted to PMC.

Dr. Drazen asked what percentage of the published biomedical literature is funded by NIH and was informed that it is around 10 percent. Dr. Sobel remarked that nonprofits have a higher percentage of NIH funded work appearing in their journals and therefore the NIH Public Access Policy has a greater impact on them.

In order to develop recommendations from the Working Group to the NLM Board of Regents and to provide input to the report to Congress, Dr. Detre requested that each member give their position in writing on 3 issues:

1. Should participation in the policy be mandatory or voluntary?
2. What should be the length of the embargo period before public access is permitted?

3. What is the best version to display?

Below are the responses provided by the Working Group members subsequent to the meeting.

Ann Wolpert

NIH funding is taxpayer generated and the results of this research should be freely available. At the same time, peer review is essential to universities and researchers alike. For students and researchers, the sooner peer reviewed research results are available, and the more broadly the research results are made available, the better it is for the advancement of knowledge. Although the academy dislikes unfunded mandates, recipients of NIH funding should be required to reserve such rights in their works as are necessary to make research results freely available to the NIH as well as to the university that hosts the work. If the publisher of a peer reviewed article that describes NIH funded work has not submitted a copy of the article to the NIH within 6 months of acceptance, the recipient of the funding should be required to do so. Cooperation with both universities (grantees) and publishers will be essential if this policy is to be successful.

Jeff Drazen

I favor a requirement for deposition in an NIH public access database within one year of publication-with the time left up to the joint discretion of the publishing Journal and author. There are some important caveats however.
1. The Journals should do the uploads in a manner that DOES NOT require the author to proof read the final copy. If this can be done for PMC papers it can be done for the database. We MUST make this painless for authors.
2. In order to avoid the confusion over the creative commons copyright of PMC, the database needs to be administratively distinct from PMC-they can be linked at the level of searching. Call it something like the "Public Access Database at PMC".
3. Delivery of articles" must be in the branded format of the publishing journal.
4. There should be no separate PMC citation as PMC is the purveyor not the publisher of the content.
5. Deposition is limited to original research articles with editorials, review articles and other items not in PMC even if the writer has an NIH grant and cites that number in the paper.

Susan K. Buchanan, PhD

As a representative of NIH intramural scientists, I support a either a mandatory or voluntary policy for the deposition of NIH-funded research in PubMedCentral, with public access granted no later than 12 months after publication in the original journal (6 or fewer months being preferable). I would prefer that the final copy edited version of an accepted manuscript be submitted to PubMedCentral. If the public access policy is made mandatory, I would like to see maximum flexibility in the policy, allowing and

encouraging most publishers to participate. This would enable researchers to publish their findings in the widest possible variety of journals, while ensuring that all NIH-funded research is made freely available to the public.

Mark Scott Kamlet
[This looks it was an add-on to someone else's emailed comment, so there should be some mention of whose position he's supporting.]
I believe I can support this position. If the journal does not follow suit, though, the author should obviously be able to (is required to) place a manuscript in the depository by themselves.

Gary Ward

The NLM has created an efficient, user-friendly system for manuscript submission to PMC and most grantees appear to be aware of the NIH Public Access policy, yet less than 3% of grantees are actually depositing their manuscripts. This number has not increased in the 4 months since our last meeting. Grantees have many competing demands on their time, and they are simply not going to participate - to the extent necessary to fulfill the objectives of the policy - if they are not required to do so. Our working group should therefore recommend that NIH *require* grantees to deposit NIH-funded publications in PubMed Central, rather than *request* it. Furthermore, a 12-month embargo period is excessive for researchers, patients and educators who lack access to the scientific literature. We should therefore recommend a maximum embargo period of 6 months, and encourage earlier release when publisher and author agree. Finally, we should recommend that the final, published manuscript be the version that is deposited in PMC. This will ensure that different versions of the manuscript are not posted on different websites, and it will afford publishers the opportunity to fully brand their manuscripts within PMC. These three changes would make it much more likely that the Public Access Policy will achieve its stated objectives. I believe that publishers would adapt quickly to these changes in policy, and that most journals would suffer little or no negative financial impact.

James Williams

We should aspire to a policy with a 6 month submission requirement; a policy that encourages PI's to publish and share the results of their work in publication outlets that comply with the NIH 6-month submission requirement; further, a policy that seeks to facilitate the submission process, and one that employs the final copy-edited version of a paper from the publisher for archival purposes, while using the publisher's PDF of the article for display and printing purposes.

Don Tykeson

Suggested proposal for the NIH Public Access Working Group of the NLM Board of Regents:

NIH to establish a reasonable deadline after which all new and existing grants (upon renewal) be required to submit manuscripts to PubMed Central within six months of the publish date. NIH would prefer that the publisher do so by providing the final journal version, or if not, the version accepted for publication including the changes resulting from peer review. If the publisher does not, it is the responsibility and requirement that the grantee follow through and provide a copy of the authors final manuscript within the six months timeframe. Further, NIH to continue to seek ways to simplify the Pub Med Central access process to minimize the compliance burden on the grantee and publisher, and to focus attention on building awareness of the important role PubMed Central carries in NIH Research.

Mark E. Sobel, MD, PhD

I believe that the enhanced public access policy should continue to be a recommendation and not a requirement. I prefer a 12-month period to accommodate the special needs of journals that are not published on a frequent (monthly) basis.

The cooperation of publishers will be critical to the success of the enhanced public access policy. Although it is not in the charge of the working group to consider the business models of the publishers, it does not make sense to antagonize and to be insensitive to the needs of the publishers whose "buy-in" can functionally move this process along.

Pat Thibodeau

My recommendations are:
Require submission by grantee (institution) of final copy-edited version from the publishers within 6 months or sooner

Make a PDF of the copy-edited version available for printing

Use the version of the article that is branded by the journal or publisher

Deposit and archive the articles at PubMed Central to ensure long-term preservation and interoperability with other research tools

Work with the publishers on a submission process that facilitates the deposit of the publishers' final copy-edited version

Sharon F. Terry

I recommend that it be required that all papers that result from federal funds are deposited in PMC within 6 months. In addition, NLM should work closely with publishers to assure that the published version is available in a live archive, with as much annotation and linkage as is possible.

T. J. Koerner, Ph.D.

Supporting quality peer review of scientific literature is very important. Thus PubMed Central (PMC) should accommodate the final version of the published article. The PMC system should also allow a link back to the article on the website where it was published. Furthermore, the process of depositing articles by publishers into PMC should continue to be facilitated. The progress that has been witnessed in addressing these challenges in the recent months is commendable. With the PMC system in place it is appropriate that the NIH require all grantees to deposit all resulting research publications in PMC. This would assure a high level of participation which would accomplish the goal of having open access to the research results. The delay for free access should be as minimal as possible and not be more than twelve months. There should be continued cooperative dialogue among the NIH, the publishers, the research institutions and the public. It is a great attribute that PMC is the repository of more than just NIH results and also offers such value-added research resources. The challenge of assuring that the general public has access to NIH research results is an additional topic that might be appropriate for a subsequent meeting. Having all the NIH research results in PMC will support the open access to the science for both the research community and the public.

Dr Annette Thomas

As I understand it, the NIH public access policy is intended to support: 1) an archive of all NIH-funded research, 2) greater and easier access for the general public to research funded by the NIH and 3) the creation, via PubMed Central (PMC) of a 'research tool' for scholars working in the area of biomedical research. The success of this broad agenda requires a varied group of stakeholders (authors, publishers, funders, librarians, patients and their families, etc) with often opposing views, to rally behind the policy and support it, not only in theory, but also in practice. This is most likely to happen if the policy is inclusive rather than restrictive, particularly at this early stage, when we are all learning that such endeavours face a host of practical difficulties. I support measures that will increase the number of original research articles deposited into PubMed Central (PMC) with the following important caveats.

1. Before adopting any new measures or altering the existing policy, I would urge the NIH to investigate why current deposition rates are not higher. One part of the solution may be to make the policy mandatory but there may be other equally, if not more effective measures which should be considered.

2. The author's version of the manuscript should be deposited into an NIH public access database within one year of publication, with the time determined by the journal's copyright or author license policy.
    a. This approach accommodates users who require access to research data and publishers who retain the right to exclusively host content to which they have added value. For those users where immediate access to the final and official version of an article is paramount, the publishers website will remain the first

port of call. Whilst for users who require background information on a more ad-hoc basis, the author's version of the manuscript, whether hosted on PMC or elsewhere, will suffice. In my opinion, at this stage, this is the most inclusive approach which will result in the greatest number of manuscripts being deposited into PMC.

3. Journals, not authors, should determine the release date for manuscripts into the database.
    a. Requiring authors to determine release dates decreases deposition rates, reducing the number of manuscripts deposited into the database. In our experience at Nature Publishing Group (where we have been piloting a program to deposit manuscript son behalf of all NIH-funded authors who publish in Nature-branded journals), it is at this stage that most authors abandon the deposition process due to confusion over the journals author license or copyright policy. At any one time, authors may have several manuscripts accepted for publication in a number of different journals. Keeping track of individual journal policies is challenging for experts and very, very difficult for authors.

4. Deposition should be done in a manner that does not require the author to proof read the final copy. If this can be done for authors of manuscripts published in PMC journals it can be done for authors of manuscripts published in journals which actively support the NIH public access policy. Reducing the effort required by the author (whether the policy is voluntary or mandatory) will have the positive effect of increasing even further the flow of manuscripts into the database.

5. If the NIH feels that having more publishers actively supporting the public access policy will increase deposition rates, and, if a goal of the NIH is to direct users to content that is most likely to address their needs, in an impartial and unbiased manner, there are several improvements that could be made in the presentation of PMC articles and PubMed search results (see attached slides 1-4)
    a. The authors version of articles should carry more visible journal branding (currently there is a huge discrepancy between the branding of PMC journal article and the branding of an author version article in PMC)
    b. The link between the authors version and the publishers version should be more prominent and the significance of the publishers version being the 'official and final version of record, including all revisions and modifications' should be more explicit.
    c. Search results on PubMed should be presented in a more unadulterated and neutral manner, a practice employed by most search engines. Currently, when searching for articles in PubMed, the user is often preferentially directed toward the free author version, with the link to the final version of record on the publishers website much diminished by comparison.
    d. There should be no separate PMC citation as PMC is the purveyor not the publisher of the content.

6. The NIH should define the scope of PMC.
    a. As in almost any industry, continued improvements in scientific communication will depend very largely on investments and innovations made in the private sector. By acting as an aggregator and de-facto publisher of selected, peer-reviewed author manuscripts, and by making them freely available after a delay, the NIH is in effect encouraging existing publishers to innovate further in order to differentiate their own offerings from the standard service provided at PMC. However, unless PMC indicates what further services it intends (and does not intend) to develop in the coming years, this incentive to innovate will be reversed and possibly eliminated. (Why spend money developing a feature that might be offered for free tomorrow by the NIH?) Such an outcome will have a chilling effect on investment in STM publishing to the detriment of science and society as a whole -- exactly the reverse of what the NIH policy intends. For this reason, if PMC were able to define its own future options, making a clear statement about which areas the NIH considers to be within and outside of PMC's remit, other suppliers would continue to invest and innovate, even adding value around the PMC service. The relationship between government, not-for-profit, and private enterprise would be more synergistic, as it should be.

In closing, I do firmly believe that the internet offers enormous opportunities for all stakeholders in the scientific research process; opportunities that go far beyond the remit of the NIH public access policy. But I also believe that it is important to safeguard the integrity of the research process itself, a process which has served the community extremely well and in which publishers have played an important role.

When looking at how the media and communications industries have adapted the internet, I would argue that the so-called 'traditional' science and medical publishers have been one of the first groups to grasp the power of the internet to broaden and enhance communication and the dissemination of information. The music and film industries, book publishers of popular fiction and non-fiction, academic publishers of social science and humanities works, national and regional newspapers, and even the education sector have been much slower to see the benefit in harnessing the power of the web, whilst science publishers began investing, experimenting and innovating, distributing content online, already in the early 1990's. This is not to say that the current system is perfect; it clearly isn't, but it has served a large proportion of the community very well for a very long time. It has fostered a spirit of innovation, supported by significant and sustained investment, and scientific and medical researchers, as well as the general public, have seen tangible benefits. As the NIH public access policy is further refined and implemented, I would urge all those with an interest in its success to take a broad-minded view as to how to best achieve the worthy goals to which it aspires.

NB: My feedback is based in large part on Nature Publishing Group's direct experience in working with the NCBI to pilot the deposition of manuscripts on behalf of NIH-funded authors who have published in Nature-branded journals since 2 May 2005 (the results of

this pilot have been made available to Dr Ruiz-Bravo, Office of the Director and Dr David Lipman, NCBI. I am happy to provide additional details if it would be helpful).