

2015 Reviewer Quick Feedback Survey Results

Center for Scientific Review, National Institutes of Health, United States Department of Health & Human Services

Background

The Center for Scientific Review (CSR) is the gateway for NIH grant applications and their review for scientific merit. CSR's mission is to see that NIH grant applications receive fair, independent, expert, and timely reviews - free from inappropriate influences - so NIH can fund the most promising research.

CSR plays a major role with heavy responsibility for ensuring the quality of NIH's investments to advance science and health through funded research. Center leadership believes there is a need to gain a comprehensive and systematic view of how stakeholders perceive the quality of peer review during a time of social, economic, and informatics change. Virtually all applicants face increased personal and economic burdens related to shrinking pay lines and increased competition for research dollars. It has been about 5-years since a 2010/2012 NIH survey examined changes to the NIH peer review process, i.e., shortened applications, bulleted format for reviews, narrative expression of overall impact statement, a 9-point rating scale, and inclusion of criterion scores.

To develop a science of grant application evaluation and peer review, over the past two years CSR has initiated a series of evaluation efforts with emphasis on judgment and feedback from stakeholders. A goal is to be able to use results to inform whether current CSR best practices for peer review are optimal to achieve its' mission. Results will be used to identify areas of success and areas for improvement in the quality of peer review.

As part of this new evaluation emphasis, CSR is assessing the utility of asking reviewers, a vital stakeholder group, about their CSR study section meeting experience. An assumption is that reviewers are in a strong position to provide quality feedback on CSR performance.

A series of pilots were conducted in 2014 and 2015 to begin collecting feedback from reviewers. CSR reviewers play a critical role in the integrity of the peer review process as evidenced by the fact that in fiscal year 2015 approximately 17,000 CSR reviewers were responsible for reviewing 75% of over 81,000 applications submitted to the NIH. Reviewers participated in over 1,500 CSR study section meetings managed by 247 Scientific Review Officers (SROs).

In the fall of 2015, reviewers in all 505 CSR study sections were surveyed for Quick Feedback. This Executive Summary will focus on those results.

Design of the Quick Feedback for CSR Survey Initiative

In early 2014, a "*Quick Feedback for CSR*" instrument was designed, tested, and refined in 3 pilot studies before surveying CSR reviewers in all study section meetings conducted between September 2015 and January 2016.

Pilots were conducted to refine survey instrumentation and methodological issues for collecting feedback from reviewers at the end of study section meetings. Briefly, the objective was to collect from

reviewers their perceptions of study section meeting quality based on four key features of the peer review process deemed important in prior studies:

- Scoring (Quality of Prioritization) - a panel's ability to score or prioritize applications according to their impact/scientific merit.
- Panel Composition (Collective Expertise) - the adequacy of scientific expertise represented on a panel to evaluate the set of applications in the meeting.
- Assignments - appropriate use of a panel's broad expertise for study section assignments.
- Quality of Discussion - the extent to which reviewer's perceived that scientific discussions supported the ability of the panel to evaluate the applications being reviewed.

In early 2014, data were collected from reviewers in 33 CSR study sections representing 4 Integrated Review groups. The pilots helped CSR to: (1) clarify SRO instructions to Reviewers, (2) develop frequently asked questions (FAQs), and (3) create easily identifiable subject headers in the emails sent to reviewers with survey links. SROs received standard protocol guidance from their Chiefs including a series of *Frequently Asked Questions (FAQs)*.

It was important to CSR that the feedback instrument be short with minimal burden to respondents. Responses used a 7-point Likert-type scale and a text box was provided for unsolicited comments about the quality of peer review.

In the fall of 2015, surveys were sent to 10,116 reviewers in all 505 CSR study sections on the morning of the first day of the meeting. Personalized links to the survey were imbedded in an email with a cover letter from the CSR Director. Reviewers were asked to complete the survey near the end of the meeting. They were assured that their response was voluntary, identities would not be disclosed, and only aggregated responses would be used in analysis. The feedback form would take no more than 5 minutes to complete, somewhat longer if reviewers elected to provide additional comments in the text box. The CSR Director also provided his personal email address at the end of the form for reviewers who wanted a personal reply.

Completed surveys were received from 4,701 Reviewers of the 10,116 reviewers. Thus, the overall response rate was 46% of the total pool of potential respondents. As would be expected, face-to-face meetings yielded the best response rate with about 50% of all reviewers answering the survey; teleconference and video-assisted meetings (VAMs) averaged a 40% response rate, and internet-assisted meetings (IAMs) had a response rate of 37%.

A descriptive analysis of reviewer's response to the 4 Likert-type statements was reported for all CSR study sections, as well as for participants in alternative review formats such as teleconferences, VAMs, and IAMs. Unsolicited comments from the open-ended text box were also reported and analyzed. Of the 4,701 respondents, 3,109 reviewers or about 66 % of those who responded to the 4 Likert-type statements, also provided comments.

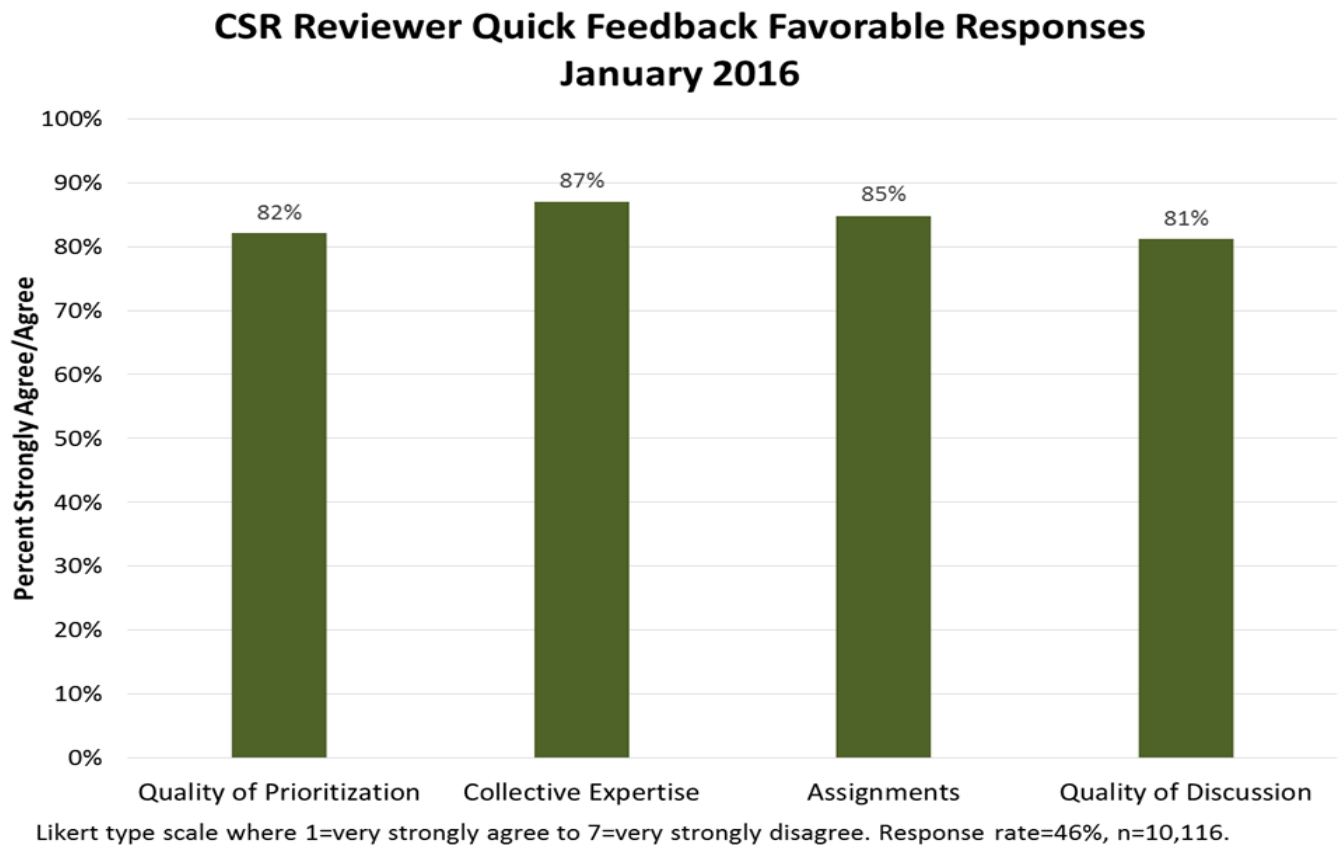
Immediate reports of "*Quick Feedback*" survey results were transmitted to IRG Chiefs, CSR Division Directors, and senior staff within 1-week after a study section met. An email sent to CSR stakeholders included links to weekly reports. The reports were personalized for each stakeholder group with easy access via a customized dashboard. Due to the sensitive and confidential nature of the reports, Chiefs were asked to preview them before sharing results with their SROs.

Results were overwhelmingly positive and indicate a great deal of satisfaction with the quality of peer review among reviewers. The new "Quick Feedback" initiative will help CSR SROs and management determine the extent to which current CSR best practices are optimal for achieving its' mission and identify areas of success and areas for improvement in the quality of peer review.

Summary of Main Findings

Overall Reviewer Satisfaction with CSR Grant Reviews

Overall, reviewers reported a very high level of satisfaction with their service on study sections. Using a 7-point Likert-type scale ranging from "strongly agree" to "strongly disagree," respondents were overwhelmingly positive. Over 80% of reviewers indicated they either "strongly agreed" or "agreed" that panels were doing a good job in terms of scoring and discussion and CSR did a good job in terms of the quality of the rosters and assignments.



Review Process

Of the four specific features of the peer review process examined across alternative review formats, **reviewers were most favorable about the adequacy of scientific expertise represented on the study section.** On a 7-point Likert-type scale, approximately 81% to 88% of reviewers either "strongly agreed" or "agreed" that the study section's collective expertise was adequate to evaluate the set of applications in the meeting.

The SRO's ability to make appropriate assignments to reviewers was the second most favorably rated quality of the peer review process. About 82% to 85% of reviewers indicated they either "strongly agreed" or "agreed" that assignments made appropriate use of the panel's broad expertise for study section assignments.

Favorability rating about the quality of discussion varied across review formats, ranging from 67% to 84% when using the same high standard, i.e., reviewers who "strongly agreed" or "agreed" that the quality of discussion was favorable. **Perceptions of reviewers in face-to-face meetings were most favorable toward the quality of scientific discussion in study sections compared to reviewers who participated in alternative format meetings.** In contrast, reviewers in IAMs were least favorable about the quality of discussion in study section meetings. From previous CSR studies we know that reviewers who participate in IAMs more frequently, tend to be more favorable about IAMs than those who have not had the opportunity to use this alternative review format.

Reviewers were generally favorable about a panel's ability to score or prioritize applications. From 75% to 84% of reviewers either "strongly agreed" or "agreed" that their study section did a good job of scoring applications according to their impact/scientific merit.

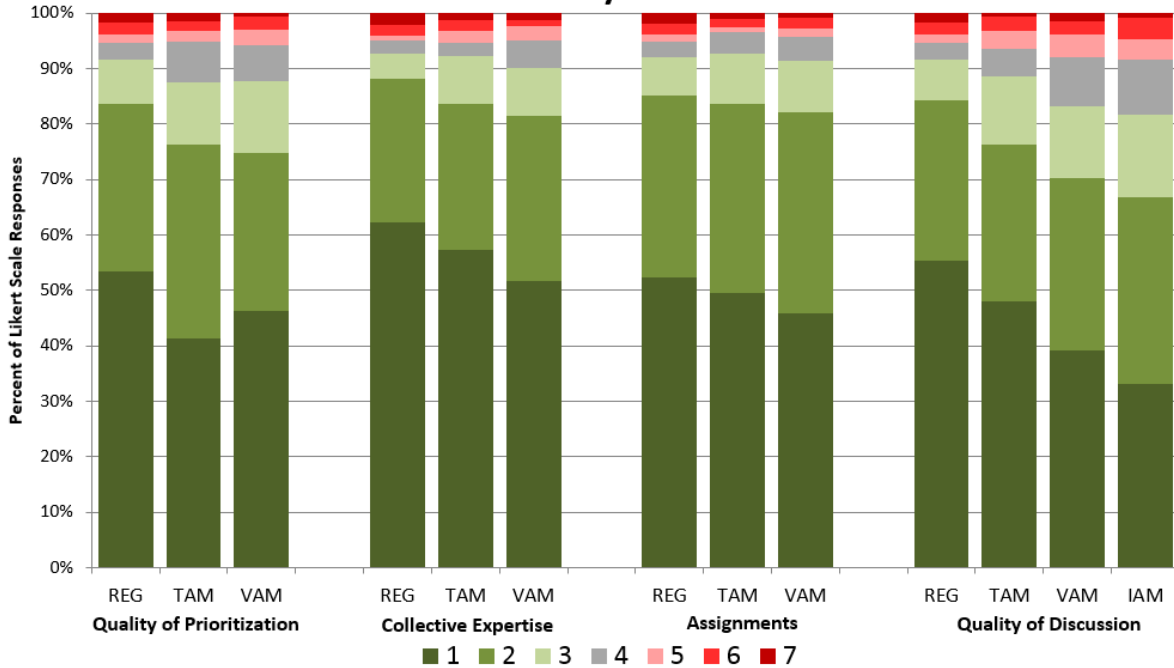
Alternative Meeting Formats

Face to Face Meetings: Looking only at the top-2 Likert-scale intervals, i.e., either "strongly agree" or "agree," reviewers rated performance in face-to-face meetings most highly. Over 80% of reviewers "agreed" or "strongly agreed" that the collective expertise and assignments were appropriate, that scientific discussions supported the panel's ability to evaluate the applications being reviewed, and they were able to score and prioritize applications according to their impact or scientific merit.

Teleconference and Video Assisted Meetings (VAMs): Teleconference and VAMs received 70-84% favorable ratings on the top-2 Likert intervals across the four key study section dimensions. Teleconference and VAMs were rated most highly on roster composition and appropriateness of application assignments.

Internet Assisted Meetings (IAMs): IAMs were not rated quite as favorably. Using the top 2-Likert-scale intervals, 67% "strongly agreed" or "agreed" that the quality of discussion supported the ability of the panel to evaluate the applications being reviewed.

CSR Reviewer Quick Feedback by Meeting Format January 2016



Likert type scale where 1=most favorable to 7=least favorable. Regular (REG – face to face) meeting response rate = 50%, n=7,094, 267 meetings. Teleconference meeting (TAM) response rate = 40%, n=1083, 115 meetings. Video assisted meeting (VAM) response rate = 40%, n=987, 61 meetings. Internet assisted meeting (IAM) response rate = 37%, n=961, 62 meetings.

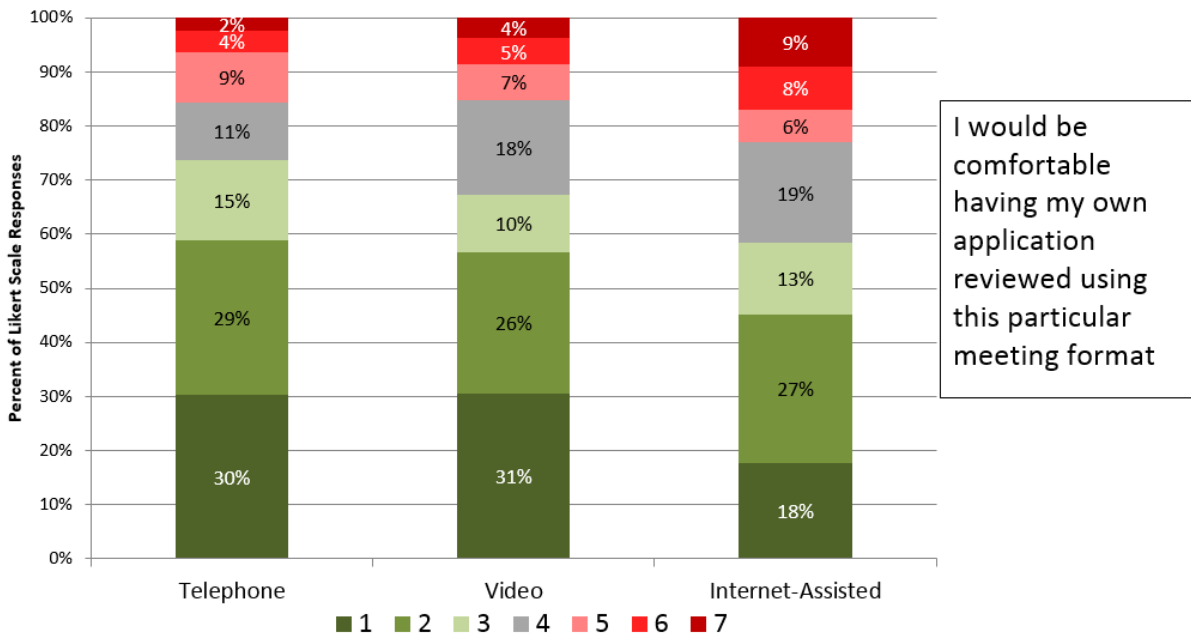
Reviewer Comfort with Alternative Meeting Formats

Teleconference and Video Assisted Meetings (VAMs): When reviewers were asked how they felt about having their own application reviewed in teleconference or VAM formats, about 59% agreed or strongly agreed that they felt comfortable with the teleconference format and 57% with the VAM format.

Internet Assisted Meetings (IAMs): When reviewers were asked how they felt about having their own application reviewed in an IAM, 45% agreed or strongly agreed that they felt comfortable with the format. It is important to note that enhancements have been made to the IAM system subsequent to this survey. With ongoing system enhancements and increasing reviewer experience, IAM assessments are expected to become even more positive over time.

**CSR Reviewer Quick Feedback
January 2016**

Comfort with Own Application being Reviewed in Alternative Meeting Format



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Analysis of General Comments: From Manual Annotation to a Natural Language Processing Approach

Unsolicited text comments may prove to be more informative than responses to the structured questions. In earlier pilots, the number of respondents providing general comments was small enough to manually establish a taxonomy of categories and evaluate the specific polarity of each comments. However, with 3,109 reviewers providing comments on CSR peer review, a manual content analysis is no longer feasible.

Content analysis is a widely used qualitative research technique to interpret meaning from the content of text data. In order to analyze thousands of textual comments, CSR is collaborating with NIH's Center for Information Technology (CIT) to use innovative, computational linguistics to automate the process of capturing and categorizing stakeholder responses as well as assessing the sentiment expressed in these responses.

A summary of the text analysis results suggests that reviewers are generally happy with the peer review process and are particularly like to provide positive comments about their SRO, Chair, and meeting management. The top themes deemed important by reviewers were: (1) a need for more experienced reviewers especially those with statistical, bio statistical, or clinical expertise; (2) a need for coffee and refreshments in study section meetings; and (3) a need for additional training and guidance from CSR on how to do their best on peer review. There was a divergence of opinion about the quality of review using the IAM and VAM formats and some reviewers raised concerns about scoring behavior including calibration and consequences when reviewers vote out of range. The outcome of this analysis provides

guidance on which questions elicit less commentary and therefore could potentially be replaced by another more informative question.

Results should be interpreted as informative with caution as the linguistic models are still being refined.

Results of Quick Feedback for Study Sections

It is important to emphasize that "*Quick Feedback*" surveys are meant to be transparent and provide constructive feedback to study section stakeholders. They are not meant to be judgmental or punitive in any way. CSR hopes that all stakeholders will appreciate receiving feedback to enhance and possibly strengthen their commitment to peer review.

Next Steps

Preliminary analyses of survey results show that CSR reviewers can provide CSR with important feedback near the end of a study section meeting with minimum burden. Results will be analyzed for greater insight into how CSR study section meetings are perceived by reviewers in those meetings.

This evaluation initiative is a beginning step in seeking routine feedback from stakeholders about the quality of peer review. Results will also inform SROs and CSR management about study section performance. A goal of this initiative is to begin to identify features of the peer review process that are working well, features that could use improvement, and features that may be in need of change.

The *Quick Feedback* questions will change over time in response to changing needs for feedback at CSR while keeping some constant to monitor trends. It is hoped that this process will begin a dialogue with reviewers to partner with CSR to identify desirable study section practices and pinpoint specific, measurable attitudes or behaviors that can help improve the quality of peer review. Research and evaluation of peer review outcomes is critical to the mission of CSR. This is one step toward gaining insights into important stakeholder perceptions and behaviors. Other research and evaluation initiatives are underway.

CSR Chiefs and SROs are being provided with immediate and constructive feedback in the form of numerical scores and individual comments. Best practices will be shared among the SRO community and additional training will be provided. The ability to measure results should help morale among SROs and CSR management as well as improve the quality of peer review. Constructive steady feedback with rewards for improved performance should guide CSR to greater levels of achievement and ultimately enhance the quality of peer review. Deploying systematic data collection and thoughtful analysis will help CSR take a more scientific approach to the art and science of peer review.