



# CSR Advisory Council Working Group Interim Report: Review of NRSA Fellowship Applications

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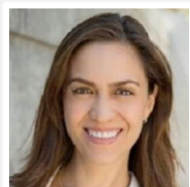
## Background and Charge

- Implement changes to the peer review process to make it more fair, effective, and efficient. – *Goal 4, CSR Strategic Plan 2022-2025*
- Persistent concerns that fellowship reviews may disadvantage some applicants who are in fact highly qualified led CSR in September 2021 to convene a WG on fellowship review, advisory to CSRAC.

### Charge

- Evaluate the fellowship review process and making recommendations to make it as effective and fair as possible for all.

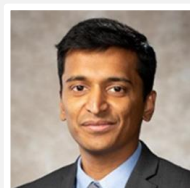
## CSR Advisory Council



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**Elizabeth Villa, Ph.D.**

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San Diego



**Narasimhan Rajaram, Ph.D.**

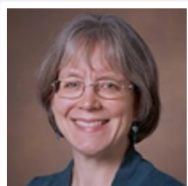
University of Arkansas at  
Fayetteville

## Working Group Ad Hoc



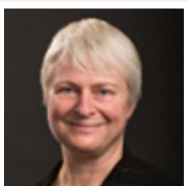
**Michael Burton, Ph.D.,**

University of Texas at Dallas



**Katherine Friedman, Ph.D.**

Vanderbilt University



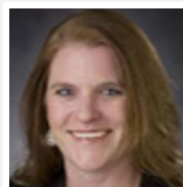
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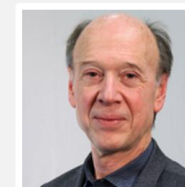
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## NIH Staff



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**Ericka Boone, Ph.D.**

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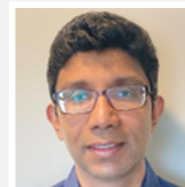
**Alison Gammie, Ph.D.**

Division of Training, Workforce  
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National Institute of General  
Medical Sciences



**Lystranne Maynard-Smith, Ph.D.**

Center for Scientific Review



**Cibu Thomas, Ph.D.**

Center for Scientific Review

# Working Group Process

| Activities |                                                           | External Input                                          |
|------------|-----------------------------------------------------------|---------------------------------------------------------|
| 9/20/21    | <b>Meeting 1</b> Charge, introduction                     | I. Informal consultations with OER and OGC              |
| 9/24/21    | <b>Meeting 2:</b> planning                                | II. Data on fellowship applications and review outcomes |
| 11/8/21    | <b>Meeting 3:</b> WG concerns, request for data           | III. Content analysis of blog comments                  |
| 12/16/21   | <b>Meeting 4:</b> Brainstorming ideas<br>Subgroups formed |                                                         |
| 1/6/22     | Blog inviting community ideas                             |                                                         |
| Jan 2022   | Subgroup meetings                                         |                                                         |
| 2/1/22     | <b>Meeting 5:</b> subgroups reports                       |                                                         |
| 3/10/22    | <b>Meeting 6:</b> polishing ideas                         |                                                         |

# Highlights of public comments

## Concerns/comments on the process

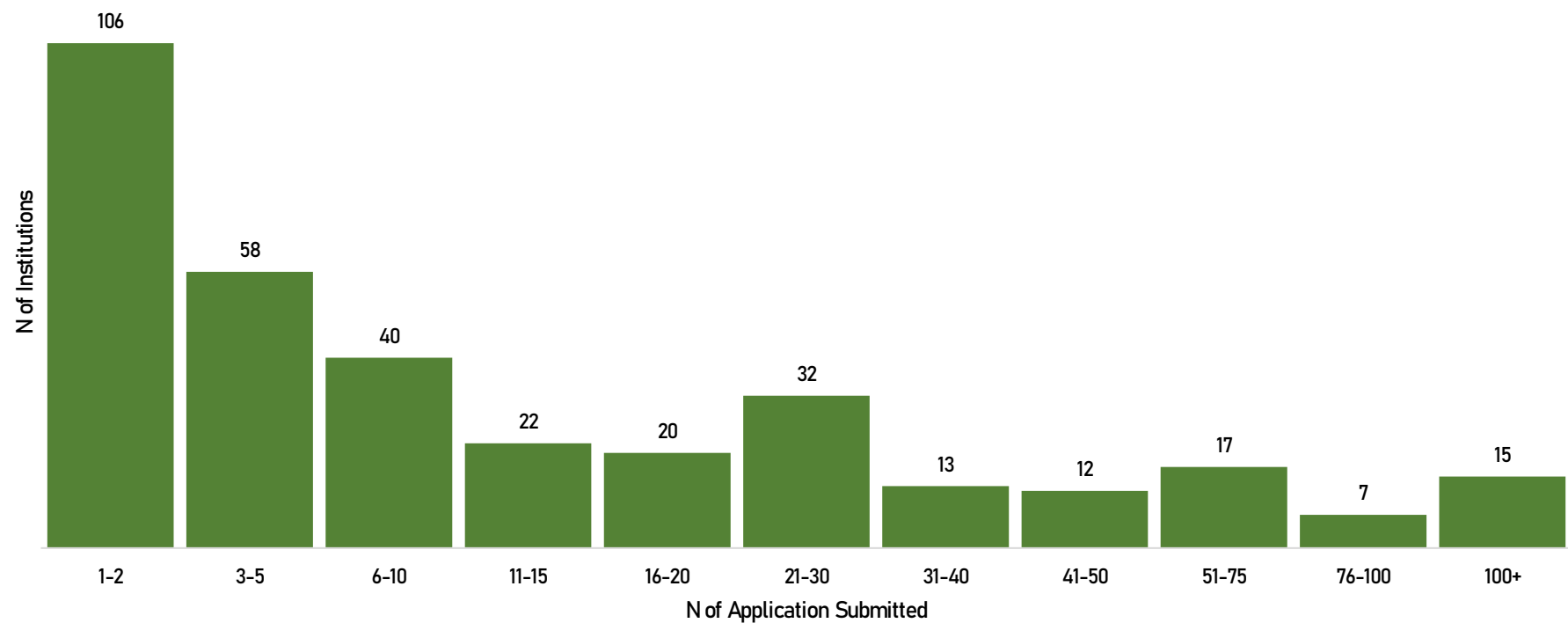
- There is bias against junior faculty mentors, women and those from under-represented groups
- The current review process deeply biases awards to senior mentors/sponsors and extremely well-funded labs
- Institutional bias towards large universities with ample resources perpetuate the idea that the rich get richer and the poor get poorer in NIH funding.
- Junior faculty are more involved and supportive than larger labs with more significant track records.

## Suggestions

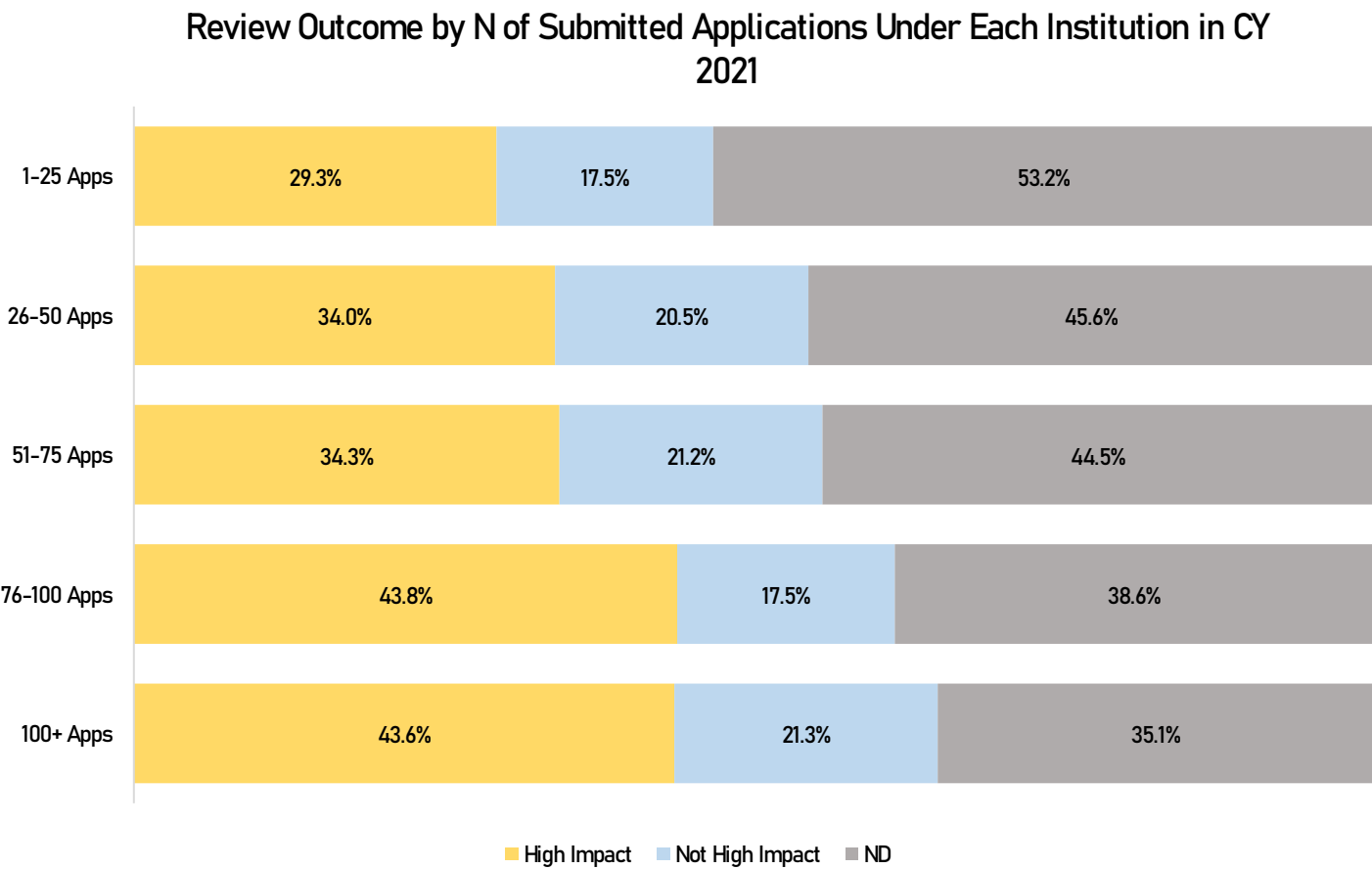
- Requirement for undergraduate grades should be eliminated
- Reviewer training needs to be reframed so that fellowship reviewers are not assessing trainee research plans like they would for R01
- Several respondents noted that the quality of the science should be the main criteria
- Reviewers need to be trained to provide constructive feedback to trainees and not just harsh comments
- Mandate the bias awareness training module for all CSR reviewers, chairs, and SROs.
- Explore creating a separate bias awareness training module specifically for fellowship review.

Applications are highly concentrated in a small number of Institutions. Fifteen institutions submitted over 100 applications each, accounting nearly 29% of the 6676 applications received in 2021. Of the 15 institutions that submitted over 100 applications each, 12 receive over \$500M/year in NIH funding.

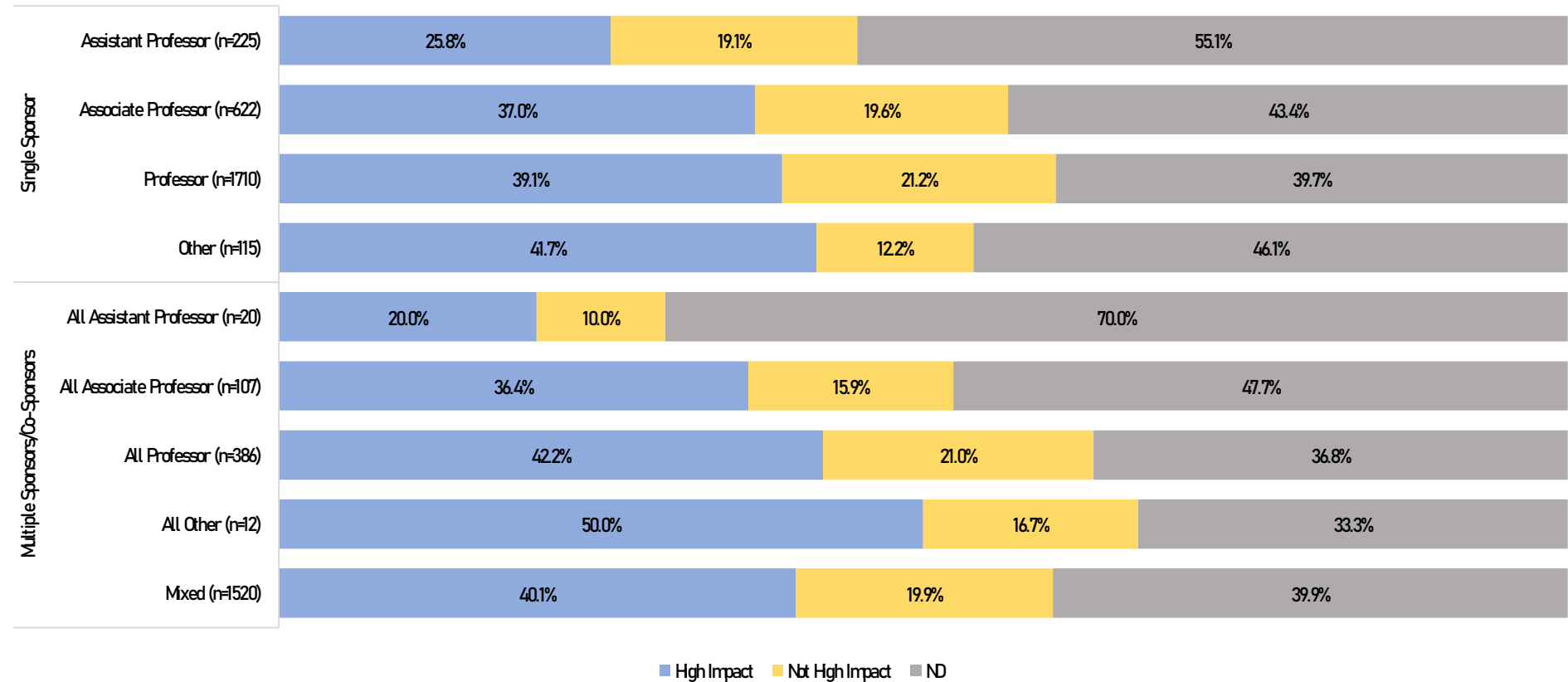
Distribution of Institutions, by N of Submitted Applications from 2021/01 to 2021/10 council rounds



# Applications from institutions that submitted many fellowship applications have better review outcomes compared to those from institutions that submitted low number of fellowship applications



Academic rank: Review outcomes steadily improve as the academic rank of the sponsors rises. Multi-sponsor all-assistant professor applications fare especially poorly.



# Statutory basis for review criteria for NRSA fellowship applications

The criteria for the review of NRSA fellowship applications derive from the NRSA regulation at 42 CFR 66.106 :

*(a) Within the limits of funds available, **the Secretary shall make Awards** to those applicants: (1) Who have satisfied the requirements of §66.105; and (2) Whose proposed research or training would, in the judgment of the Secretary, best promote the purposes of section 487(a)(1)(A) of the Act, **taking into consideration among other pertinent factors:***

- (i) The scientific, technical, or educational merit of the particular proposal;*
- (ii) The availability of resources and facilities to carry it out;*
- (iii) The qualifications and experience of the applicant; and*
- (iv) The need for personnel in the subject area of the proposed research or training.*

# NIH Fellowship review criteria derive from 42 CFR 66

## **“considerations” from 42 CFR 66.106**

- i. The scientific, technical, or educational merit of the particular proposal;
- ii. The availability of resources and facilities to carry it out;
- iii. The qualifications and experience of the applicant; and
- iv. The need for personnel in the subject area of the proposed research or training.

## **Current NIH standard NRSA review criteria**

- 1. Fellowship Applicant
- 2. Sponsors, Collaborators, and Consultants
- 3. Research Training Plan
- 4. Training Potential
- 5. Institutional Environment & Commitment to Training

## Ideas from the WG

**Goal:** level the playing field, encourage applications from a wider range of schools and applicants.

### **Ideas for change in multiple aspects of review:**

- application materials
- criteria
- review processes
- outreach
- reviewer training

## Suggested revisions to application materials

- Modify the Biosketch for F applicants to align with the proposed criteria for evaluating the applicant.
  - A. Personal statement
    - I. Scientific Interests
    - II. Career Goals
    - III. Fellowship Vision
  - B. Contributions to Science
  - C. Fellowship Qualifications
  - D. Honors
  - E. Special Circumstances (optional)
- Allow letter from an Institutional official RE special circumstances that might affect trainee

# Proposed revisions to criteria

## Current

1. Fellowship Applicant
2. Sponsors, Collaborators, and Consultants
3. Research Training Plan
4. Training Potential
5. Institutional Environment & Commitment to Training

## Proposed

1. Applicant qualifications, scientific research interests, and fellowship goals
2. Science and scientific resources
3. Training plan and training resources

# 1. Applicant qualifications, scientific research interests, and fellowship goals

**WG goals:** make it possible for strong applicants who have less strong conventional academic backgrounds to score well.

## Draft criterion 1

### 1. Applicant qualifications, scientific research interests, and fellowship goals

- Score the research interests, professional goals, and qualifications of the applicant.
- Evaluate the readiness of the applicant to undertake the proposed training and their capacity to benefit from the fellowship. In evaluating the applicant qualifications, consider ***not only their accomplishments so far***, but additional factors that bear on ***how likely it is that they will substantially benefit from the proposed fellowship*** including: a) the breadth and depth of scientific understanding they convey in their statements of research interest and fellowship goals and b) personal characteristics such as determination, persistence, and creativity.

## 2. Science and scientific resources

**WG goals:** Diminish the influence of sponsor/institutional reputation. Encourage reviewers to evaluate the sponsor and environment as a “scientific resources”.

- Eliminate “sponsor” as a separate criterion.
- Eliminate “institutional environment” as a separate criterion

## Draft criterion 2

### 2. Science and scientific resources

Score the quality of the proposed science and scientific resources based on your evaluation of the following:

- the scientific rigor and feasibility of the proposed project.
- how well the project serves the applicant's training goals and training needs
- the extent to which needed technical and scientific resources are specified and are realistically available to the applicant.
- the plan for how the sponsor/training team will provide the scientific knowledge and scientific guidance necessary for the applicant to successfully complete the proposed project

### 3. Training plan and training resources

**WG goals:** Diminish the influence of sponsor/institutional reputation. Encourage reviewers to evaluate the sponsor and environment as a “training resources”. Direct reviewers to evaluate the teaching, training contributions of the sponsor and institution.

- Eliminate “sponsor” and “institutional environment” as a separate criteria.

## Draft criterion 3

### 3. Training plan and training resources

Score the feasibility and quality of the proposed training based on the training plan and training resources. Do so by evaluating the following considerations:

- How well the proposed training program serve the applicant's training goals and needs
- How much of a difference the training would make in increasing the likelihood that the candidate will become a productive biomedical research scientist
- The extent to which necessary institutional training resources are well-specified and available. Consider the practical availability of resources.
- The plan for how the sponsor/training team will provide the teaching and mentorship necessary for the applicant to advance as a scientist. Consider the training philosophy, training commitment, time commitments and practical accessibility of the training personnel.
- Whether sufficient financial resources (regardless of source) will be available to support the training

## Suggested revisions to review processes

- Cluster applications to allow appropriate framing of criteria for early career sponsors and less resourced institutions.
- Change the order in which information is presented, put institutional information last

## Ideas to Improve NIH outreach and reviewer training

1. Target outreach to schools with fewer resources, MSIs, schools with low frequency of F applications. Should partner with ICs.
2. Develop outreach material accessible online
3. Reviewer training
  - Evaluate the application on its training merits, not on sponsor reputation
  - Be careful of hurtful or discouraging language in reviews
  - Make sure reviewers understand that non-academic research career goals are perfectly acceptable

## Council Discussion

The WG would appreciate discussion and reactions, especially regarding these ideas:

- Eliminate the Sponsor/collaborator and Institutional Environment/commitment to training criteria.
- Explicitly allow a wider range of career paths
- Have reviewers consider “the delta”; how much difference would the fellowship make
- Eliminate grades as indicators of qualifications
- Encouraging a statement of applicant qualifications that extends beyond courses, grades and publications
- Allowing an optional statement of special circumstances (with option to have the school submit a separate letter)