Science Highlight from the ACC LRI | June 9, 2021

Improving Science Advisory Panels: Results of an Independent Survey of Scientists

Read the new publication

Regulatory agencies often rely on outside experts assembled into panels to peer review science issues, technical analyses, and research results. These science panels employ processes for reviewing scientific work products and deliberating on findings and recommendations which are central to many regulatory decisions. Although valuable input and critical feedback are often obtained from the collective knowledge of an expert group of scientists, there are many pitfalls to this process.

- These pitfalls are often a result of "groupthink" - which can amplify, rather than correct, individual perspectives, leading to increased polarization.
- Other concerns with science panels include, but are not necessarily limited to, panel composition and balance, management of conflicts of interest and bias, depth and focus of charge question (i.e., what questions get asked), and inappropriate blending of science issues with policy choices.

SciPinion designed and conducted a survey of scientists' experiences and opinions on current practices of science advisory panels and on science peer review more broadly, capturing both positive and negative experiences. The Complete Survey and Full Results have been posted as supplemental material to the published manuscript.

- More than 100 scientists responded, 85% hold a Ph.D., and 55% have more than 25 years of experience.
- The largest sector of employment was academia (45%), with many respondents indicating past work for government agencies (63%), industry (47%), consulting (43%), and non-government organizations (22%).

The majority of survey participants indicated the four areas of groupthink (i.e., error amplification, cascade effects, group polarization, and over-emphasis of unimportant shared information at the expense of important unshared information) occurred frequently during panel deliberations.

- Recommendations identified in panel processes to address these shortcomings include 1) effective chairmanship, 2) intentional recruitment of experts and stakeholders from a variety of (sometimes competing) sectors to assure a balance of perspectives and 3) bias transparency (candid declaration of conflicts of interest, unconscious bias training, strict guidelines on sponsorship, and in some cases, recusal/removal of an overly biased panelist).

Other survey findings include:

- 95% of respondents considered it "very important" or "somewhat important" for peer reviewers to have access to underlying raw data for the most critical studies in order to independently analyze results.
- 84% of respondents indicated the criteria for evaluating the quality and reliability of all studies be the same, regardless of their funding source. And 84% also indicated the peer review process should be conducted independently of the review sponsor.
- Respondents noted that clear definitions and procedures for determining consensus are generally lacking, even though participants indicated it was "important" to "very important" for panels to characterize and report the degree of consensus amongst the panel members.

Overall, this survey provides valuable insights into how experts who serve on science peer review panels perceive the strengths and weaknesses of such panels. A table summarizing the overarching recommendations from survey respondents is included in the manuscript.

The authors state "at a period of time where science and facts have been increasingly attacked, decision makers should do all they can to assure their processes for engaging experts to provide insight and peer review is open, honest, transparent and trusted as much as can be. Additional exploration of scientific opinions in these focus areas and considering acting on recommendations identified here will help build this trust in science advisory panels."

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