

# Enhancing Peer Review Survey Results Report



## Revised Biographical Sketch

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## Executive Summary

In late 2014, [NIH announced](#) that it would require the use of a new biographical sketch in applications for research grants submitted on or after January 25, 2015. The new biographical sketch format was designed to emphasize an applicant's accomplishments over bibliometric rankings. Questions in Phase III of the Enhancing Peer Review surveys assessed the opinions of recent NIH grant applicants, reviewers, Scientific Review Officers (SROs) and Program Officers (POs) about the new biographical sketch format and its effect on applications in the NIH review process.

SROs responded least often (11%) that the new biographical sketch improves an applicant's chance for a successful review outcome; most SROs (64%) responded that the new biographical sketch would have no effect on a successful outcome. In contrast, POs, applicants, and reviewers were more favorable toward the new biographical sketch. More than one-third of each group (37%, 35%, and 34%, respectively) responded that the new format improves the chance for a successful review outcome. POs were the least negative toward the new format with only 11% responding that the new biographical sketch weakens an applicant's chance for success.

Respondents who indicated that the new format either improves or weakens the chances for success were asked to expand on the reasons behind their choices in open-ended comments. A qualitative analysis revealed several prevalent themes among their comments. Respondents indicated that the new format improves applications' chances by providing more information about an applicant's expertise and scientific contributions, providing additional information for reviewers such as context behind an applicant's research program, and explaining the relevance to proposed applications.

Regarding how the new biographical sketch format weakens applications, respondents commented that the new format posed a potential bias toward or against specific applicant groups, such as New Investigators, and offered the potential for self-promotion due to the subjective nature of the new information.

Results from this analysis suggest that the new format is rated positively by a substantial portion of NIH stakeholders. Over a third of most respondent groups responded that in comparison to the former biographical sketch, the new format improves applications in the NIH review process. However, most of the remaining respondents either indicated that the new format has no effect or weakens an applicant's chance for a successful review.

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## Report on the Results of the Enhancing Peer Review Surveys: Phase III

### Revised Biographical Sketch

In November 2014, NIH [announced](#) that it would be requiring the use of a new biographical sketch format for research grant applications submitted for due dates on or after January 25, 2015, allowing applicants to describe the magnitude and significance of their scientific contributions and providing more detailed information about their research experience in the context of the proposed project. The new format extended the page limit from four to five pages, and allowed researchers to describe up to five of their most significant contributions to science, along with the historical background that framed their research. Each description could be accompanied by a listing of up to four relevant peer-reviewed publications or other non-publication research products, including audio or video products, patents, data and research materials as well as other products relevant to the described contribution. In addition to the descriptions of specific contributions and documentation, researchers were allowed to include a link to a full list of their published work as found in a publicly available digital database such as [MyBibliography](#) or [SciENCv](#).

Input from a series of pilot Funding Opportunity Announcements (FOAs) that preceded the trans-NIH implementation of the new biographical sketch suggested that the instructions for the new forms were clear and that a majority of applicants and reviewers felt that the new format would be helpful in describing the past experience and qualifications of researchers (**Appendix I**).

## Applicants and Reviewers

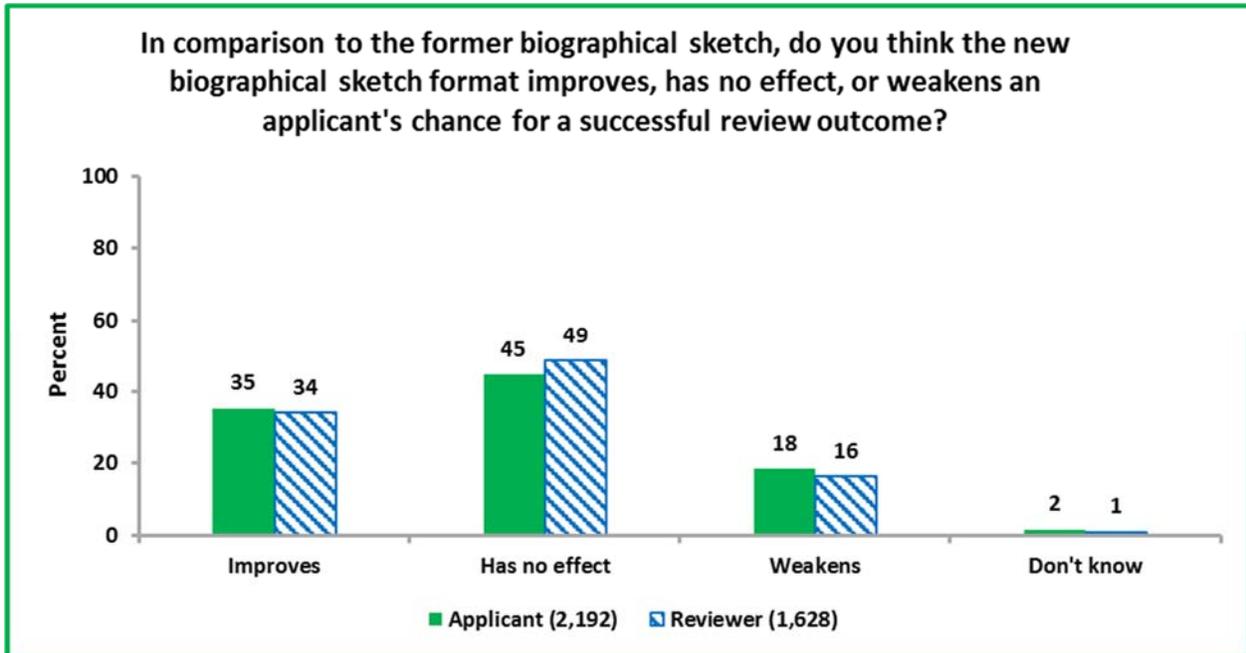
Applicants and reviewers who affirmed in a preliminary question they had used the new biographical sketch were asked whether the new format improves an applicant's chance for a successful review outcome. Overall, applicants and reviewers showed a similar sentiment toward the new biographical sketch. Forty-five percent of applicants and 49% of reviewers responded that the new biographical sketch has no effect on an applicant's chance for a successful review outcome (Figure 1). More than a third of both groups (35% and 34%, respectively) responded that the new format improves an applicant's chance for a successful review outcome (Figure 1). Fewer respondents from both groups (18% and 16%, respectively) responded that the new biographical sketch format weakens the chance for a successful review outcome.

Most applicants (65%) and reviewers (57%) who entered comments describing how the new format improves their chances for a successful review outcome stated that the new format allows applicants to include more information regarding their expertise and contributions to science (Table 1). Other applicants and reviewers commented that the new format favors or disadvantages specific applicant groups (Table 1).

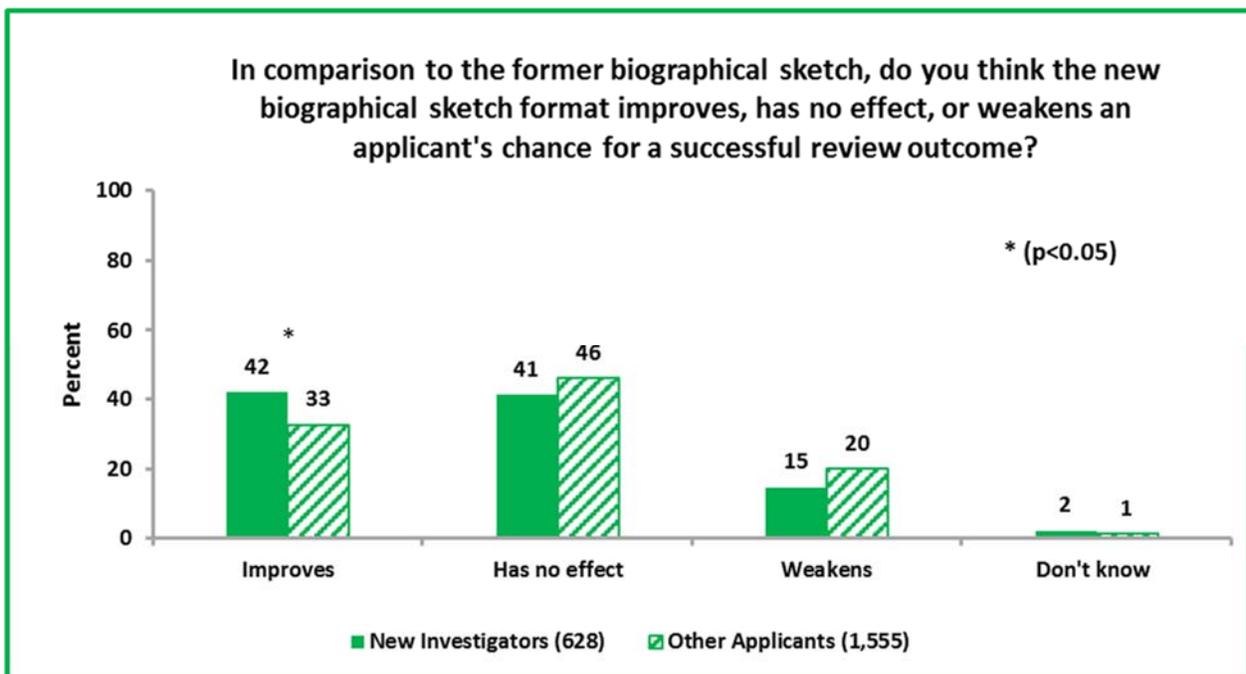
Significantly more applicants who self-reported they were New Investigators responded that the new format improves the chances for a successful review outcome in comparison to other applicants (42% versus 33%; Figure 2). Most applicants who were New Investigators (80%) commented that the new format favors New Investigators. Several of the comments submitted by these respondents indicated that the new format offers junior investigators the opportunity to describe their work and provide more details on their contributions to science beyond peer reviewed publications.

Almost half of reviewers (48%) who entered comments describing how the new format weakens the chances for a successful review outcome stated that the new format is too lengthy or does not provide information relevant to peer review (Table 1).

More applicants (38%) than reviewers (19%) who entered comments describing how the new biographical sketch format weakens an applicant's chance for a successful review stated that the new format favors or disadvantages applicant groups (Table 1). The majority of these applicant respondents (76%) indicated that the new format disadvantages new or early stage investigators. A closer examination of the New Investigator status of applicants who entered these comments showed that 41% of comments stating the new format disadvantages New Investigators were entered by New Investigators whereas 59% were entered by other applicants (Table 1).



**Figure 1.** Applicants’ and reviewers’ responses were similar about whether the new biographical sketch format improves, has no effect, or weakens an applicant’s chance for a successful review outcome. More respondents indicated that the new format has no effect on review outcomes.



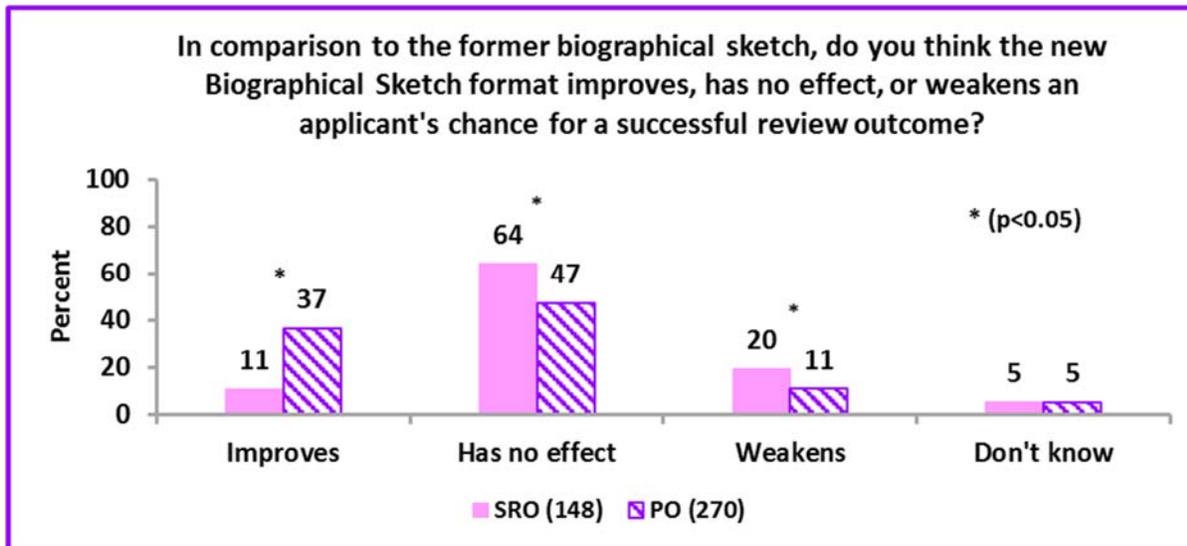
**Figure 2.** Applicants who were New Investigators responded significantly more often that the new biographical sketch format improves an applicant’s chance for a successful review outcome. However, a similar proportion of new investigators responded that the new format has no effect on their chances for a successful review outcome.

### SROs and POs

POs responded significantly more often (37%) than SROs (11%) that the new biographical sketch format improves the chance for a successful review outcome, whereas significantly more SROs (20%) than POs (11%) responded that the new biographical sketch format weakens an applicant's chance for a successful review outcome (Figure 3). The predominant response from SROs (64%) was that the new biographical sketch does not affect an applicant's chance for a successful review outcome.

Similar to applicants and reviewers, the majority of POs (55%) who entered open-ended comments described the new biographical sketch format as improving the chances for a successful review outcome, stating that the new format improves review by allowing applicants to provide more information about their expertise and scientific contributions (Table 1). Thirty-six percent of SROs who entered comments explaining why they believe the new format improves review also indicated that the new format allows applicants to provide more information about their expertise. Another 36% of SRO's stated that it provides additional information for reviewers, including additional context regarding an applicant's research program.

Thirty-six percent of SROs who entered comments describing how the new format weakens review stated that it does not provide relevant information for review or provides too much non-relevant information (Table 1). Another 32% stated the new biosketch format weakens an applicant's chance for a successful review because it favors or disadvantages applicant groups. Two-thirds of POs (66%) who entered comments describing how the new format weakens review also indicated that the new format favors specific groups of applicants (Table 1).



**Figure 3.** SRO and PO responses about whether the new biographical sketch format improves, has no effect, or weakens an applicant’s chance for a successful review outcome. Most SROs and POs responded that the new biographical sketch has no effect on an applicant’s chance for a successful review outcome. More SROs than POs responded that the new biographical sketch format weakens an applicant’s chance for a success review outcome and more POs than SROS responded that the new biographical sketch format improves this chance.

<b>Please describe briefly how the new biographical sketch IMPROVES applications' chances for a successful review outcome</b>	<b>Applicant (692)</b>	<b>Reviewer (460)</b>	<b>SRO (11)</b>	<b>PO (85)</b>
<b>Allows inclusion of more information about PI and key personnel; highlights PI's expertise</b>	65%	57%	36%	55%
<b>Provides additional information such as context behind research program</b>	15%	14%	36%	15%
<b>Favors/disadvantages certain applicant groups</b>	6%	4%	-	-
<b>Informs relevance to proposed application</b>	10%	15%	18%	18%
<b>Link to all publications / Inclusion of most relevant publications is useful</b>	7%	10%	-	-
<b>Other</b>	14%	18%	9%	16%
<b>Please describe briefly how the new biographical sketch WEAKENS applications' chances for a successful review outcome</b>	<b>Applicant (387)</b>	<b>Reviewer (263)</b>	<b>SRO (25)</b>	<b>PO (29)</b>
<b>Favors/disadvantages certain applicant groups</b>	38%	19%	32%	66%
<b>Potential for self-promotion/information is too subjective</b>	21%	28%	16%	28%
<b>Does not provide relevant information or provides too much non-relevant information; too lengthy</b>	31%	48%	36%	3%
<b>Too burdensome for applicant</b>	13%	5%	-	-
<b>Makes review process more burdensome</b>	7%	19%	28%	10%
<b>Other</b>	12%	8%	16%	10%

**Table 1.** Results from a qualitative analysis of open-ended comments about the new biographical sketch. Most comments indicated that the new biographical sketch format is helpful because it provides additional information about the Investigators' expertise and achievements. However, others commented that the new format favors or disadvantages certain applicant groups, or that the new format does not provide information relevant to peer review or provides too much non-relevant information.

## Discussion

The results presented in this report suggest that the new biographical sketch provides a format that allows applicants to emphasize their individual accomplishments. Applicants, reviewers and POs expressed a similar sentiment that in comparison to the former biographical sketch, the new format improves an applicant's chance for a successful review outcome. In contrast, SROs more than other respondent groups responded that the new biographical sketch format weakens an applicant's chance for a successful review outcome. Many respondents commented that the new format does not provide relevant information for peer review, or that it presents the opportunity for inflated self-assessments.

SROs' responses may reflect concerns that the new format increases review burden. More comments from SROs than other respondent groups stated that the new format increases review burden. Comments from the other respondent groups also expressed these concerns to a lesser degree.

Despite concerns that the new format disadvantages New Investigators, applicants who self-reported as New Investigators were significantly more likely than other applicants to respond that the new biographical sketch format improves an applicant's chance for a successful review. Similarly, more applicants who were New Investigators stated in open-ended comments that the new format is advantageous to New Investigators. These respondents cited the opportunity to highlight contributions other than peer-reviewed publications as especially beneficial to New Investigators.

Results from this analysis corroborated input from a series of pilot Funding Opportunities that preceded the trans-NIH implementation of the new biographical sketch (Appendix 1). Results from the pilot tests indicated that respondents who self-reported in older age groups ( $\geq 51$  years) and as full professors were significantly more likely to rate the modified biographical sketch format as unsuitable for New Investigators than respondents who self-reported in younger age groups ( $< 40$  years; between 40 and 50 years). Further examination of review outcomes, utilizing data on Investigator criterion scores, overall impact scores and funding outcomes, indicate no adverse effect or benefit conferred upon New Investigators as a function of the new biosketch format.

## Appendix I – summary of the evaluation of pilot FOAs

Prior to full-scale implementation, the new biographical sketch format was subjected to pilot testing. Five funding opportunities (FOAs) were included in the pilot assessment, representing three ICs and five activity codes (Table 1). Submission dates occurred between July to December 2014, and review dates spanned over a year: October 2014 to August 2015. Details of each RFA can be found by following links.

RFA number	Title (Activity code)	Submission Date	Review Date
<a href="#">RFA-NR-15-001</a>	Chronic Wounds: Advancing the Science from Prevention to Healing (R01)	July 24, 2014	October 23, 2014
<a href="#">RFA-DK-14-009</a>	(Re)Building a Kidney Coordinating Center (U01)	January 14, 2015	April 7, 2015
<a href="#">RFA-DK-14-010</a>	(Re)Building a Kidney: Cells to Organ (UH2/UH3)	January 14, 2015	April 7, 2015
<a href="#">RFA-AA-15-001</a>	Specialized Alcohol Research Centers (P50)	December 3, 2014	August 11, 2015
<a href="#">RFA-AA-15-002</a>	Comprehensive Alcohol Research Centers (P60)	December 3, 2014	August 11, 2015

**Table 1.** Information summarizing the five funding opportunities that participated in the biographical sketch pilot.

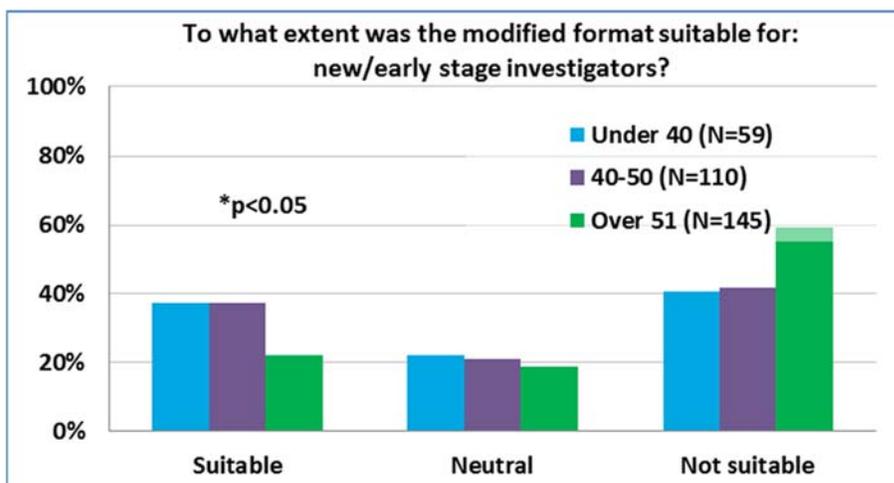
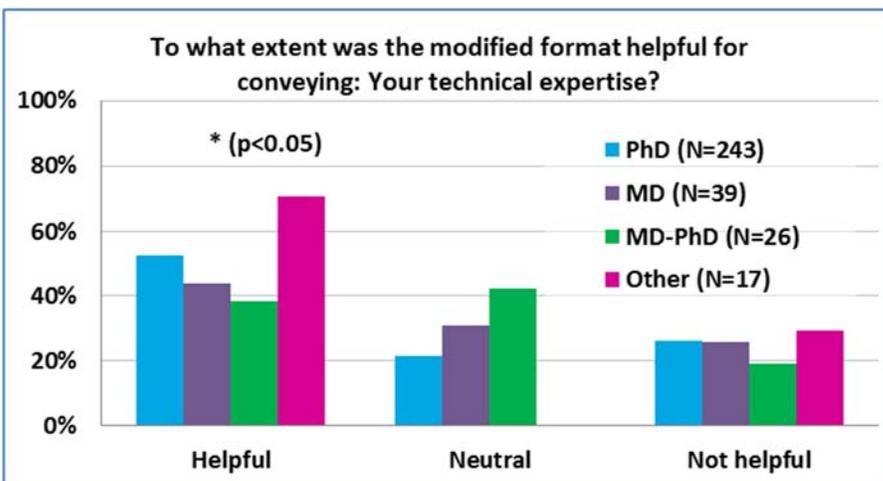
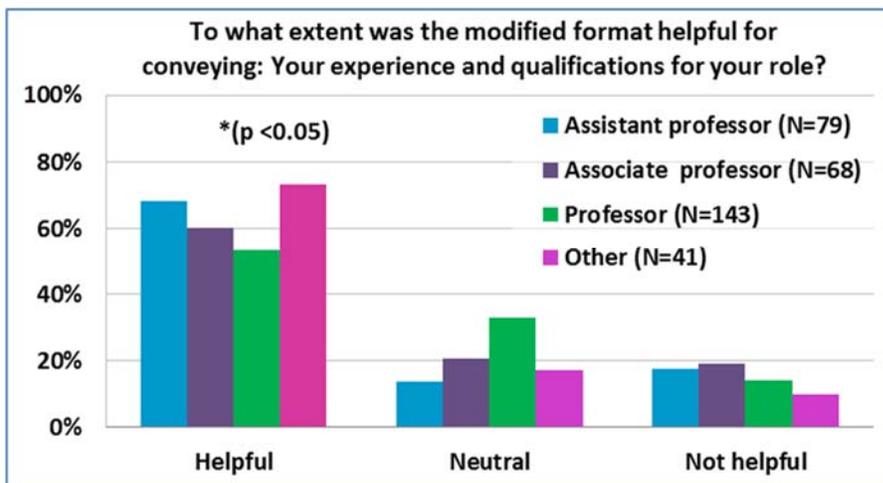
Surveys directed to applicants and reviewers participating in pilot FOAs were conducted as web-based instruments (OMB No. 0925-0046). The surveys assessed whether users felt the new format was useful for all activities (R01, AREA award, center grant, small business award, fellowship, and career development activities) and types of investigators (New/Early stage, well-established investigators, pre-doctoral and post-doctoral fellowship, career award, small business innovation research applicants, and mentors on training grant and fellowship applications). All members of the applicant key personnel who prepared a biographical sketch using the new format were surveyed during the time between application submission and review, before a review outcome was rendered. Reviewers were surveyed on the afternoon of the last day of the review meeting. The overall response rates of applicants and reviewers are 56.8% and 70.4% respectively. Bivariate analyses and Fisher’s exact tests were conducted for aggregated applicant and reviewer data respectively.

### Helpfulness of the New Format for Its Intended Purposes

- Most survey respondents rated the modified biographical sketch format as helpful for conveying their experience and qualifications (next page, top panel), scientific contributions, and role in advancing science.
- Respondents were more equivocal about the helpfulness of the new format for conveying their technical expertise (next page, center panel), role in developing intellectual property and commercial products, and the factors that may have affected their scientific advancement or productivity.
- It is noteworthy, however, that most respondents who reported having a degree “other” than Ph.D. and/or MD indicated that the new format was helpful for conveying their technical expertise.

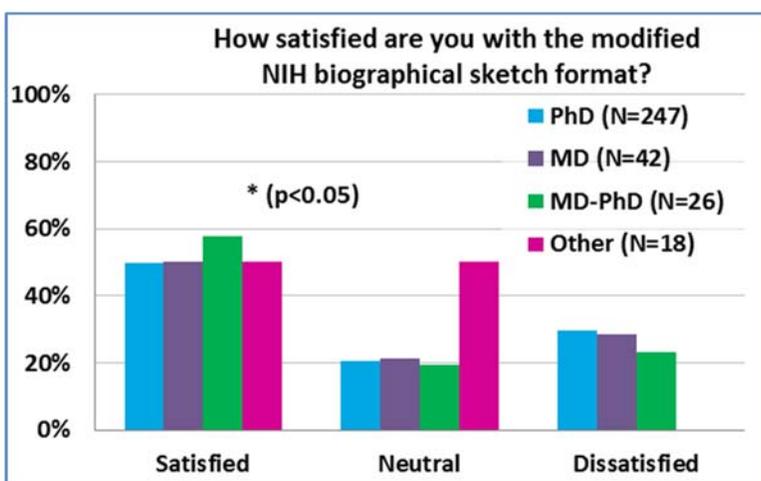
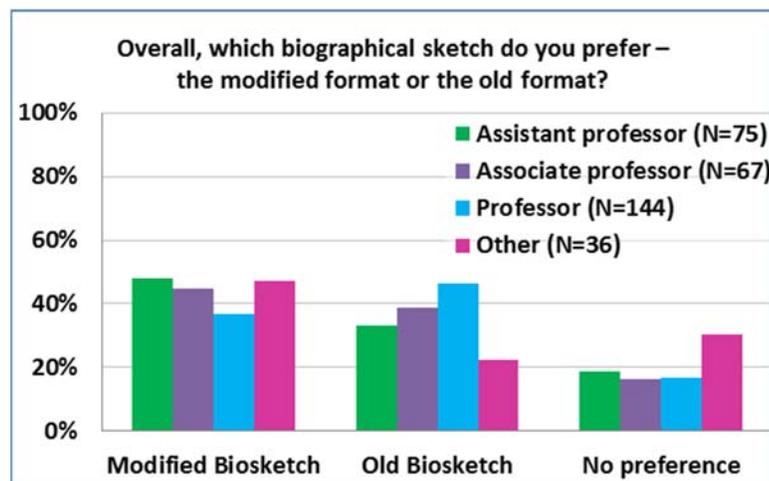
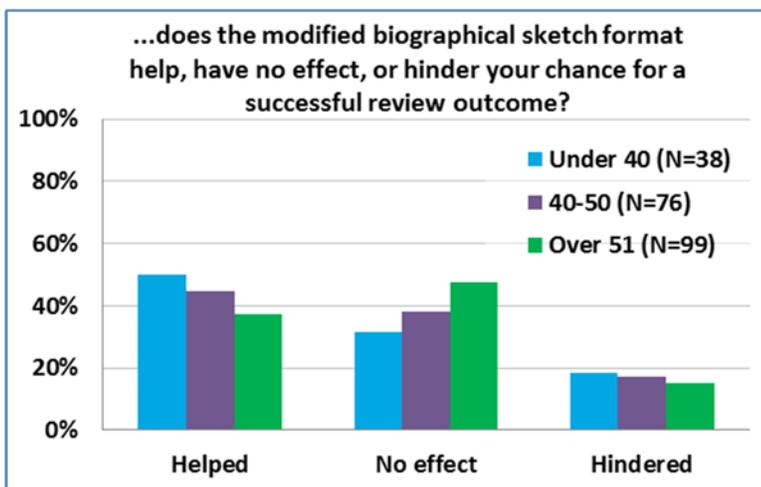
## Suitability of the new format for different types of applicants and applications

- There was broad agreement that the new biographical sketch format is suitable for well-established investigators and mentors on training grants. There was also agreement that the new format is suitable for R01 applications, and multiple project/center grant applications. Fewer respondents rated the new biographical sketch format to be suitable for New Investigators (right, bottom panel), career award and small business applicants and prospective fellows.
- Respondents who reported they were age 50 years or younger, and those who self-identified as assistant professors, were equally likely to rate the new format suitable versus not suitable for New Investigators; however, respondents 51 years and older and full professors, who were the largest group in the respondent pool; were significantly more likely to rate the modified format unsuitable for New Investigators.
- Fewer respondents rated the new format suitable for AREA grant applications, SBIR/STTR, and Fellowship applications.



## Global Assessments of the New Biographical Sketch Format

- Responses were split about whether the new format would affect the chance for a successful review outcome, with 42% indicating it would help, and 42% indicating it would have no effect on their chances; 17% of respondents thought the new format would hinder their chances at a successful review outcome. When asked to comment on their response, many who thought the new format might help their chance for a successful review outcome indicated that it provided the opportunity for a more complete account of their achievements and qualifications to conduct the proposed research. Those who thought the new format hindered their chances for a successful review outcome often cited an increased burden associated with preparing the new biographical sketch, the subjectivity of the new format, and the possibility that some applicants might overstate their own accomplishments.
- Survey respondents were also evenly divided in their preferences for the old versus new biographical sketch formats. Forty-two percent of respondents preferred the new format and 39% preferred the old format.
- When asked to rate their satisfaction with the new format, half of respondents rated themselves satisfied and 27% of respondents rated themselves dissatisfied.
- Similarly, 52% of respondents rated the new format as fair, and 18% rated it unfair.



## Differences in Ratings among the FOAs

There were notable differences in the ratings of the first three FOAs in comparison to the last two FOAs (Table 2, below). It is difficult to pinpoint a single factor that might account for the observed differences in sentiment, since the application submission dates for the five funding opportunities involved in the pilot spanned a period of slightly more than five months, and the elapsed time between the first and last review meetings spanned almost ten months. Three Institutes were involved in the pilot, and the science in the applications received by each of the funding opportunities varied, as did the activity codes, the size of the applications and the number of key personnel involved. The factor that differed most strikingly between the first two FOAs and the last FOA was the number of key personnel involved in each application. Consistent with respondents' comments that preparing a biographical sketch in the new format was more burdensome than the old format, respondents who were associated with the NIAAA funding opportunities, with an average of 25.9 key personnel per application, were significantly more likely to respond that the new format hindered their chances for a successful review outcome, and more likely to prefer the old biographical sketch format over the new format (Table 2).

Institute/Center	NINR	NIDDK	NIAAA
Activity codes involved	R01	U01/UH2/UH3	P50/P60
Number of Applications	47	36	13
Total Number of Key Personnel	192	128	337
# Key personnel/application	4.1	3.6	25.9
<b>To what extent was the modified format helpful for conveying experience and qualifications for the proposed</b>			
Helpful	68.2%	67.9%	53.0%
<b>To what extent was the modified format suitable for: new/early stage investigators?</b>			
Suitable	29.9%	35.8%	28.6%
<b>In your opinion, does the modified biographical sketch format help, have no effect, or hinder your chance for a successful review outcome? (p = 0.043)</b>			
Helped	54.2%	45.9%	31.8%
No effect	34.7%	40.5%	46.7%
Hindered	11.1%	13.5%	21.5%
<b>Which biographical sketch do you prefer-the modified format or the old format? (p = 0.0019)</b>			
Modified Biographical sketch	46.36%	53.84%	35.62%
Old Biographical sketch	29.09%	26.92%	50%
No preference	27%	19.23%	14.37%

**Table 2. Examples of the responses of applicants who responded to FOAs from the three participating Institutions**

## Reviewer Responses

There were 81 reviewers involved with the three funding opportunities. Fifty-nine participated in the survey, for a response rate of 73%. Overall, reviewers' responses were less favorable than those of applicants (Table 3). Reviewers commented that the modified format was more subjective and contained additional information that they considered extraneous. The information they were looking for was not readily available in the new format. Table 3 summarizes their ratings.

<b>To what extent is the modified format helpful in understanding:</b>	<b>Helpful</b>	<b>Neutral</b>	<b>Not helpful</b>
• researchers' qualifications for their role in the proposed	46.6%	31.0%	22.4%
• researchers' capabilities and technical expertise?	39.0%	28.8%	32.2%
<b>To what extent is the modified format suitable for new/early stage investigators?</b>	<b>Suitable</b>	<b>Neutral</b>	<b>Not suitable</b>
	27.1%	16.9%	55.9%
<b>...does the modified biographical sketch format help or hinder an applicants' chance for a successful review outcome?</b>	<b>Help</b>	<b>No effect</b>	<b>Hinder</b>
	32.1%	50.0%	17.9%
<b>Which biographical sketch do you prefer-the modified or the old format?</b>	<b>New Biosketch</b>	<b>Old Biosketch</b>	<b>No preference</b>
	35.6%	59.3%	5.1%

**Table 3. Examples of the responses of peer reviewers who participated in the review the pilot FOAs.**

## Conclusions

Applicants and reviewers responded differently to the new format. Reviewers found the new format to be subjective and difficult to interpret. Although most applicants rated the new biographical sketch favorably, many felt that the burden associated with completing biographical sketches in the new format was problematic, and there were concerns about the suitability of the new format for New Investigators. Applicants and reviewers may adapt to the new format over time and find it more useable. Attitudes may also improve as the benefits of SciENCv become more widely known.