



## **Serving Effectively on Funding Review Panels: Advice for Statisticians New to the Process**

from the American Statistical Association Committee on Funded Research<sup>1</sup>

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### **Introduction**

The American Statistical Association (ASA) and its Committee on Funded Research (CFR) frequently hear from funding agency program officers about the difficulties of identifying and/or recruiting statisticians to serve on funding proposal review panels. The committee also believes it is important to have more statisticians serving on such review panels as a way to improve the science that an agency ultimately funds. Statisticians on review panels can help address the concern that agencies fund more robust and reliable science with the concerns about reproducible research by addressing a variety of factors, from the framing of the problem and the design of the experiment to specifying the data analysis plan. (See for example this 2017 CFR document, [Statistical Issues Seen in Non-Statistics Proposals](#).)

Having more statisticians serve on review panels requires: (i) program officers understanding what statisticians can contribute to a panel; (ii) program officers being able to identify and successfully recruit statisticians to serve; and (iii) statisticians being able to serve effectively on such panels. This document focuses on the third item. Given that many statisticians are new to the funding review process, this document addresses many questions about statisticians' importance and their roles in the process.

### **Who should seek to serve on a panel?**

Anyone who is a principal investigator (PI), aspires to be a PI, or obtains support from grants should consider it a responsibility and an honor to have a voice in driving the direction of research through service on a review panel. Most funding agencies seek to include a broad membership for their review panels, allowing researchers with a variety of different expertise to be involved. The type of panel you should strive to review for should match your interests and goals. That is, if you primarily collaborate on cancer research, you should seek to review grants that propose cancer studies; likewise, if you primarily derive new statistical theory or methods, you should seek to review proposals that are primarily methodological. There are also several models for engaging in a review panel, so you should seek out

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opportunities that match your background and experience.

### Why serve on a panel?

There are many reasons for serving on a funding review panel, which can be broadly classified as service to the profession and career development. Regardless of the phase of your career and your career path, the benefits of this type of service are numerous.

1. Service to the profession
  - o You are helping to further the scientific field by helping to ensure that the limited funds are invested in the best science
  - o You have the opportunity to help raise awareness of good statistical practice, and can highlight the importance of rigorous statistical methods and reproducibility in research
  - o You may have impact on the culture of a scientific review group through the statistical insight you provide, further impacting the science
2. Career development
  - o Increase your exposure to new and interesting areas of research and applications of statistics. The additional effort required to learn the background is worthwhile and rewarding.
  - o Learn the culture of a particular review group, especially if this group might review your research in the future
  - o Learn about “grantsmanship” - how to effectively write a fundable grant
  - o Meet potential colleagues and collaborators, which could have implications for your own science and perhaps your promotion (networking)
  - o Learn crucial communications skills, including how to communicate to researchers in other fields.
3. As a practical matter, agencies will pay for your travel and lodging and usually provide a modest honorarium.

### How to be selected for a panel?

There are several ways potential reviewers come to the attention of those who organize review panels (e.g. “scientific review office” or “SRO” at NIH and “program officer” at NSF): 1) having an existing grant; 2) being active in the field by speaking at conferences, publishing, etc.; 3) recommendation by a current panel member or the review panel organizer; 4) directly expressing interest to the review panel organizer; and, for NIH, 5) applying through the [early career reviewer program](#). Therefore, it is important to make sure that your colleagues are aware that you’d like to serve. Also, it is OK to reach out directly to the review panel organizer and volunteer. When doing so, be sure to include the qualifications you have to serve on the panel. Remember that good communication skills are essential for review panel service.

Further, the more active you become in a particular area of research, the more likely you are to be selected, as you’ve developed a reputation for being a statistician in that field. One way to build your reputation in a particular area is to publish in subject matter journals (even statistical papers) and to attend subject matter conferences. Getting to know people in that smaller scientific community will help increase opportunities for serving on a review panel.

Additional advice:

1. Subject-matter knowledge generally comes from applying statistics to a subject-matter area for at least a few years, and having actively collaborated with people in the other disciplines, and having an interest in learning about the other disciplines.

2. A statistician who can comment not only on statistical aspects of the review material, but subject matter aspects as well, makes the statistician a valued (and potentially THE most valuable) member of the review panel. The statistician also needs to have a history of being able to communicate (in speaking and writing) statistical aspects in an understandable way to people from other disciplines.
3. An NIH SRO may ask you to serve as an ad hoc member of a study section, an invitation one should accept as such service is a good stepping stone to being a permanent member.

### **How to prepare in advance for serving on a panel?**

There are a few things that you may be able to do prior to joining a review panel, although check with the scientific review officer (SRO) since each agency has different rules and regulations. First, try to understand the culture of the panel by talking with a senior member of your department who has previously served on this kind of panel, the SRO, or other panel members (most panel membership is made public). Second, make sure you are also familiar with the types of grants and general science that the panel discusses. Some panels will allow observers to attend, giving you an opportunity to see how they work. Finally, talk to friends and colleagues to make sure you understand how the process will work.

### **I've been asked to serve on a panel, now what?**

Service on a scientific review panel is a big responsibility and can be a bit overwhelming. When preparing, make sure to block off ample time to review all of the materials provided to you. A careful review will take longer than you might think! As a rough guide, allow 1 to 3 hours per Specific Aim - some reviewers try to review 2-3 R01-type grants per weekend. Some grants may take considerably longer. When the SRO sends information, be sure to read it all - it may contain important review instructions, information about the types of funding mechanisms you'll be reviewing grants for, or other important information (such as how to get reimbursed!). Remember that no two review panels are the same, so even if you've reviewed before, you should still read all of the materials. Also, review resources provided by the different agencies: NSF, NIH, and others provide online resources for new reviewers. Ask the SRO questions, they are always happy to help and would rather ensure you do it right the first time than create more work for you (and for him or herself).

### **Points to consider when reviewing the grant:**

Keep in mind your review serves two major purposes, (i) to help the funder determine whether the proposal is worthy of funding; and, to a lesser extent, (ii) to provide feedback to the applicant, either to improve the application for resubmission or to note points that would improve the research should it be conducted. For both purposes, be sure to examine the statistics in the context of the larger science. This requires that you read the entire grant, not just the statistical sections. The application should be written so that the rationale for and significance of the research are stated clearly. That being said, there should be multiple experts reviewing the grant, allowing you to focus on the study design and statistical approach. Focus on issues that impact the science at large. Because there are multiple ways of approaching analyses, it is important to differentiate between what is wrong versus what is just not the way you would do it. The score should not be impacted by the applicant choosing a different, correct approach if it is motivated or if potential approaches are discussed. Finally, and potentially most importantly, consider whether adequate statistical expertise has been included to support the grant. As much as possible, evaluate both the level of detail provided for statistical analysis and the qualifications of the statistical team. Keep in mind that the ultimate insurance against having a certain aspect cut from the grant by the PI is by having a person listed on the notice of grant award (NGA) as "key personnel". So if it's important for a certain individual, e.g. statistician, to be listed as key personnel, then state this in

the review and cite a reason. If a particular statistician is named and important for the project, then again it's helpful to cite a reason for their qualification. For more guidance on this issue, see the following ASA CFR document, [Statistical Issues Seen in Non-Statistics Proposals](#).

**Points to consider when writing your critique:**

Be concrete and helpful in your statements, so that the researchers have the best opportunity to address the critiques. Express comments as statements rather than questions. Frame any criticism carefully and constructively, keeping in mind the reviewer's role to help proposal writers achieve better science. Respect the time and effort put into a proposal and avoid a negative tone. Also remember that unless you're reviewing a statistical methodology proposal, the majority of those reading the critiques will not be statisticians, so do your best not to be too technical and to avoid stat-speak and jargon as much as possible. Be careful of getting bogged down in minor statistical issues that likely won't impact the ability of the researchers to draw the correct conclusions.

**Points to consider during the discussion:**

Be attentive during the discussions and offer statistical perspectives as appropriate. Remember that if someone already made the point you were going to make, it is okay to say: "Ditto" - the other members of the panel will appreciate it! Plan ahead as to which aspects of your review warrant discussion among the group, and which are OK to just include in the written critique, as there won't be a lot of time for everyone's comments so you'll want to highlight the most important. Then, be able to quantify the severity of the critiques - if you are reviewing with non-statisticians, they often will look to you to help determine the impact of the statistical aspects of the proposed research on the ability to answer the questions of interest. When offering your review, it's important and helpful to state what the application did right as well as (and even before) what they did wrong, for two reasons. First, you're setting the tone -- you have a short amount of time to convince a roomful of strangers to listen to you, and they are more likely to listen if they like you, and they are more likely to like you if you are not a grumpy curmudgeon. Second, this is an opportunity to indirectly instruct other panel members, to let them know what they should do for their own grants rather than just focusing on what they should not do. Similarly, while it's important to raise your concerns, it's also important to pick your battles wisely - if you are always arguing, you will begin to lose credibility among the panel members. This is where having an idea about the relative importance of a critique can be useful.

Good luck, ask questions of the SROs or others who have participated in review panels, and be sure to enjoy the experience!