Conclusions of the CSRAC Working Group

NIH is potentially leaving out highly promising young scientists because the NRSA process favors elite institutions, well-known scientist sponsors, and over emphasizes traditional markers of early academic success.   To remedy this:

1. **Change the review criteria**
   a) Better focus reviewers on key assessments
   b) Define criteria to give less advantaged applicants a better chance—without disadvantaging others
   c) Reduce bias in review by reducing inappropriate consideration of sponsor and institutional reputation

2. **Change the fellowship application** (Fellowship supplement to the PHS 424)
   a) Align the application with the review criteria—provide the information needed, eliminate what is not needed, make clear where information should appear
   b) Shorten it, reduce redundancy

Center for
Scientific Review

Objectives of the changes

1. **Better focus reviewer attention on three key assessments**: the fellowship candidate's preparedness and potential, research training plan, and commitment to the candidate.

2. **Ensure that a broad range of candidates and research training contexts** can be recognized as meritorious by clarifying and simplifying the language in the application and review criteria.

3. **Reduce bias in review** by emphasizing the commitment to the candidate, without undue consideration of sponsor and institutional reputation.

NIH Center for Scientific Review

Request For Information (RFI) Published April 2023

Outreach to encourage input via a NIH Guide Notice, blogs, social media, staff outreach, and direct messages to educational institutions

- Responses: 147 individuals, 10 scientific societies, 7 universities

Public input was supportive:

- General agreement that restructuring the criteria would result in a fairer review process and supported the proposed restructuring of the application

- Suggested a need to clarify some aspects of the Candidate criterion and the distinctions between Criterion 2: (Science and Scientific Resources) & Criterion 3: (Training Plan and Training Resources)

- Suggested clarifying what information should be provided in the various application sections

Revisions to the initially proposed criteria and application were made in response

Content analysis report: https://public.csr.nih.gov/sites/default/files/2023-09/NRSA_RFI_Analysis_Sept_2023.pdf

Changes to criteria in response to public input through the RFI

- Concepts were preserved (color coding – not intended to read)

- Changed the titles to address confusion about differences between 2 & 3

- Simplified – in alignment with CSR's goal of simplifying review criteria and giving evaluative prompts

Recommended criteria for the review of NRSA fellowship applications

Overall impact score: Score the overall scientific and educational merit of the proposal. Use the three review criteria defined below to judge how much the fellowship will enhance the biomedical research capabilities of the applicant and increase the likelihood they will become a productive research scientist.

1) Scientific potential, fellowship goals, and preparedness of the applicant
- Evaluate the breadth and depth of scientific understanding the applicant conveys in their statements. To what extent does the candidate articulate the importance of their science and demonstrate an ability to study that problem in a rigorous scientific manner.
- Evaluate the preparedness of the applicant to undertake the proposed training and their capacity to benefit from the fellowship. Evaluate their accomplishments in the context of their stage of training and the scientific opportunities they have had.
- Evaluate the applicant's scientific potential. Consider their trajectory in the context of their opportunities. Also consider other factors that bear on their potential to succeed, such as determination, persistence, and creativity.

2) Science and scientific resources
- Evaluate the quality of the proposed science. Assess the depth of understanding of the scientific background and the scientific rigor and feasibility of the approach.
- Evaluate the extent to which needed technical, scientific, and clinical resources are specified and are realistically available to the applicant.
- Assess whether the scientific expertise of the mentorship team is appropriate for the proposed science and whether the role of each mentor is clearly defined.
- Evaluate how well the proposed scientific project serves the applicant's training goals.

3) Training plan and training resources
- Evaluate whether the applicant clearly defines their career goals and whether the training plan is linked to them.
- Evaluate whether the applicant has clearly defined areas of needed growth and/or weakness. These could include specific scientific skills and knowledge and other professional needs such as communication, teaching, and mentorship skills.
- Evaluate the training environment for this applicant. Assess whether the necessary institutional training resources are well-specified and available, specifically the practical availability of resources.
- Evaluate whether the trainee articulated a coherent and cohesive plan for interacting with sponsors and mentors.
- Assess whether the sponsor presents a strong pedagogical plan appropriate to the needs and goals of the applicant. Please include an evaluation of the training philosophy of the sponsor, their approach to training, time commitments and their accessibility.
- Evaluate and comment on what impact completion of the training plan will make in meeting the scientific development needs of the applicant and aid them in achieving their career goals.

Recommended and approved criteria for the review of NRSA fellowship applications

Overall impact score: Evaluate the overall merit of the application considering the three review criteria areas defined below. For each criteria area, provide a score and comments addressing the elements listed.

1) Candidate's Preparedness and Potential
- Evaluate the candidate's preparedness for the proposed research training plan.
- Assess whether the candidate and sponsor statements as well as the referee letters provide convincing evidence that the candidate possesses qualities (such as scientific understanding, creativity, curiosity, resourcefulness, and drive) that will improve the likelihood of a successful research training outcome.
- Evaluate the candidate's potential to benefit from the fellowship research training plan and to transition to the next career stage in the biomedical research workforce.

2) Research Training Plan
- Assess the rigor and feasibility of the research training project and how completion of the project will contribute to the development of the candidate as a research scientist.
- Evaluate the goals of the overall research training plan and the extent to which the plan will facilitate the attainment of the goals.
- Discuss whether the research training plan identifies areas of needed development and contains appropriate, realistic activities and milestones to address those needs.
- Consider whether the sponsor(s), scientific environment, facilities, and resources are adequate and appropriate for the proposed research training plan.

3) Commitment to Candidate
- Assess whether the sponsor(s) presents a strong mentoring plan appropriate to the needs and goals of the candidate.
- Evaluate the extent to which the sponsor(s) and organizational commitment is appropriate, sufficient, and in alignment with the candidate's research training plan.
- Consider whether the level of commitment provided will contribute to the successful completion of the proposed plan and allow the candidate to advance to a productive career in the biomedical research workforce.

NIH Center for Scientific Review

Revised Peer Review Criteria – 3 criteria replace 5

1. **Candidate's Preparedness and Potential**
   - Discuss the candidate's preparedness for the proposed research training plan. Consider the context, for example, the candidate's stage of training and the opportunities available.
   - Assess whether the candidate and sponsor statements, as well as the referee letters, provide convincing evidence that the candidate possesses qualities (such as scientific understanding, creativity, curiosity, resourcefulness, and drive) that will improve the likelihood of a successful research training outcome…

2. **Research Training Plan**
   - Assess the rigor and feasibility of the research training project and how completion of the project will contribute to the development of the candidate as a research scientist.
   - Evaluate the goals of the overall research training plan and the extent to which the plan will facilitate the attainment of the goals…

3. **Commitment to Candidate**
   - Assess whether the sponsor(s) presents a strong mentoring plan appropriate to the needs and goals of the candidate.
   - Evaluate the extent to which the sponsor(s) and organizational commitment is appropriate, sufficient, and in alignment with the candidate's research training plan…

NIH Center for Scientific Review

Changes to the fellowship application

1. **Eliminate grades** (request courses completed)

2. **Revise the Applicant Section**

   - Better assess the candidate's scientific thinking

   - Broaden consideration of qualifications

3. **Revise the Sponsors, Collaborators and Consultants section**

   - Emphasis on sponsor's mentorship approach, plan for this trainee and fit to trainee's goals and needs

4. **Revise letters of reference**

   - Targeted, trainee-specific questions in word-limited fields
   - Intended to discourage boilerplate and to make it easier for reviewers to evaluate

5. **No significant changes to the Research Training Project Plan Section**

   - Specific Aims, Research Strategy, Responsible Conduct of Research

6. **An _optional_ statement of special circumstances**

   - Situations that might have hindered their progress such as harassment, the COVID-19 pandemic, or other personal or professional circumstances

In response to the RFI, instructions clearly indicate who is responsible for each part, what should go in each part, and every criteria have corresponding sections in the application.

NIH | Center for Scientific Review

CSRAC Working Group on NRSA Fellowship Review Criteria

CSR Advisory Council

Chair
Elizabeth Villa, Ph.D.
University of California
San Diego

Narasimhan Rajaram, Ph.D.
University of Arkansas at Fayetteville

Working Group Ad Hocs

Michael Burton, Ph.D.
University of Texas at Dallas

Katherine Friedman, Ph.D.
Vanderbilt University

Barbara Kazmierczak, M.D., Ph.D.
Yale University

Scott Miller, Ph.D.
Yale University

Robin Queen, Ph.D.
Virginia Tech

Nathan Vanderford, Ph.D.
University of Kentucky

Judith Yanowitz, Ph.D.
Magee-Women's Research Institute

NIH Staff
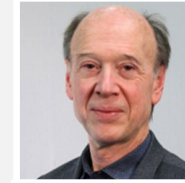
Co-Chair
Bruce Reed, Ph.D.
Center for Scientific Review

Ericka Boone, Ph.D.
Division of Biomedical Research Workforce, Office of Extramural Research

Alison Gammie, Ph.D.
Division of Training, Workforce Development, and Diversity, National Institute of General Medical Sciences

Lystranne Maynard-Smith, Ph.D.
Center for Scientific Review

Cibu Thomas, Ph.D.
Center for Scientific Review

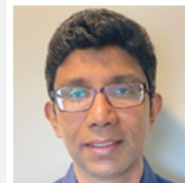# Implementation: Next Steps

Center for
Scientific Review

Improving NRSA Review Implementation Executive Committee

Co-Chairs
- Ray Jacobson — CSR
- Ericka Boone — OER
- Alison Gammie — NIGMS

Members
- Michelle Bulls — OER
- Megan Columbus — OER
- John Connaughton — NIDDK
- Aaron Czaplicki — OER
- Kasima Garst — OER
- Kenneth Gibbs — NIGMS
- Kristin Kramer — CSR
- Lystranne Maynard-Smith — CSR
- Miriam Mintzer — CSR
- Lynn Morin — OER
- Duane Price — CSR
- Laurie Roman — OER
- Melissa Stick — NIDCD
- Cibu Thomas — CSR

Project Manager
- Aditi Jain — CSR

Review Policy Officer
- Stephanie Constant — OER

Subcommittee domains

```
                        ┌──────────────────────┐
                        │ Executive Committee  │
                        └──────────────────────┘
```

NOFO/424	eRA/Business Systems	Targeted Outreach & Communications	Reviewer Orientation & NIH Staff Training

NOFO/424
- Revision of review criteria, relevant NOFO language
- Align review criteria with SF424 instructions
- Assemble materials for final clearance by the **Office of Management and Budget**

eRA/Business Systems
- Ensure readiness and availability of revised NOFOs
  - Update application wireframes
  - Forms and template changes
  - Timely end-to-end user testing
- Update IAR templates

Targeted Outreach & Communications
- Outreach at multiple points from NOFO & SF424 changes to final implementation
- Core messaging for internal and external audiences
- Staff and public webinars, guide notices, and trainings

Reviewer Orientation & NIH Staff Training
- Develop stakeholder-specific training & resource materials
- Stakeholder-specific training opportunities

NIH Center for Scientific Review

Communication Plans

Major Milestones

Staff Webinar	Guide Notice	Public Webinar
April 3	Mid-April	September 19

Resources in development

- 1-page overview for PO
- 1-page overview for SRO
- Staff FAQs
- Communication toolkit

- Updated public webpage
- Reference sheet for applicants
- Reference sheet for reviewers
- Public FAQs

Focusing on **broad distribution and appropriate messaging**:
- Developing an extensive contact list to move beyond those familiar with NRSAs
- Developing resources aimed at two audiences – those completely new to NRSAs and those with NRSA experience (and care about *changes*)

NIH Center for Scientific Review

Training Plans

Major Milestones

Staff Webinar	Staff Training	Reviewer Training
April 3, 2024	Fall-Winter 2024/25	April-June 2025

Resources in development

Staff Webinar — April 3, 2024
- 1-page SRO overview
- 1-page PO overview
- Annotated critique template

Staff Training — Fall-Winter 2024/25
- Summary statement (SRO Resume) guide
- PO guidance
- Preview reviewer training resources

Reviewer Training — April-June 2025
- 1-page reviewer overview
- Slides
- Mapping review criteria to application sections
- Guide to writing critiques
- Chair/reviewer meeting guide

Goal is to support a culture change by focusing on underlying rationale, while clearly conveying details of the changes.
- SROs will be engaged early in the process to preview resources and inform further training.
- Targeted reviewer training will be done closer to 1st review meeting.

NIH Center for Scientific Review

When will the new framework be implemented?

Applications submitted for due dates on or after **January 25, 2025**

- April 8, 2025 application receipt date

- Summer 2025 peer review

- October 2025 Advisory Council

Scope?

All NRSA mechanisms (F30, F31, F32, F33, F99, K00)

Center for
Scientific Review

Discussion

Current

Introduction

1. Introduction to Application
(for Resubmission Applications)

Fellowship Applicant Section

2. *Applicants Background and Goals for Fellowship Training

Research Training Plan

3. *Specific Aims

4. *Research Strategy

5. *Respective Contributions

6. *Selection of Sponsor and Institution

7. Progress Report Publications List (for Renewal applications)

8. *Training in the Responsible Conduct of Research

Sponsor(s), Collaborator(s), and Consultant(s) Section

9. Sponsor and Co-Sponsor Statements
10. Letters of Support from Collaborators, Contributors and Consultants

11. Description of Institutional Environment, and Commitment to training

12. Description of Candidate's Contribution to Program Goals

Proposed

Introduction

1. Introduction to Application
(for Resubmission Applications)

Candidate Section

2. *Goals, Preparedness, and Potential

Research Training Plan

3. *Training Activities and Timeline

4. *Research Training Project Specific Aims

5. *Research Training Project Strategy

6. *Progress Report Publication List (for Renewal Applications)

7. *Training in the Responsible Conduct of Research

Commitment to Candidate, Mentoring, and Training Environment

8. *Sponsor(s) Commitment

9. Letters of Support from Collaborators, Contributors, and Consultants

10. Description of Candidate's Contribution to Program Goals

Candidate Section: Candidate Goals, Preparedness, and Potential

- Overall Training Goals

- Candidate's Preparedness

- Candidate's Self-Assessment

- Scientific Perspective

NIH Center for Scientific Review

Overall Research Training Plan

- Training Activities and Timeline

- Research Training Project Specific Aims

- Research Training Project Strategy

  – Scientific Foundation and Rationale

  – Approach

- Progress Report Publication List (for Renewal Applications)

- Responsible Conduct of Research (clarified authorship)

Commitment to Candidate, Mentoring, and Training Environment

- Sponsor(s) Commitment
  - Mentoring Approach and Candidate Mentoring Plan
  - Prior Training and Mentoring
  - Commitment to the Candidate's Research Training Plan
  - Research Training Environment
  - Candidate's potential
- Letters of Support from Collaborators, Contributors, and Consultants
- Description of Candidate's Contribution to Program Goals

Current Status and Next Steps

Implementation – applications received on or after January 25, 2025

Over the next year:

- Refining application instructions and getting approval from the Office of Management and Budget
- Implementing required system changes
- Developing resources and training for NIH staff, reviewers, and applicants
- Updating Notices of Funding Opportunity with a revised Section V (Application Review Criteria)

Coming communications

- Guide Notice in April, announcing changes and detailed information
- Public website with details of criteria and application changes
- Public webinar – September 2024

A tremendous amount of training and outreach to applicants, reviewers, and NIH staff will occur first!

NIH Center for Scientific Review