NIH Author Postings

A study to assess understanding of, and compliance with, NIH Public Access Policy

Report on behalf of the Publishing Research Consortium
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Background

- This report is based on 1,128 completions of a structured online questionnaire between 19-30 January 2006, and 20 follow-up teledepth interviews between 24 January-10 February.

- A sample of 16,000 recent corresponding US authors in life sciences and medicine journals, drawn from ISI (Thomson Scientific), were emailed and invited to complete a fully confidential, short questionnaire. It was positioned as 'a very short and topical survey on behalf of the Publishing Research Consortium (an international group of publishers and scientific societies supporting research into scholarly communications) about how publishing authors are making their research available to others'.

- Accounting for invalid or undeliverable emails, the effective response rate was 8.5%.

- The short questionnaire aimed to:
    - Identify authors who had had a paper accepted in a peer reviewed journal since May 2005, or who planned to have a paper accepted in 2006, based on research funded by the NIH
    - Assess their awareness and understanding of the NIH Public Access Policy
    - Measure their compliance with the policy and identify reasons for non-compliance
    - Recruit a sample of authors to follow up the issues in more depth

- The follow-up qualitative interviews, among a range of NIH funded authors who had and had not submitted a paper to PubMed Central, explored their questionnaire responses in more depth and in addition:
    - Their attitudes towards the Public Access Policy
    - Their perceived benefits and drawbacks to them, the wider academic community, publishers, the general public and the NIH

- The quantitative findings from the short questionnaire are displayed as percentages in the charts of this report. The qualitative findings provide the understanding and context for the quantitative data and this analysis is illustrated throughout the report with verbatim comments from the teledepth interviews.

Summary of key findings: Author attitudes and behaviour

- **High awareness but low understanding**: While there is fairly high awareness of the Public Access policy's existence (85% of NIH funded authors have heard of it), knowledge about the process of submission is low, e.g. what version they should submit, when they should do it, whose responsibility it is, and when and where it will appear (just 18% say they know a lot or quite a lot about the policy).

- **Principled support for more access masks concerns:** The lack of understanding means few are either strongly supportive or strongly opposed to the policy, but the idea of increased access to scientific research has broad support in principle. However, it is likely that any growth in understanding about the policy will be matched by a growth in current reservations about the policy's negative impact on publishing.

- **Past communications have had a low impact:** Any NIH campaigns to convince authors to comply with the policy have failed to capitalize on their principled support for increased access and to reassure them about any impact on journals while NIH's current stated benefits lack credibility. Thus submission rates are low (24% say they have submitted and 43% say they intend to) because they don't know enough about the process and they fail to identify clear benefits.

- **Those who are supportive**:
    - regard wider access to scientific information of intrinsic benefit but believe it will specifically benefit researchers in poorer countries
    - feel an obligation to offer a return to the public who are paying for their research (though few can see how the public will benefit from PubMed Central)
    - say they need to respond to the demands of a powerful funder
    - consider it to be part of an inevitable process of wider dissemination in an electronic environment and something that publishers need to adapt to

- **Those who are opposed**:
    - fear the loss of journals, particularly as a revenue stream for societies (though an embargo period goes some way to satisfy them)
    - fail to see the purpose when they (and the public and the NIH) already have good access to information and they are struggling for research funding
    - are unclear how the policy conflicts with copyright
    - are concerned about PMC containing articles with errors in them
    - feel like it is a further drain on their own time and resources

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Summary: NIH-funded authors' attitudes towards the policy

The different sizes of the circles indicate the **approximate** proportion of NIH-funded authors with these attitudes. They are **judgments** based on both the qualitative and quantitative data and are intended to offer a directional, rather than precise, segmentation of authors.

Believe they have not submitted

Believe they have submitted

No clear benefit and waiting to be told

Low priority and waiting to be told

Unenthusiastic compliers

'I don't know why it is necessary because people, at least in basic academic science, want to publish things'

'It's not something I normally think about when I submit something to a journal'

'Something that we have to do, like tax'

Vociferous opponents

'…building a electronic infrastructure that is not going to be better than the existing ones out there, where there is a limited amount of dollars to be spent for scientific research, I can't support that'

'…are the journals going to give me permission to do it and I'm also worried about the larger repercussions, there's been a lot of talk about authors having to pay to publish things'

'makes sense as public should have access to research they have funded through tax payer dollars'

'The publishing industry should be brought to its knees…its profits are obscene'

Enthusiastic compliers

Concerned about implications and waiting to be told

Supportive but not got around to it

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Summary: How to raise compliance

- **The NIH can raise compliance by**:
    - Clearly explaining the process, ideally with time-sensitive prompts to act
    - Describing what additional benefits the policy will convey beyond what is currently available
    - Making the submission process easier to use and more responsive to problems
    - Reassuring authors about their legal position with respect to copyright
    - Explaining how the viability of journals will be protected
    - Making it a requirement to post could also raise compliance, though this will meet opposition and cause some resentment

- **Journals can influence compliance by**:
    - Making an explicit statement about how they believe the policy will affect the future of journal publishing
    - Describing how an embargo impacts on their viability
    - Raising awareness about how the copyright position affects posting to PMC
    - Making clear the boundaries of the policy in terms of responsibility
    - Submitting the papers on authors' behalf

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Awareness of the Policy

Awareness high but understanding low

- **Understanding of the NIH Public Access Policy is low**. While the majority (85%) of NIH funded authors (authors who have had a paper accepted since May 2005 based on NIH funding or plan to write one in 2006 based on NIH funding) have at least heard of the policy, **just 18% know a lot or quite a lot** about it. This level of awareness is only marginally higher than among <u>all</u> life sciences and medicine authors.

- So while many are aware of the policy, and that at some time they may need to act upon it, **basic understanding is lacking**.

- In terms of the **process**, few are aware that it is a request rather than a requirement, what version they should be submitting, when they should submit it, or where it will be appearing. Still less appear to be aware of the existence of an embargo, never mind its length.

- Many understand the policy is about making their NIH-funded research freely available but they tend **not to identify clear benefits.**

- The small number who are most aware tend to fall into 2 groups – those in favor of the policy who would like to see **more open access** and those who are concerned about the loss in revenue to **Learned Societies from** cancelled journal subscriptions.

- These two groups have discussed the policy with colleagues and with the NIH but others remember having heard about the policy from an **NIH email** that they paid little attention to.
  - One mentioned reading about it in *Science* and another thought she had read something on a journal's instructions to authors.

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Awareness high but understanding low:
The voice of the author

- *'I'm not aware of what the relationship is and how that gets done and who takes responsibility for that'*

- *'I noted that at sometime I was going to have to do it, but I didn't absorb anything more than that'*

- *'I'm not exactly up to snuff on NIH policies, but I'll answer as best I can'*

- *'I don't know if they were just trying to figure out if the data that goes in a paper is available, it should be put onto the web, but I'm not positive if that's the case this time, or not'*

- *'I think it is related to the general requirement that you publish what you find and I think most people, I don't know anybody who actually explicitly was worried about specifically publishing through that channel...I don't know exactly what it is, or what it involves in terms of additional effort.'*

- *'I didn't know how journals were going to, who was really in charge of doing it. In terms of journals, are we supposed to when we've submitted something, we were supposed then automatically, I wasn't sure of the process. So I knew that it happened, I thought it was a good thing, but I just really did not know how it could be implemented.'*

- *'I noted that at sometime I was going to have to do it, but I didn't absorb anything more than that... I might have gotten an email or something and not paid enough attention to it, I don't know.'*

- *'Well I think I probably know more than the average scientist because I was on the [Learned Society] Council when some of those issues were first opened up regarding publishing.'*

How much do you know about the NIH Public Access Policy?

All life sciences and medicine authors

| 5% | 11% | 39% | 24% | 22% |

NIH funded authors
(69% of all life sciences and medicine authors)

| 4% | 14% | 44% | 23% | 15% |

■ **A lot** ■ **Quite a lot** ■ **A little** ■ **Heard of, know nothing about** ■ **Never heard of**

- It appears that communications to recipients of NIH funds were not well targeted:
  - Many NIH funded authors have not heard of the policy or know nothing about it (38%)
  - Awareness is only marginally higher than among <u>all</u> life sciences and medicine authors
  - University researchers are an obvious target for raising awareness given the higher proportion of papers they generate and their lower level of awareness

- understanding is higher among:
  - More experienced authors (69% of NIH funded authors of over 75 articles know at least a little vs. 48% who have written 25 or less)
  - Pre-clinical researchers (69% know at least a little vs. 54% of clinical researchers)
  - Authors in Research Institutes (68% know at least a little vs. 60% of university researchers)

Base: All - Recent corresponding authors in life sciences and medicine journals (1,128)
        NIH funded authors – Had a paper accepted since May 2005 or
                planned to publish a paper in 2006 based on NIH funding (780)

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How to increase understanding

- Given the low level of understanding, their concerns about satisfying the NIH and their interest in maximizing the benefits of scholarly communication, there is plenty of **demand for more information** about the policy.

- Simply **repeating requests** is likely to raise awareness of the policy but communications need more **detail on the process:**
    - Whose responsibility it is
    - When it should be done
    - What version is submitted
    - Where it is submitted
    - Where it will appear
    - When it will appear

- Those currently with **higher understanding tend to have greater concerns** about the policy which suggests that as awareness increases, concerns will increase.

- In addition to the process, some would like information on the **purpose** of the policy and the **benefits**. Many need to know concretely how it will benefit them or their colleagues while others have **concerns about copyright** and the impact it will have on **publishing** that need to be alleviated.

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How to increase understanding:
The voice of the author

- *'I don't why it is necessary because people at least in basic academic science want to publish things anyway and most journals have more and more open access journals, or there is more and more easier to access. So I think there's this perception that, we don't know why such a policy is necessary when there's this natural approach anyway'*

- *'I guess I'd like to know the process, what happens or what is the turnaround? The time for publishing the information that we send and stuff like that. All the distribution and the purpose of it, because most of the journals, most of the papers already accessible from the web, most universities and centers have subscription to all major magazines, so what do you think or what would be the added value this service'*

- *'Somebody telling me how to do it and somebody telling me, I don't know what laws I have to check out before I do it, or giving me steps of what to do and probably somebody following up and reminding me.'*

- *'I didn't see it on the instructions, specifically, I think I do remember vaguely, I do remember through my email from the NIH, just some of the requests for the NIH, what PubMed or whatever, PubMed Central.'*

- *'I know I have the information sitting around, I'm not sure where I would go to access, it would take me 20, 30 minutes to figure out where it is'*

- *'Since I don't know the workings of this could be some myth that they [publishers] perpetuate, that they need money to function but, and because a lot of these journals are produced by societies, they want dues'*

Reactions to stated benefits of the policy

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Reactions to stated benefits of NIH Public Access policy

- The NIH described a range of benefits in their brochure for NIH funded authors (publication no. 05-5775 available from publicaccess.nih.gov/brochure.pdf).

- The following statements were read out to the 20 NIH-funded authors who were interviewed in depth and they were asked the extent to which they thought these benefits would result:
  - Higher visibility for your research
  - More efficient management of NIH funds
  - Improving the public's understanding and appreciation of biomedical research
  - Satisfying the public's demand for timely, reputable health-related information
  - Saving time because submission can also serve as progress reports
  - Better NIH applications because of easy linking to archived material

- Respondents' reactions and comments are summarized on pp 15-20

NIH stated benefits with some agreement:
Higher visibility and more efficient fund management

NIH STATED BENEFIT:	AGREE:	DISAGREE:
Higher visibility for your research	• Some believe it will increase the possibility of more academics seeing their research by: - appearing on **another database** - being available to those in **institutions lacking access**	• Even where they believe that it will increase their visibility, the **benefit will be small**. Most disagree: - The academics they are trying to influence **already have access** - They, and their research, are **already easily found** with a Google search - Their (already free) **abstracts are enough** for the public - The media pay attention to what is published in **high profile journals**, not what might appear in PMC
More efficient management of NIH funds	• Some felt that it would offer the opportunity for **better feedback** of the outputs of research	• Few believed this would be the case: -The policy was likely to **cost more through the duplication** of publishing effort it would cause - The NIH **should already know** how its funds were being spent as they receive copies of all papers and already demand a lot of information from their funded authors - The main problem with the NIH is that it is a **large and bureaucratic** organization which this policy does not address

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Higher visibility and more efficient fund management:
The voice of the author

- *'When I publish in Nature Neuroscience for example and this has a huge impact in my visibility…people certainly pay attention also to the journal quality. And right now the open access journals are not, have not managed to get to that niche.'*

- *'This [PubMed] is one of the first places that they stop at when they're doing searches. Key word searches and whatnot so it's like making sure that my information, that people know that this information is out there.'*

- *'As academics we already have so many ways to search for information in our field, so for example I'm writing a grant now and I'm looking up a lot of articles and I'm just doing it by searching various databases like PubMed, like Medline with key words and finding what I want. I don't feel a need to go to another database, if NIH eventually got everyone to put the stuff in their database would it be better than PubMed? I guess I don't see how.'*

- *'Any project we work on we have to submit the article, I mean we have to provide them with a copy of the article in some form or another. I would think that they would have a collection of those somewhere'*

- *'I don't think it would have that much impact. It might I guess for Congress maybe or something'*

- *'But it's possible to score the author based on number of articles, quality of journal published in, what the articles are published in, to give them some kind of score and if based on the score to see a ratio between money invested and the product received.'*

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NIH stated benefits with very little agreement:
Benefiting the general public

NIH STATED BENEFIT:	AGREE:	DISAGREE:
Improving the public's understanding and appreciation of biomedical research	• By having access to research they are funding, there would be **some accountability** but no understanding • One mentioned that it could offer **access to science writers** who could translate it for a lay audience.	• The information in journals is thought **inappropriate** for the general public: - Too **complex**, written for experts in their fields - Too incremental and **too much detail**, not enough of an overview • Quite the opposite, the information **might confuse and frustrate** a reader • Some suggested that the way to improve understanding and appreciation was to translate peer-reviewed research and **offer appropriate overviews** in vehicles such as newspapers, Scientific American or a public information site on NIH
Satisfying the public's demand for timely, reputable health-related information	• Similarly, beyond the principle of offering access to reputable information, few believed the policy would satisfy public demand • One mentioned that information might get published more quickly	• Because none believed that the information would be in a format that was understandable, the research **would not be usable** • Demand can be easily satisfied with the **access they currently have** in their libraries, local academics institutions or on internet sites such as webmd.com

Benefiting the general public:
The voice of the author

- *'Sometimes it creates confusion if lay people are reading a lot of technical literature they may not necessarily have a background to understand, there's a potential for misunderstanding and confusion'*

- *'A normal person isn't going to read the article, or understand a lot of the article. The abstract is pretty much all they handle, in my opinion.'*

- *'The general public is not about to start looking up my articles, I wouldn't suffer them unto that, but the goal of all science, well there are two goals one of course is just to understand the world and then of course the usual line is, the more we understand the more we should be capable of doing something to improve the human condition…is that when the information is more accessible and accessible sooner, then whatever benefits might accrue to the general public would occur that much sooner'*

- *'The people that are reading my articles are specialists in my research area, I think it will prove their understanding and indirectly I guess improve the public's understanding. But usually my articles they're technical, they're not going to help someone out in the street or something understand my research topic. There's probably other formats for that, things like Scientific American, there's other formats for really truly public access in that sense.'*

- *'Nice that they have access but I think what's more effective is designing sites and designing literature that directly addresses the general public for educational purposes'*

- *' I think all of the major journals in every field and many minor ones as well are available in medical libraries and in the national library of medicine online and you can download those, print them out, you don't have to buy a subscription to that journal. So I think the access is tremendous and I think there's a misconception in members of the public and members of Congress, just how tremendous that access already is.'*

NIH stated benefits with no agreement:
Saving researchers time

NIH STATED BENEFIT:	DISAGREE:
Saving time because submission can also serve as progress reports	• No-one felt able to agree that this would result: - Progress reports have **recently been streamlined** where a citation is all that is needed - They will still need a **lot of other information** such as work in progress, preliminary data, researcher biographies - Progress reports are sometimes **needed at other times** that do not coincide with publishing
Better NIH applications because of easy linking to archived material	• Similarly, none could see how this would result: - New grant applications are more about **future possibilities** rather than past results - Archived material is **not needed** on some applications - Some material that is needed **will not be archived**

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Saving researchers time:
The voice of the author

- *' The NIH has streamlined their progress reports now, so you fill out this form online and as part of it, you put in the papers that you've, you just put the citation'*

- *'That's pie in the sky…better proposals, proposals really focus more on what you're going to do, not what's been done. I don't and I think most people are able to access the key articles that they need when they're writing proposals'*

- *'I doubt that that would ever happen because the non competing progress reports also contain progress on things that aren't published because it takes a while to publish some things, so you always put in their things that haven't been published yet.'*

- *'Well if that takes the place of the progress report then that might be valid, however usually I think we would still have to write a progress report. I don't know, I don't know if that's what they're proposing, because usually with the progress report we also describe work that has not yet been finished, or has not been submitted, but is actually in progress'*

- *'The journals that I submit to that are already online, they're already linked. If I pull up one of my electronic papers I can go to my reference list and click on my reference list and it'll already go to another paper. Or you open up a page of a journal and it says similar articles, you go onto search engines and it says related articles. There's no advantage there, it's already been done.'*

- *'I don't see that as a very great advantage because we don't have to link to begin with, if you're submitting a grant I don't have to provide links to all of my journal articles'*

Perceived benefits of the policy

Wider access to research regarded as the key benefit

- The idea of **promoting access** to scientific information - a key requirement of scientific advancement and a **core value** to them as academics – resonates well with them.

- While of **little personal benefit**, some view it as an act of solidarity with other academics to make their research available.
    - One goes on to say that it might save him the time needed to send other academics PDFs of his paper when they request it.

- **Open Access** advocates take this further and say it is **incumbent** on academics to make their research freely available.

- However, given that US authors believe that they and their US/ European counterparts **already have good access** to information and that their research is easily available, they tend to identify the main beneficiaries as **academics in poorer countries**.

- The general public may receive some small benefit from accessing PMC themselves, for example if they need to look up a particular health condition, but it is thought that the information will be **too detailed or too complex for the general public** who already have good access in their libraries, local academic institutions or on the web. Rather, supporters say the **public will benefit indirectly** by making biomedical research more freely available to other researchers.

- Some believe that it represents further **progress in electronic access**, with the addition of another database facilitating the exchange of scholarly information. This is particularly the case with PMC because it would contain **a central location** for some of the best biomedical research, or may reduce scientific fraud.

- Those in **smaller institutions** make the point that it may increase their own access.

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Wider access to research regarded as the key benefit:
The voice of the author

- *'I think it's a good policy… it seems as if it would more quickly and widely make available the results'*

- *'Everyone I know would say it's a good thing… the whole point of doing Science and publishing your work is so your colleagues and others can know about it so if there's open access to it there aren't these subscription or pay per view kind of barriers then that's good'*

- *'I think that I think it's absolutely insane that the public stands for this, that is why should the record of our scientific progress, which is really our finished manuscript, why should that be given to private corporations to keep in perpetuity? When in fact the taxpayers paid for it in the first place, in most cases.'*

- *'I think that the policy states that you have to make it available to others, would be a good thing because it forces them to do things in a timely fashion and not hold onto things.'*

- *'So having it free access is wonderful for someone who is doing research in the outside world. I'm spoiled because it's like that here'*

- *'I get reprint requests from people that can't get my articles through another mechanism and it's usually not in the US, it's usually like Russia, Eastern Europe or South America, I think these scientists are not able to access journals'*

- *'I work in an institute that doesn't have a very extensive library so I don't have access to a lot of published articles'*

Accountability drives other benefits

- However there is stronger support for the general principle that anyone should have the opportunity to access information that has been **generated from public taxation** and which is ultimately there **to benefit society**.

- It may also **demonstrate accountability** to the public by offering a vehicle that displays the results of their investment.

- Some mention that the **NIH** will have a better opportunity to serve the nation by:
  - Making its research available to all
  - Demonstrating how its funds are being spent

- When pushed, they say that **their organization** may benefit by being able to show more easily what it has published and **journals** may benefit from increased traffic and visibility.

Accountability drives other benefits:
The voice of the author

- *'The general tax paying public can have a greater appreciation of public investment in science and have access to it'*

- *'The benefit the general public can get is to get a sense what the government has been funding. And if somebody from the public or gets interested and wants to know where is the taxpayers money is doing, then they can do this research.'*

- *'I don't do a thing that isn't supported by the public, I don't take any money from drug companies or anything like that. So it's all, it should be open for everyone in my point of view'*

- *'But I think the real benefit to NIH is just supporting their mission, which is to fund research, to get research done and to get research out there.'*

- *'I think that it's probably to the NIH's advantage to have Congress like what they're doing and have the public feel that they're providing a service to them, and have their scientific personnel, I mean scientific community feel grateful to them.'*

- *'It could give them more publicity I suppose, in that if a lot more is out there and people refer to it, general public whoever, they get more hits on their journals. So it could increase their impact factor.'*

- *'It would be centralized and possibly cut down on time lag for publication and allow results to be available sooner and increase implementation for clinical results'*

Perceived drawbacks of the policy

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Concerned about impact on journals

- Many believe that journal **subscriptions are likely to get cancelled** if articles are free from PMC. This is of particular concern to those involved with societies, but more generally it is felt this will jeopardize how they communicate with each other:

- While none saw the NIH policy as leading to the elimination of journals, the **threat to how scientists communicate is the main concern** of those who are more aware of the policy and is the logical conclusion of the less aware as they give the issue more thought:
  - Science may be undermined if **unfunded papers** do not have journals to publish them, or if **smaller/ less well-known journals** cannot survive
  - Many question how a journal is going to ensure high quality **peer review and editing** if returns on that investment decline
  - While the open access advocates welcome the decline of the publisher subscription model, others believe the policy makes open access journals more likely and they will be **more expensive with poorer service to author**
  - Publishing in journals plays a key role in **career development**
  - Journals perform an important **quality control and filtering** function, identifying what papers they should read from the overwhelming number that are available to them
  - Some raise questions about how easy it will be to find key research if it fails to link to existing databases
  - If there are **fewer journals** it will make it harder for they or their colleagues to get their papers published
  - Some are concerned that they will lose their **favorite journals** that they like to read and publish in

- There is **criticism of the expense** involved in creating the database, particularly as access is already good (for them).

- The NIH was attacked both by one Open Access advocate who stated that the **policy did not go far enough** having bowed to publisher pressure by only *requesting* the *accepted manuscript*; and from the other side by a Society Editor who felt that it was **over-reaching its responsibility** having bowed to a Congress that was distrustful of science.

- However many believe that wider electronic access is inevitable and publishers **need to find ways to adapt to it**.

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Concerned about impact on journals:
The voice of the author

- *'If this is mandated that it be disseminated free to anybody that needs access to it then how can the publishers afford to publish these journals? Could potentially have a fairly significant detrimental affect on the publishing industry and that's fairly important because they're the ones that are disseminating all this information... the last thing you want is the government to get into publishing as well'*

- *'If fewer publishers stay involved in publishing these manuscripts then the ability of the researchers to publish their material goes down too'*

- *'Although there is a new swell of support for open publishing, in fact traditional publishing is very much respected and honored for tenure and for promotion in academic communities'*

- *'The smaller weaker journals may not be around, which means it may be harder in the long run to publish…I hadn't previously given that any thought to be honest and thinking about it now, I do see there is some issues there.'*

- *'One can always say fine let's do away with journals and we just publish articles. But then you lose that whole peer review control, you use journals to help you select by quality, if it's published in a top journal or a fourth rate journal, it tells you something right a way. So I think we need those journals, we don't have the time to just read thousands of things and evaluate just one.'*

- *'My first time to submit an article through one of these complete open access ones BMC Neuroscience, I guess. And it was not a good experience and the reason being was that there was no editor to handle the issues that came up, I had three reviews, two of which were very positive, one had some serious criticism and they just didn't have anyone in place to deal with that …the way a normal journal would'*

- *'I would have liked to see them [NIH] take a more bold, more rigorous approach and require people to put in the final manuscript and push the journals to do it`*

Other concerns

- While there tend not to be major errors between the accepted manuscript and the final version, many mention that there are differences. As a result, some have concerns that **incorrect information is more likely** to be disseminated:

- Other concerns are that it **may cause confusion** about which version to refer to and it may mean that final papers are less likely to be read.

- There is concern about the time it will take to post the paper in addition to their other tasks and some feel like it is an **additional bureaucratic process** with a hidden cost in time and expense being imposed on them. This seems like a waste when they are already providing the paper to a journal and they really need to see some concrete benefits to or sanctions to make them comply.

- Just as they could identify few benefits, nor could they identify major **drawbacks to the public**:
    - Some felt that their lack of understanding or reliance on accepted manuscripts might give rise to incorrect interpretation
    - Some questioned the use of public funds to manage author submissions and a database when public and academic access was already good

Other concerns:
The voice of the author

- *'After acceptance then the manuscript goes to their editorial staff and in the copy editing process changes can be made in the manuscript, sometimes even in the way the figures are presented if they feel that this needs to be done for clarity. So then you've got two versions of your work out there, one the version that actually appeared in the journal and is the version that you probably want to be the final version, and then another one that hasn't had those editorial revisions or polishing done to it.'*

- *'You have an accepted one you have an edited one and everybody knows that when you go through manuscript, or the editor goes through it you catch stuff'*

- *'There's always issues about inaccuracies and you always try to avoid them, I guess I didn't see that as problem and I don't really understand why it should be any more of a problem than the current system.'*

- *'I would consider that a minor issue, but I can see that it's true I have so many versions, you know maybe probably other scientist too get confused'*

- *'All scientific articles of all the society journals are all accessible within the first year after publication anyway and so it seems to be tremendously expensive undertaking to mostly duplicate what we already have'*

- *'When you do have some NIH funding and you have to report, you have to do whole thing and it is kind of very hard, just so many things to do'*

- *'I think that you probably hear a lot in this day and age of where we all have to spend our resources that are limited and it's personnel effort, time and money, and that when you get the most efficient to put this activity.'*

Compliance with the policy

Compliance with the NIH policy

Which life science and medical journal authors are NIH funded?

Have you submitted/ do you plan to submit the full text to PubMed Central?

Had a paper accepted since May 2005 based on NIH funding — **59%**

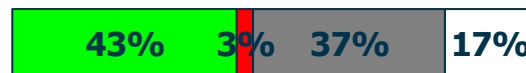Not had a paper accepted but plan to publish in 2006 based on NIH funding — **10%**

No accepted paper since May 2005 and no plans to publish in 2006 based on NIH funding — **31%**

| 24% | 33% | 28% | 15% | Existing NIH authors |

| 43% | 3% | 37% | 17% | Future NIH authors |

☐ **Yes** ■ **No** ■ **Don't know** ☐ **Never heard of policy**

- Of those who have had a paper accepted since the policy started, **24% claim to have submitted** the full text to PubMed Central. This is likely to be overestimated as some confuse the passive posting of their abstracts to PubMed with the active posting of their full text to PMC, or believe that journals have done it on their behalf.
  - *'I knew when it came out and I didn't know exactly how it was going to be implemented, and the main thing that I didn't know about is, I didn't know how journals were going to, who was really in charge of doing it.'*

- Many have not submitted but this is **not active non-compliance**. Looking only at future NIH authors, 43% intend to and just 3% say they will not.

- Submission is higher among
  - Those who are more knowledgeable (32% who know at least a little have submitted vs. 17% who have only heard of it)
  - Pre-clinical researchers (27% have submitted vs 15% of clinical researchers)

Base: All - Recent corresponding authors in life sciences and medicine journals (1,128)
 Existing NIH Authors (665)
 Future NIH Authors (115)

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Reasons for compliance

- Support is strongest for the policy among those who are **in favor of wide and free access** to publicly-funded research and many feel like they are **under some obligation** to provide their paper in return for research funded by public tax dollars:

- In addition, the **NIH is a powerful and influential funder** so few are going to take a principled stand against the NIH on this issue and some will comply simply because they are asked to.

- Personal benefit is cited as a reason but it is not likely to be a primary driver.

- One (who works for the NIH) complied because there is **someone in her organization** that takes care of posting and another said it was posted **on her behalf by the journal**.

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Reasons for compliance:
The voice of the author

- *'I think that it was generally well accepted and understandable, the government pays for something, pays supporting your research, so they should have a right to freely access this research, yeah. I don't see, generally nobody saw anything wrong about that.'*

- *'What's good about it is that people who are supported by the government should feel some obligation to share the knowledge'*

- *'I like the idea of public having access to information, even if they aren't close to a library and I do think if our tax dollars are paying for this that they should be readily available.'*

- *'Publishers want to maintain their businesses and they don't want to have income streams damaged by the open access so I can understand their point, but I'm a researcher and I have little sympathy for the publishers...they are parasitic businesses on the academic enterprise'*

- *'I know that the journals that I publish in do that, quite a few of them do that for you, they'll say that once we've polished your paper we'll submit a copy of it to PubMed Central, so they do that.'*

- *'I'm really not sure what I'm supposed to do, because I submitted it, then it was reviewed, then it was published and they put it online and then it's in the journal and so I assumed that after a year, it would automatically be submitted, is what my assumption was'*

- *'I've never submitted anything to PubMed Central although I do have some articles on there, so whatever the default technique is that they use for getting information there, some of my stuff has made it in there'*

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Reasons for non-compliance

- There are few enthusiastic supporters or opponents of the policy because **they don't know enough** about what it entails and they **fail to understand what benefits there are** to them, to other academics, to the public or to the NIH. The primary reasons cited in the questionnaire for not posting to PMC are because they **didn't know they could** or because they are **not sure of the benefit**:

- In addition to their lack of awareness of the submission process, there are concerns about exposing themselves to **copyright infringement**.

- Many seem to be waiting for instructions or for the journals to do it on their behalf. Posting is **not seen as a high priority** so tends to get lost in other work tasks:

- While the principle of wider access is a positive one, many **question how effective** that is going to be given the level of access they already have and their concerns about the impact on journal publishing, and especially the society journals.

- In light of that, many are not convinced that they should **take the time** to submit their articles themselves.

- Where understanding about the policy is higher, there are more concerns about the repercussions and there seems a likelihood that academics will be **more reluctant to comply as they become more aware** of the detail.

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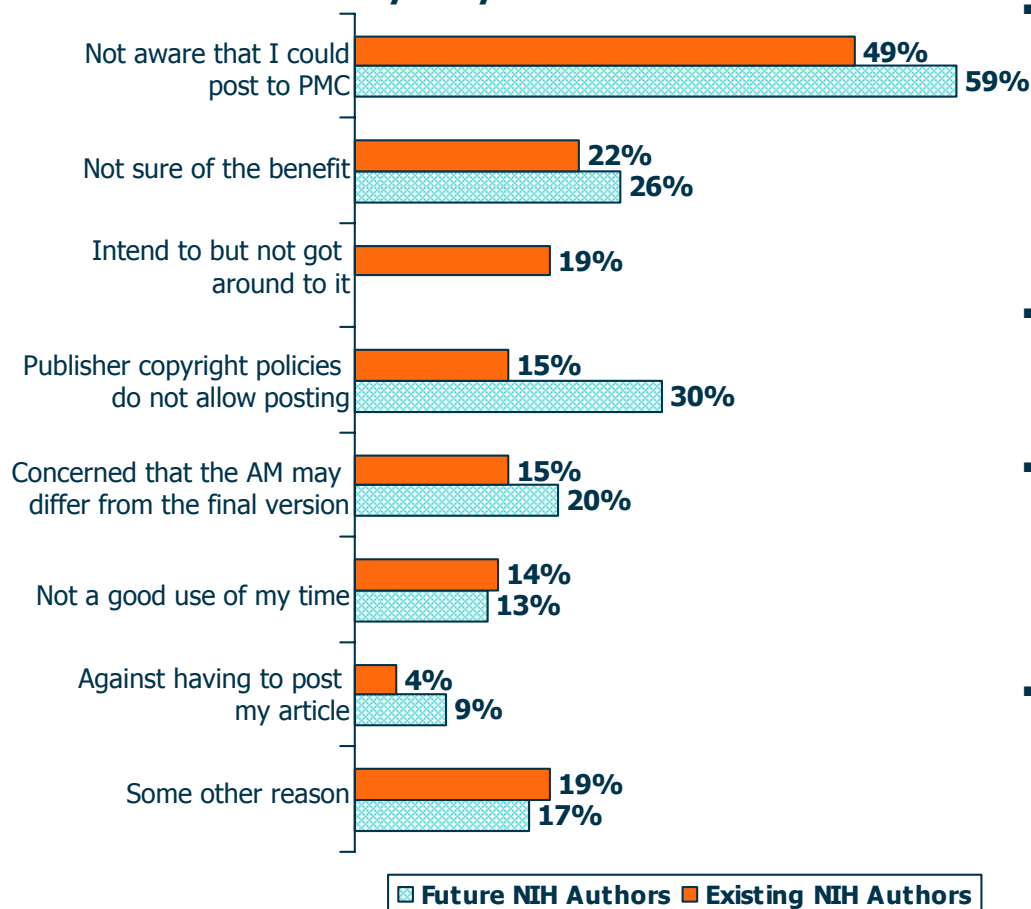
Reasons for non-compliance:
The voice of the author

- *'To be honest I heard about the policy, but I wasn't aware that if the policy's already active, or it has to be. I knew and I'm complying with the policy about registering clinical trials before actual initiation of the trials, but if this has to be policy, or if it's just a recommendation I have to be honest, I don't know.'*

- *'The articles should be, I'm not sure, just only abstracts or full version of the article should be accessible from some NIH directed web page for essentially free of use. Am I wrong, or am I correct?'*

- *'I think it's a great idea, my only real worries are, are the journals going to give me permission to do it and I'm also worried about the larger repercussions, there's been a lot of talk about authors having to pay to publish things, so that they can get on internet because, I mean so that they can get into the public domain. Because if things are made public too easily then the journals don't have a source of income and so that worries me mildly'*

- *'After it's been published in whatever journal that happens to be, then I suppose the next month we'd be looking into, again what the journal allows you to do in regards to making that information available, just the abstract or full text, or those types of things.'*

- *'My money comes from NIH and I'm not about to cross them, so if they became a little more adamant about it, I would I definitely do it. I definitely would do it, it's just that I will be president of my society in 2007, we're looking around for where our resource is coming from, we've got two journals and I'm very concerned that in the future the journals are not going to be able to support the societies any longer, and really don't know where the funds are going to come to do that.'*

- *'So to see my limited taxpayers dollars go on to be spent towards building a electronic infrastructure that is not going to be better than the existing ones out there, where there is a limited amount of dollars to be spent for scientific research, I can't support that.'*

Reasons for non-compliance

Why haven't/ wouldn't you submit your paper or why are you not sure?

Chart data:

Reason	Existing NIH Authors	Future NIH Authors
Not aware that I could post to PMC	49%	59%
Not sure of the benefit	22%	26%
Intend to but not got around to it	19%	
Publisher copyright policies do not allow posting	15%	30%
Concerned that the AM may differ from the final version	15%	20%
Not a good use of my time	14%	13%
Against having to post my article	4%	9%
Some other reason	19%	17%

☒ Future NIH Authors ☐ Existing NIH Authors

- There is little active resistance to the policy:
  - Lack of awareness of the policy is the main reason for non-compliance, either about posting it to PMC or of the benefit
  - Lack of awareness is also driving the perception that copyright policies do not allow it
  - Many of the existing authors intend to post but have not got around to it

- Few are opposed in principle but rather more are concerned about the difference in versions and the impact on their time.

- Medical School researchers are more likely to be concerned about differences on the AM and to be unsure of the benefits while among university researchers it is more likely to be an issue of awareness.

- Junior researchers need to know more about the policy while the more knowledgeable senior researchers are more concerned about differences in versions, the principle of posting and how it can benefit.

Base: Existing NIH Authors who have not submitted to PMC or do not know (407)
Future NIH Authors who will not submit to PMC or do not know (46)

Stated drivers of compliance and non-compliance - summary

Driver		Compliance			Non-compliance	
		Has complied	**Will comply**	**Not sure**	**Not sure**	**Will not comply**
Awareness	Don't know enough about the process				✓	✓
Academic/ community issues	Goal of science to maximise access	✓	✓	✓		
	Benefits researchers lacking access	✓	✓	✓		
	No disbenefit	✓				
	Speed up dissemination		✓			
	Undermines publishers	✓	✓			
	Society journals lose revenue					✓
	Fewer journals				✓	✓
	Poorer quality research papers					✓
	Makes incorrect versions available				✓	✓
	Lack of a benefit to the academic community				✓	✓
Funding issues	Asked to by NIH	✓	✓	✓		
	Research made available to the public who funded it	✓	✓	✓		
	Waste of public money					✓
Personal issues	Higher visibility	✓				
	Better access for self		✓			
	Lack of legal/ copyright clarity				✓	✓
	Lack of personal benefit				✓	✓
Administrative issues	Submitted by own organization	✓				
	Submitted by journal	✓				
	Set up a procedure		✓			
	Waste of time/ cost				✓	✓
	No procedure established				✓	

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How the NIH can raise compliance

- Many would comply if the NIH made it a requirement to post – some already treat it in this way – but only if they have **more information** about the implications for them personally and for journals generally.

- Those who are more informed and opposed to the policy say they would post if it was made a requirement but there will be **some resentment.** It is likely this would result in some non-compliance because the process currently demands a degree of discretionary effort, for example submitting it at the right time and checking the paper, which may be considered too great to overcome.

- While the main way to raise compliance would be to **tell authors how and when** to do it, the actual submission **process needs to be improved**. Most of those who have submitted mentioned difficulties:
    - Time-consuming, too many steps, can be laborious
    - Difficulties setting up an account and a lack of support or response from NIH
    - Too laborious to get a change made to a posted document

- If seeking to increase submissions to PMC, any communications campaign should:
    - **Explain clearly the process** they need to go through, and would ideally involve specific, tailored emails to prompt them to post a paper at the time that it needs to be done
    - Describe what **additional benefits PMC will offer** them and the wider academic community over what they already have
    - Explain how they are **co-operating with publishers** and reassure them about the legal position with respect to **copyright**
    - **Explain** how **the embargo** enables journals to retain subscriptions and allows time for any errors to get picked up between the accepted manuscript and final published version.

How the NIH can raise compliance:
The voice of the author

- *'NIH could make the guidelines crystal clear and do a proactive outreach effort'*

- *'I would comply as long as knew how to do it and if somebody's requested me to do it'*

- *'If they came down and said, you have to do it, I would do it because I would be required to do it by NIH to get my grant. But there's no advantage to me.'*

- *'I remember reading something in, when I was looking up some instructions for the authors, I do think I remember reading something about it, a little reminder perhaps, but it was in instructions to the author when you're getting ready to prepare your article for submission. So it wasn't something that you would really concentrate on'*

- *'Just tell me where to send and how to send, just I don't know, I didn't. Maybe I must have received some of the information from my grant agencies, but you know there's too many things, too many reading, too many emails. Sometimes without thinking part of the junk mail I might discard it.'*

- *'I got the information, tried to go in, they told me to set up an account and it just wouldn't, I called as they suggested, after about a week I never heard back. Finally it got straightened out, but it was a true pain, but I'm hopeful that that was just a fluke and that other people hook on easily at first…I went and looked at one of my articles, one of the pages was quite tilted and it looked like a couple of the words might have then been cut off at the bottom and trying to correct and explain all that was so cumbersome and Byzantine I just said, it's fine.'*

- *'Once the corrected galley proofs are all in place, if the journal could submit that version to PubMed Central for you, then you'd know that it was the final correct version. And it would take a burden off individual scientists who have increasing burdens of paperwork, to do that instead of doing what they're supposed to be doing which is science.'*

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The journals' role in influencing compliance

- Apart from the Open Access advocates (considered a small but vocal minority of NIH-funded authors) who believe that publishers are determined to hinder the timely, free exchange of all scholarly information, **few view publishers as obstacles** to compliance.

- The main barrier to compliance associated with publishers is the **lack of awareness about** how the **copyright** position affects posting to PMC and a **reluctance to breach** copyright agreements.

- There is **confusion** about the boundaries of the policy:
    - One author, on receiving the NIH notification began to post all his past papers to PMC until receiving a telephone call from a Society Journal telling him to withdraw them. He was told that the NIH guidelines were wrong and makes the point that he doesn't have the time to check what he is legally permitted to do.
    - Another believes that the policy is part of a strategy to encourage open access publishing more generally but that the NIH should be more openly confronting publishers rather than using authors as pawns and exposing them legally.

- Many believe that **some co-operation** between the publishers and NIH must already exist to enable posting but are unclear how that affects them personally, or the future viability of journals more generally. As a result there is some demand for an **explicit statement** from publishers about their position, or where there is less concern about journals being undermined, for **journals to submit** the papers on their behalf.

- The **embargo** is poorly understood but some feel that it represents a **reasonable compromise** between the desire to make publicly funded research available and the protection needed to ensure journals survive.
    - Six months is typically cited as an appropriate period though one thinks an embargo will not protect publishers because so many papers older than 6 months are needed.
    - Those who are not in favor of the embargo think that free access should take priority over publishers' rights.

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The journals' role in influencing compliance:
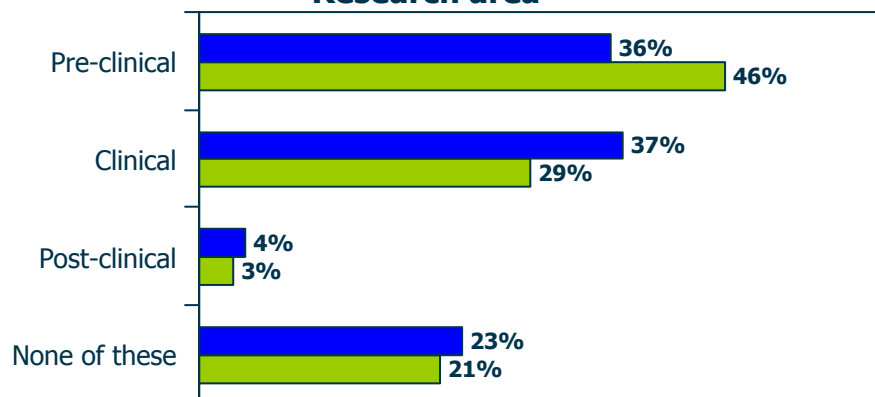# The voice of the author

- *'The reminder point when it's accepted or when it's published, sometimes journals give you a notice that says, oh I thought you might like to know it's been published on the online version. And so at some point, whenever it's appropriate, whoever is supposed to be doing it, if they could, if the journal could say, you know remember this'*

- *'NIH is not… protecting investigators from legal liability of potentially violating copyright agreements... so it's kind of a back door way to erode the power of the publishers but they're putting investigators in the middle - they should just take the publishers head on…even though I'm a huge proponent of open access I'm not going to it in a way that puts me at risk legally'*

- *'I know I've had to give over copyright rights to journals I've published in and so I would need to check with any of those journals before making the article, the paper available to the feds.'*

- *'I started to post my articles on the NIH central database, I received a phone call maybe a month or so later by the head editor at one of the journals… saying, I was violating copyright agreements by posting those articles and would I please remove them as soon as possible. Certainly I didn't want to be involved in any copyright disputes, I didn't know the details of it and I really don't have time research the details of why this would be violating the copyright agreements or not. But I then had to removed them which was actually fairly laborious process, it wasn't easy to remove. So I believe in public access, I'd like to have all my articles posted, but I certainly don't want to get involved any fight.'*

- *'If there's a time frame, where the journal has exclusivity I think that people are still going to want to pay for that because they're going to want to know the latest results... so if it was set up in that matter I can't imagine too big of an impact…there is no way that we would not still buy subscriptions to these journals because that would be horrible if everyone here at the institution didn't have access to the most current research results'*

- *'So I can see the argument, they need something and maybe I think the compromise that they worked out here is a six month delay and that seems reasonable to me'*
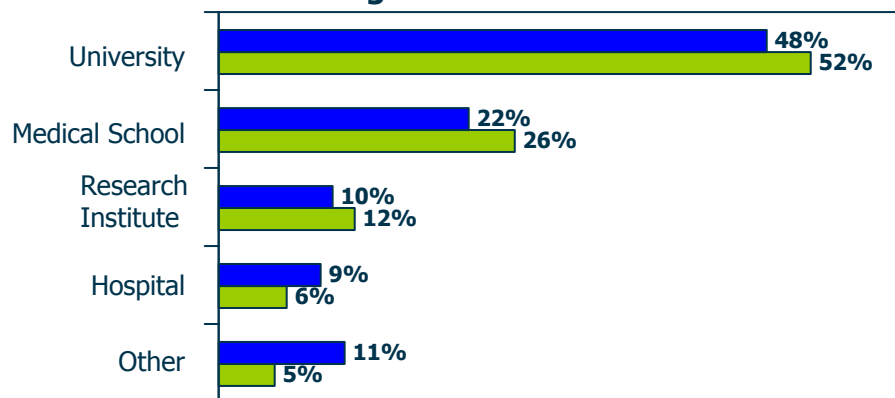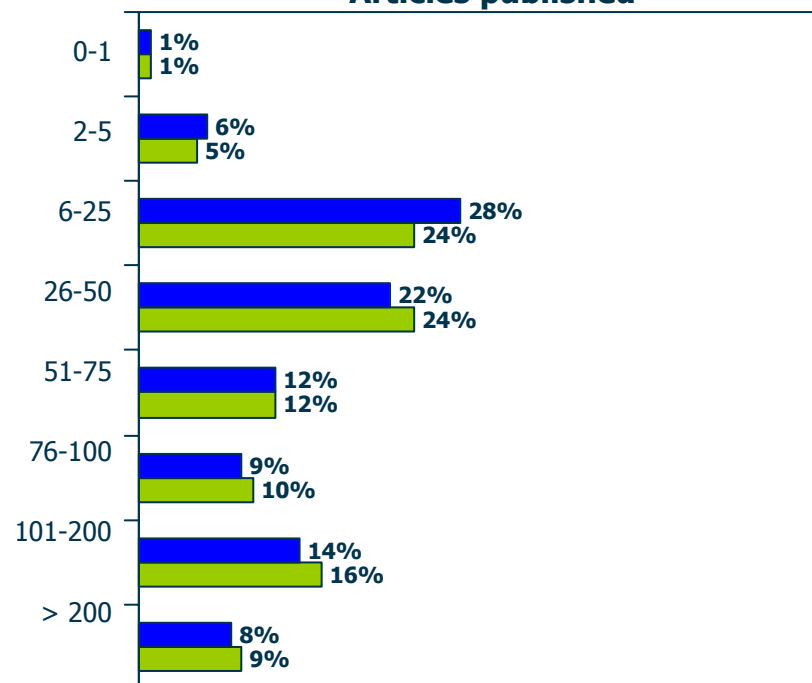
Respondent profile

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Profile of respondents

Research area

- Pre-clinical: 36% / 46%
- Clinical: 37% / 29%
- Post-clinical: 4% / 3%
- None of these: 23% / 21%

Organization

- University: 48% / 52%
- Medical School: 22% / 26%
- Research Institute: 10% / 12%
- Hospital: 9% / 6%
- Other: 11% / 5%

Articles published

- 0-1: 1% / 1%
- 2-5: 6% / 5%
- 6-25: 28% / 24%
- 26-50: 22% / 24%
- 51-75: 12% / 12%
- 76-100: 9% / 10%
- 101-200: 14% / 16%
- > 200: 8% / 9%

■ All life sciences and medicine authors
■ All NIH funded authors

Base: All life sciences and medicine journal authors (1,128)
       All NIH funded authors (780)

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Who's Who

About the Publishing Research Consortium (PRC)

The **PRC** is a group representing publishers and societies supporting global research into scholarly communication with the aim to provide un-biased data and objective analysis. For further information about the PRC, please visit the following website:

http://www.publishingresearch.org.uk/

About Kindle Research/Paul Hutchings, lead researcher

Kindle Research is a research consultancy dedicated to understanding the development and use of technology, with specific expertise in scholarly communications.

Before establishing Kindle Research in 2005, Paul Hutchings spent over 10 years working for leading international market research agencies such as GfK NOP, MORI, and BMRB. Much of his work over the last 4 years has involved interviewing both librarians and authors by web, phone, face-to-face and in focus groups around the world about how they search, retrieve and use scholarly information. The projects have ranged from large customer satisfaction surveys though to those requiring more strategic insight.

About GfK NOP

GfK NOP is part of GfK Group, the fourth-largest custom research business in the world, with coverage in over 90 countries worldwide and over 7000 staff. As well as outstanding research, GfK NOP also offers focused, information-based expertise at strategic and tactical level.

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