

CSR's Initiatives to Strengthen Peer Review

Upcoming changes in the peer review of NIH Research Project Grants (RPGs) and Individual Fellowships (Fs)

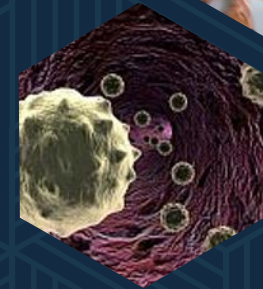
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Director
Center for Scientific Review

National Advisory Child Health and Human Development
Council
September 4, 2024



CSR's Mission

To ensure that NIH grant applications receive fair, independent, expert, and timely scientific reviews - free from inappropriate influences - so NIH can fund the most promising research.

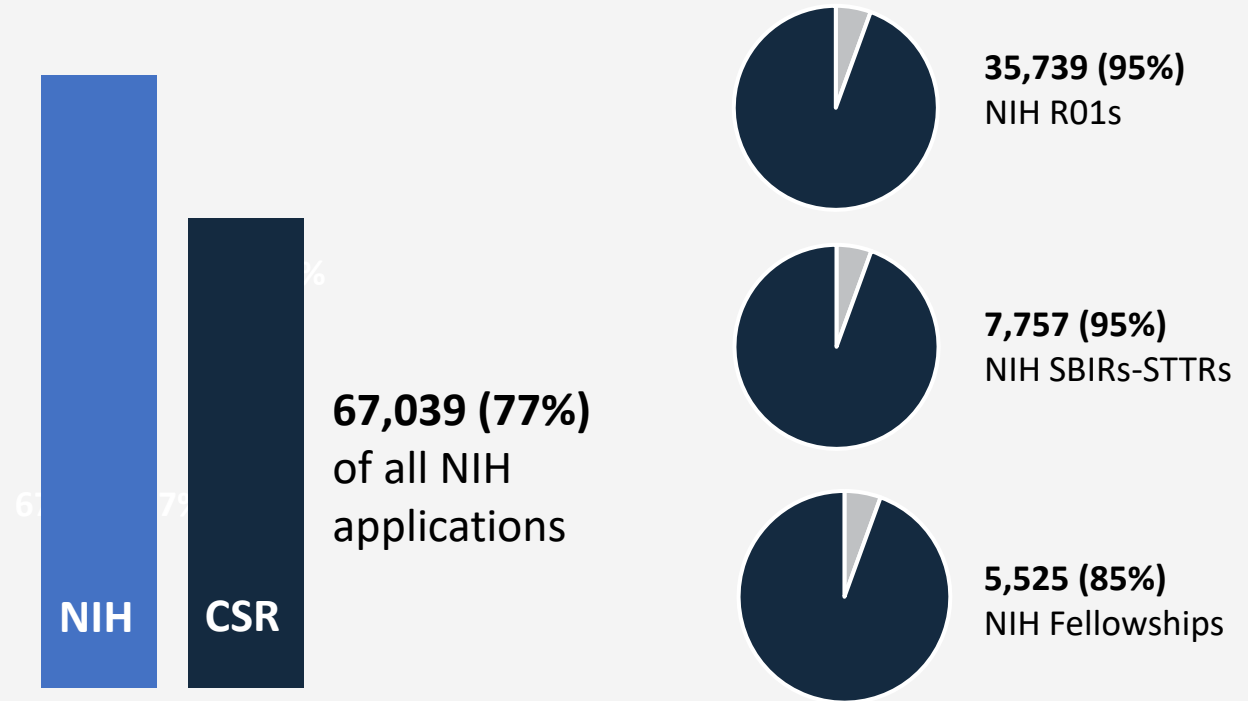


CSR Snapshot (Fiscal Year 2024 numbers)

~19,000 reviewers

~255 Scientific Review Officers

~1200 review meetings



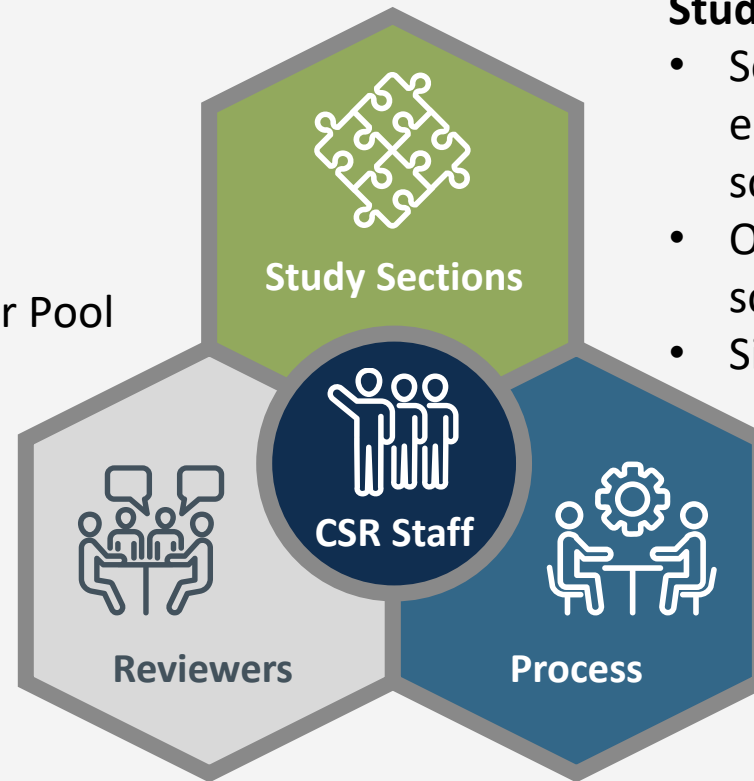
Plus, CSR reviewed **164 special initiatives**, such as:



Since 2019, CSR's Strategic Framework: Quality of Peer Review

Reviewers

- Reviewer Training
- Broaden/Diversify Reviewer Pool
- Incentivizing Service
- Reviewer Evaluation



Study Sections

- Scientific scope (relevance, adapting to emerging areas, not perpetuating stale science)
- Output (identification of meritorious science)
- Size appropriate for competition

Process

- Confidentiality/Integrity
- Fairness/Bias mitigation
- Assignment/Referral of Applications
- Review Criteria and Scoring System



Transparency



Data-driven decisions



Stakeholder engagement



Staff training, development

Capacity building for the future of NIH peer review

Establishing a strong foundation in communications, training and data analytics

Office of Communications & Outreach [2020]



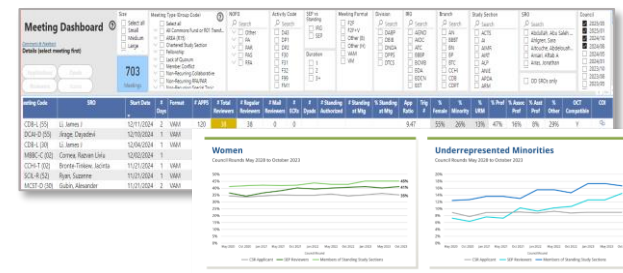
Fostering engagement, transparency, easier access to information for the scientific community

Office of Training & Development [2022]



Centralized, multimedia training resources for study section chairs, reviewers, SROs

Division of Planning, Analysis and Information Management [2021]



Centralized operation to provide analytics, tools to support data-driven decision-making

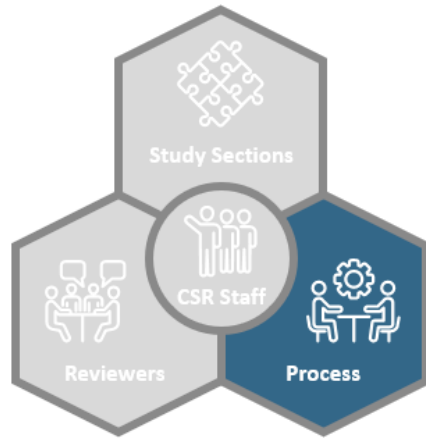
These resources have allowed CSR to develop and implement numerous initiatives to promote fairness, integrity and quality in the NIH peer review process

Some Examples

CSR's initiatives to promote fairness, integrity and quality in peer review

- 1) **Trainings on Bias Awareness/Mitigation and Review Integrity for reviewers** now mandatory for all NIH reviewers prior to participation in study sections
- 2) **Reporting avenue for concerns** with the fairness of the review process
[\[reportbias@csr.nih.gov\]](mailto:reportbias@csr.nih.gov)
- 3) **Broadened the pool of reviewers in multiple dimensions** to ensure fresh perspectives, reduce undue influence or scientific gatekeeping
- 4) **Simplified review framework** for most NIH Research Project Grants
- 5) **Revised review criteria (and application)** for Individual Fellowship Awards

Both effective for applications received on or after January 25, 2025



Simplified Review Framework (SRF) for most RPGs

Main Goals of Simplifying Review Framework

- **Refocus first-level peer review on its singular role of providing advice to the agency regarding the scientific/technical merit of grant applications**
 - Reframes criteria to focus reviewer attention on 3 key questions
 - Removes distractions of certain administrative compliance items
- **Mitigate reputational bias [e.g. institutional reputation, investigator pedigree] in the peer review process**
 - Refocuses evaluation of investigator and environment to be within the context of the proposed research project

Facilitates the overarching goal of peer review: identification of the strongest, potentially highest-impact research

RPG Review: 5 Criteria → 3 Factors

Applications submitted before January 25, 2025

Overall Impact Score based on 5 criteria

- Significance - scored 1-9
- Investigator(s) – scored 1-9
- Innovation – scored 1-9
- Approach – scored 1-9
- Environment – scored 1-9

Applications submitted on or after January 25, 2025

Overall Impact Score based on 3 Factors

- **Factor 1: Importance of the Research** (*should it be done?*)
 - Scored 1-9
- **Factor 2: Rigor and Feasibility** (*can it be done well?*)
 - Scored 1-9
- **Factor 3: Expertise and Resources** (*are the expertise and resources in place to do it?*)
 - Evaluated as “appropriate” or “additional expertise/resources needed”; if additional needs are identified, comments are required
 - Gaps in expertise and/or resources should affect Overall Impact score

*Applies to most RPGs: R01, R03, R15, R16, R21, R33, R34, R36, R61, RC1, RC2, RC4, RF1, RL1, RL2, U01, U34, U3R, UA5, UC1, UC2, UC4, UF1, UG3, UH2, UH3, UH5, R21/R33, UH2/UH3, UG3/UH3, R61/R33

RPG review changes based on extensive input from scientific community

Jan 2020 – April 2021: Working Groups of CSR Advisory Council

- **Initial input gathering through blog posts** (Open Mike, Review Matters), >400 comments, content analyses
- **Convened two CSR Advisory Council working groups** with overlapping membership to consider non-clinical trials (~90% of NIH applications) and clinical trials RPGs.
- **Legal and regulatory guardrails provided:** *5 review criteria (Significance, Investigators, Innovation, Approach, Environment) are defined by PHS C.F.R. 52.h.8– NIH has discretion about how to interpret or group them, and on all matters of scoring.* Working groups held 11 virtual meetings to develop framework and recommendations
- **Full CSR Advisory Council approval** of working group recommendations, publication of report

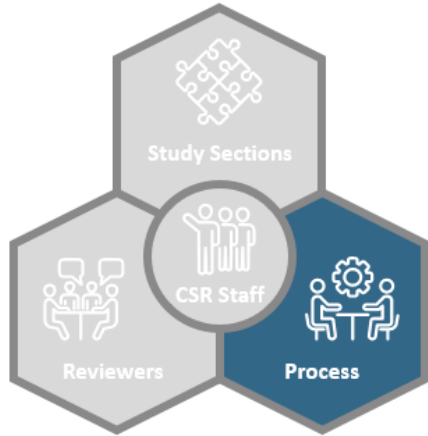
July 2021 – Sept 2022: NIH leadership input

- Internal NIH discussions, input/modifications to the framework, **approval by IC and NIH leadership**

Dec 2022 – March 2023: Public Request for Information (RFI)

- Over 800 responses, from individuals, societies. **Majority of respondents were very supportive - not surprising given that these changes were developed with significant, sustained input from the broader extramural scientific community**
- Minority felt that Factor 3 should be scored; smaller minority suggested blinded reviews
- **Most recommended that CSR develop strong training** resources to socialize the change for reviewers, study section chairs, and scientific review officers

Oct 2023: NIH announced the launch of SRF ([NOT-OD-24-010](#)), effective Jan 2025 receipt dates



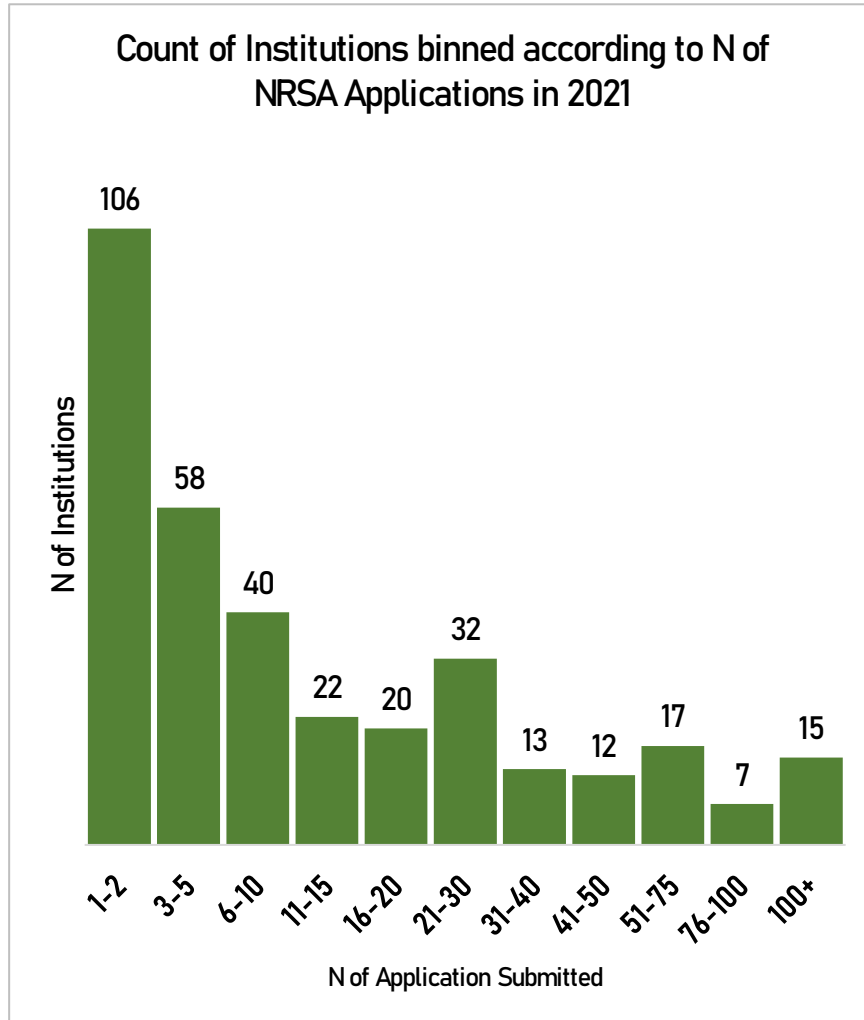
Improving the Review of Individual Fellowship Applications

Goal: Optimize the identification and training of the most promising scientists of the next generation



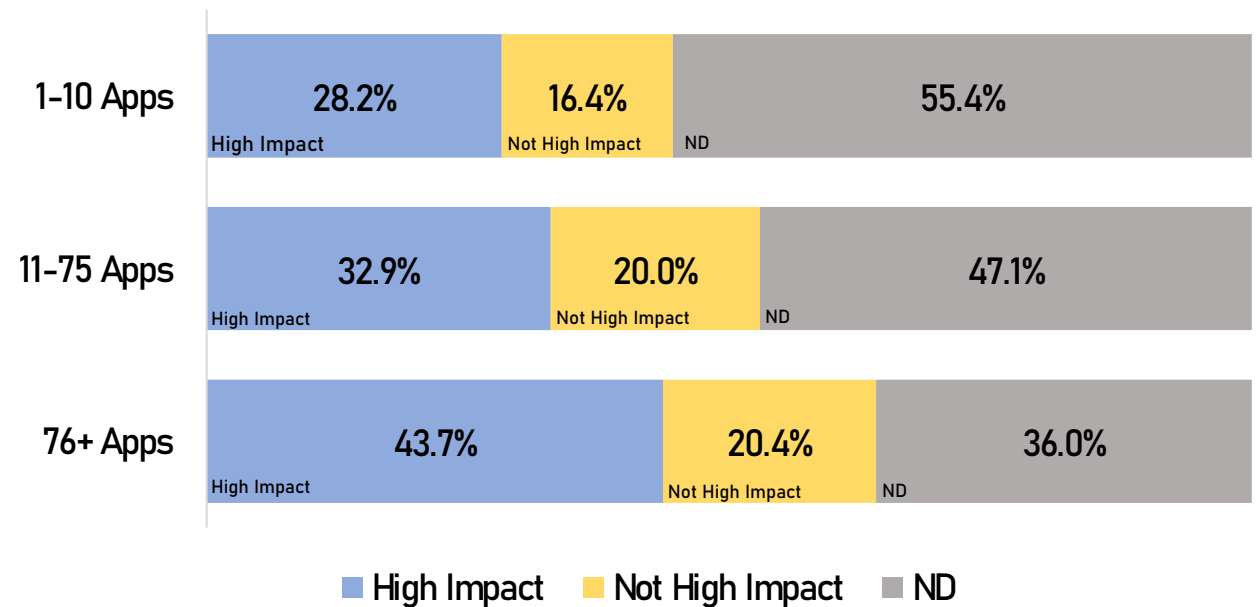
- **Concerns from the scientific community** that NIH is potentially leaving out very promising research scientists of the future because of a review process for NRSA fellowships that favors elite institutions, and senior, well-known sponsors
- **CSR's data analysis of >6,000 applications supported those concerns**
 - A small number of institutions submit a majority of F applications
 - Applications from institutions that submit more Fs have better review outcomes
 - Review outcomes for fellowships improve as the rank of the sponsor increases

A small number of institutions submit a majority of NIH F applications

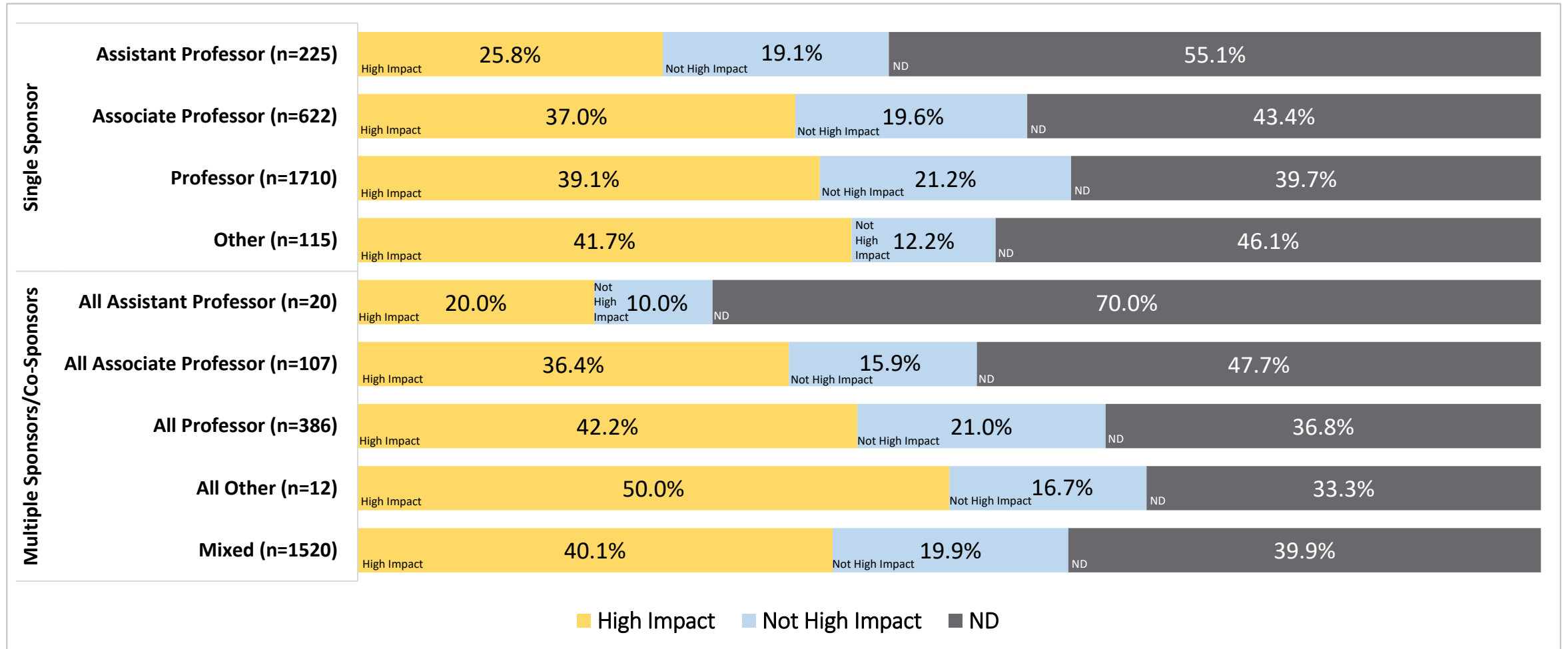


Applications from schools that submit more applications have better review outcomes

NRSA review outcomes according to the number of applications the applicant organization submitted in 2021



Review outcomes improve as the academic rank of the sponsor rises



Fellowship Review: 5 Criteria → 3 Criteria

Achieved through similar process of extensive community input/engagement

Current

Overall Impact Score based on 5 criteria

- Fellowship Candidate
- Sponsors, Collaborators, Consultants
- Research Training Plan
- Training Potential
- Institutional Environment & Commitment to Training

Applications submitted on or after Jan 25, 2025

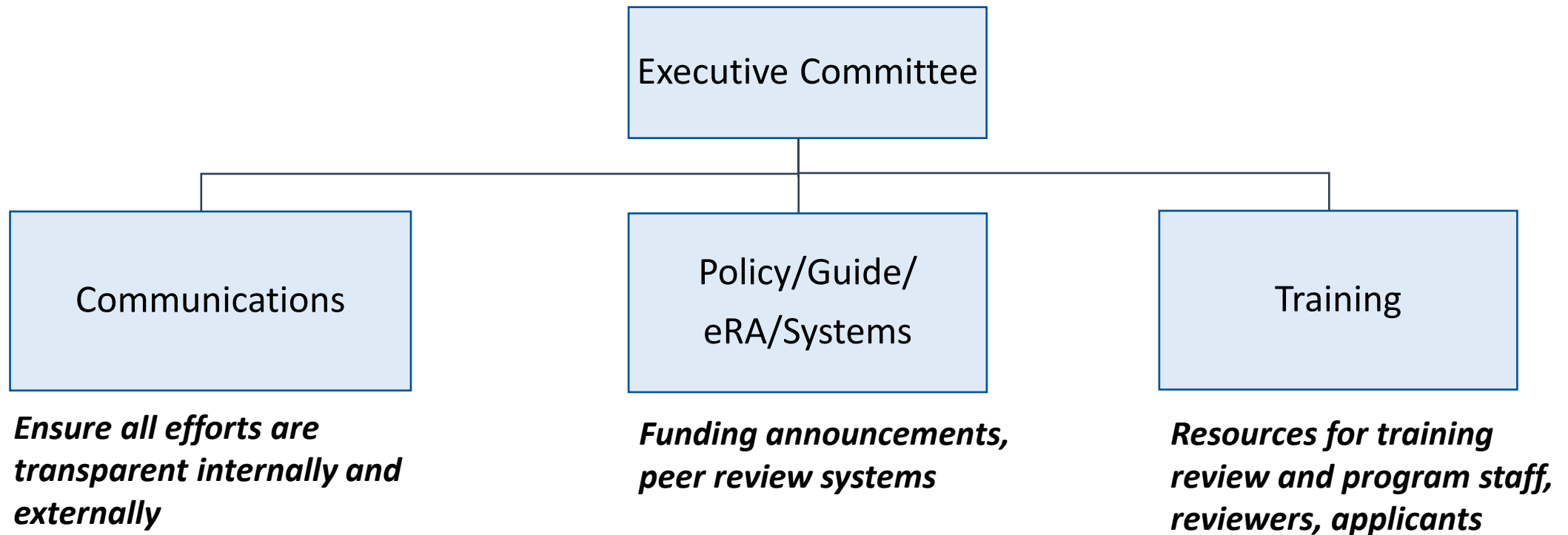
Overall Impact Score based on 3 criteria

- **Candidate Preparedness and Potential**
 - Wider range of indicators of scientific potential and preparedness
- **Research Training Plan**
- **Commitment to Candidate**
 - Evaluations of the sponsor and environment framed in terms of their contributions to the applicant's scientific training. **Sponsor's extramural funding is not considered by peer reviewers.**

Revised fellowship application

- Aligned with the new criteria for more emphasis on quality of the training plan; **grades not required** or allowed
- Shorter, more structured, targeted, reduces boilerplate language

Trans-NIH implementation committees for both RPG and F changes with deep, multidimensional domain expertise in peer review, communications, policy, eRA systems, reviewer training, staff training



Major launch of training for reviewers, chairs – Spring 2025

Learn more on NIH's one-stop shop sites for RPGs, Fellowships

Register for public webinars, view recorded webinars, resources, FAQs, and more

Research Project Grants (RPGs)

<https://grants.nih.gov/policy/peer/simplifying-review.htm>

The screenshot shows the NIH Grants & Funding website. The header includes the NIH logo and 'GRANTS & FUNDING NIH Central Resource for Grants and Funding Information'. The navigation menu has 'HOME', 'ABOUT GRANTS', 'FUNDING', 'POLICY & COMPLIANCE', and 'NEWS & EVENTS'. The breadcrumb trail is 'Home » Policy & Compliance » Peer Review Policies and Practices » Simplifying Review of Research Project Grant'. The main content area is titled 'Simplifying Review of Research Project Grant Applications' and includes a summary paragraph and a numbered list of three key changes: 1. Enabling peer reviewers to better focus on answering the key questions necessary to assess the scientific and technical merit of proposed research projects; 2. Mitigating the effect of reputational bias by refocusing the evaluation of investigator/environment to within the context of the proposed research; 3. Reducing reviewer burden by shifting policy compliance activities to NIH staff. A 'Background' link is visible at the bottom of the content area.

Questions? Simplifiedreview@nih.gov

Fellowships

<https://grants.nih.gov/policy/peer/revisions-nih-fellowship-application-review-process.htm>

****Register for the Sept 19 webinar****

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Questions? FellowshipReview@mail.nih.gov

Learn more about other CSR initiatives and priorities

NIH Center for Scientific Review

What are you searching for?

For Applicants | For Reviewers | News & Policy | Study Sections | Review Panels & Dates | About CSR

- Learn About the Benefits of CSR's Early Career Reviewer (ECR) Program
- Proposed Changes to NIH Peer Review
- See CSR's Initiatives to Address Bias in Peer Review

Find a Study Section

Enter Keyword or Title

- or - Use the Assisted Referral Tool

For Applicants
Explore resources to assist in the planning, writing, and

For Reviewers
Explore tools and guidance for the successful reviewing.

CSR's Website: <https://public.csr.nih.gov/>

- CSR's 2022-2027 Strategic Plan
 - Data, full reports, analyses, e.g.
 - Upcoming changes in the review of RPGs, fellowships
 - Actions to address bias in peer review
 - Early Career Reviewer (ECR) program
 - In-person versus Zoom meeting evaluation
 - Reviewer demographics
 - CSR Advisory Council, Council working group reports
- And much more.....

Q/A, Discussion, Comments

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