



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

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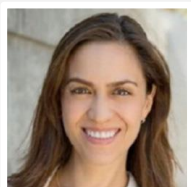
Background and Charge

- 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.

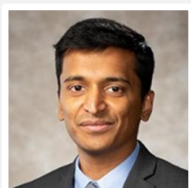
CSR Advisory Council



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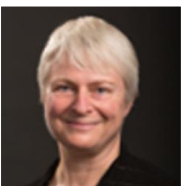
Michael Burton, Ph.D.,

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Yale University



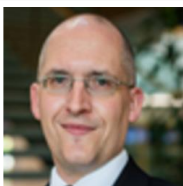
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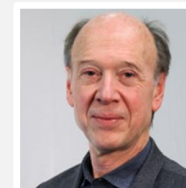
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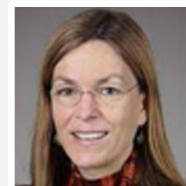
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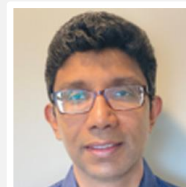
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Working Group Process

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

Highlights of public comments

Concerns/comments on the process

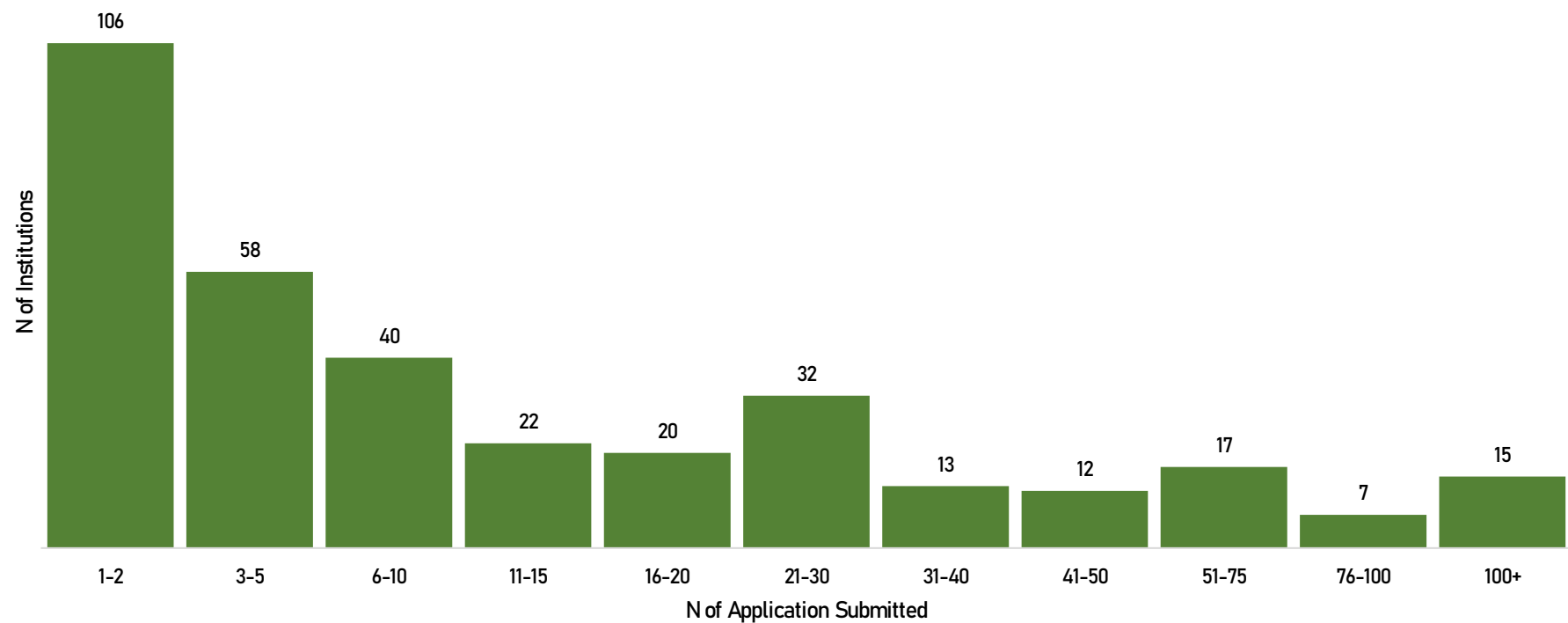
- There is bias against junior faculty mentors, women and those from under-represented groups
- The current review process deeply biases awards to senior mentors/sponsors and extremely well-funded labs
- Institutional bias towards large universities with ample resources perpetuate the idea that the rich 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

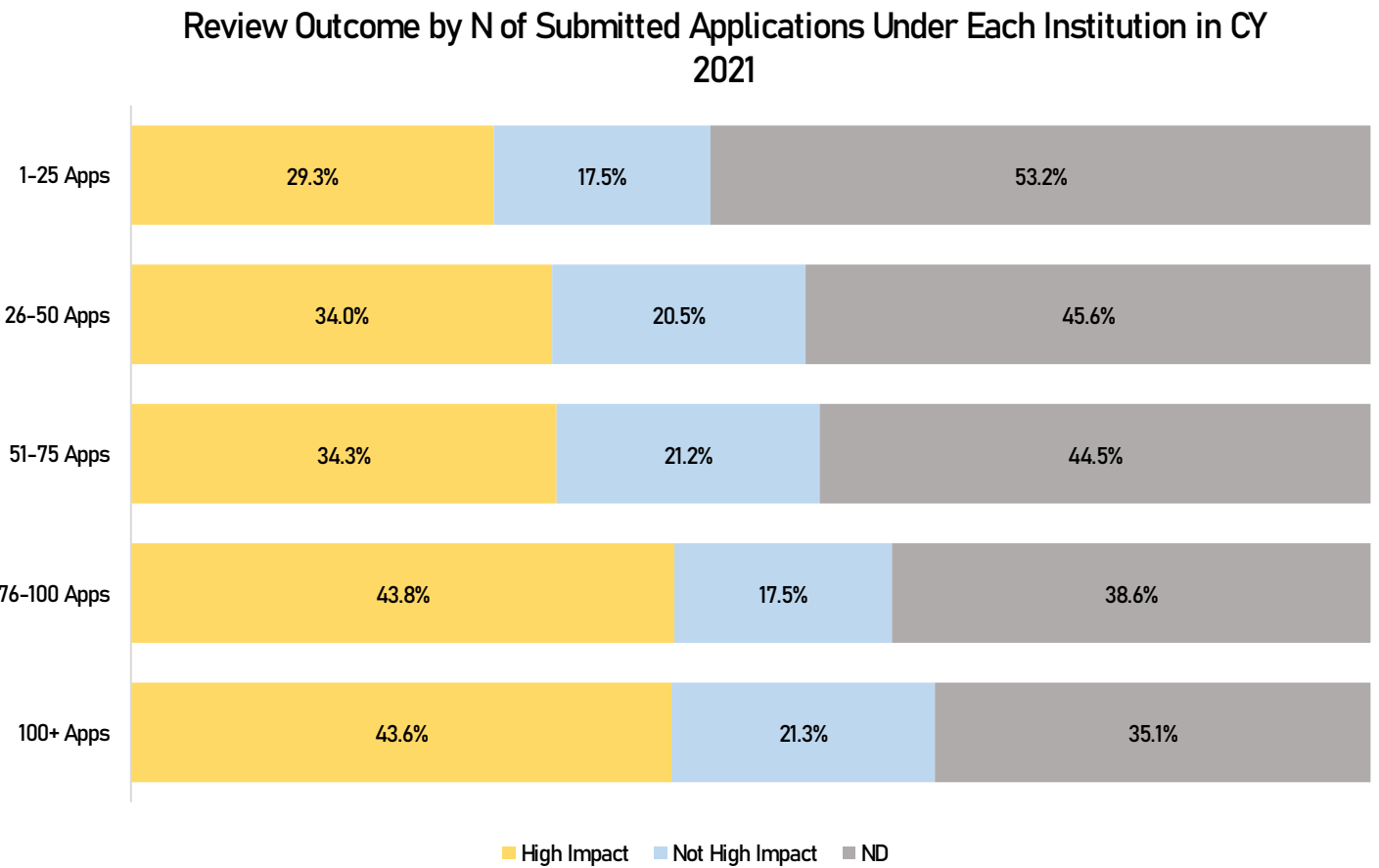
- Requirement for undergraduate grades should be eliminated
- Reviewer training needs to be reframed so that fellowship reviewers are not assessing trainee research plans like they would for R01
- Several respondents noted that the quality of the science should be the main criteria
- Reviewers need to 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.

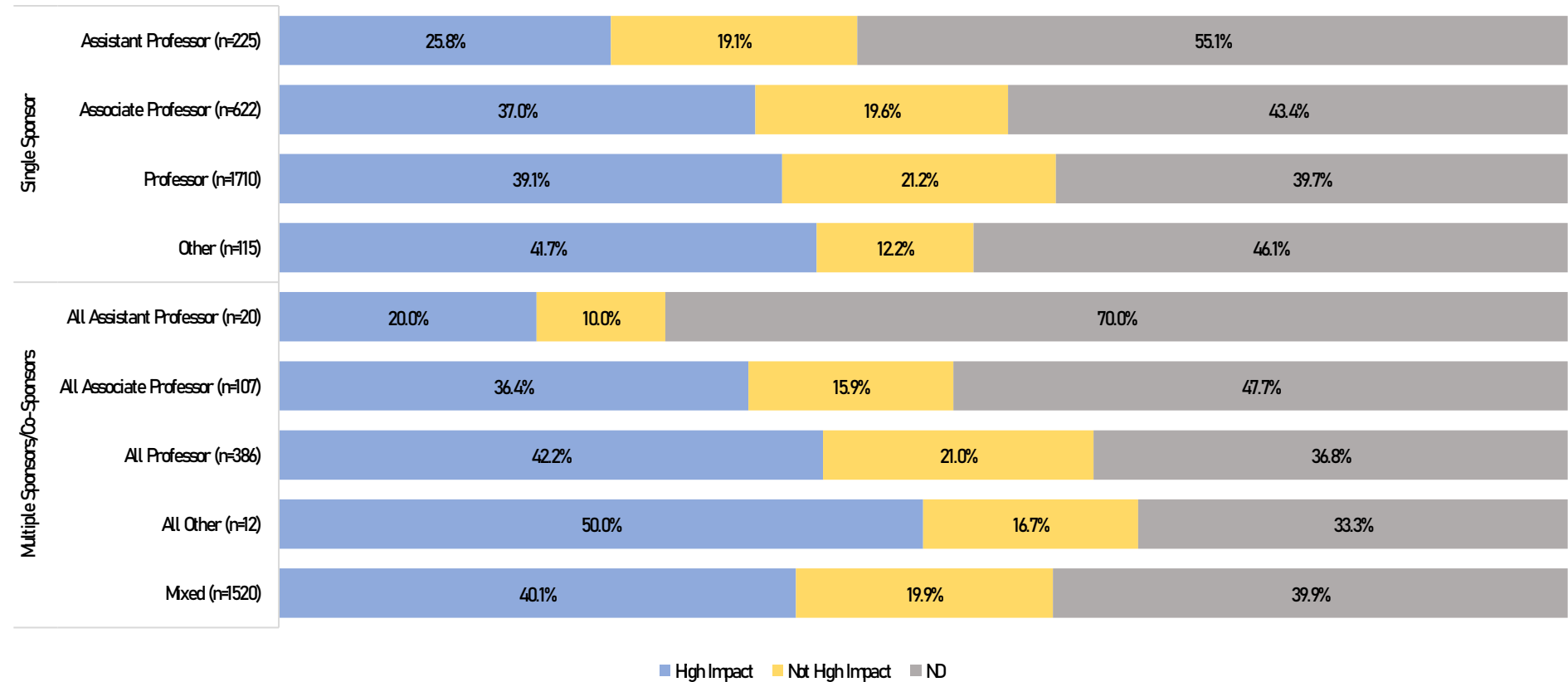
Distribution of Institutions, by N of Submitted Applications from 2021/01 to 2021/10 council rounds



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)