



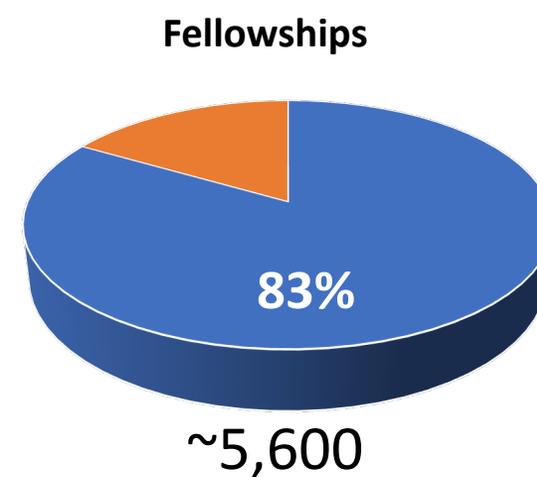
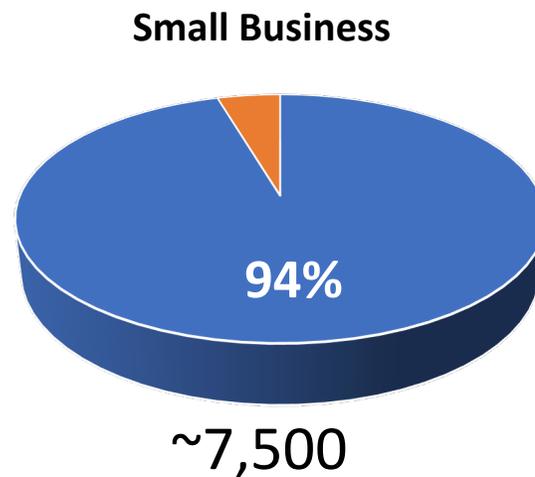
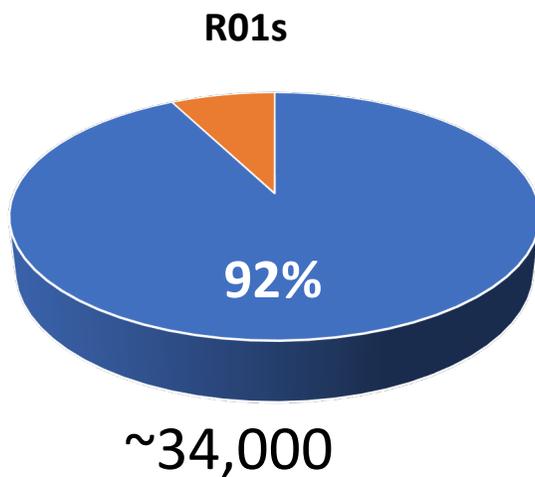
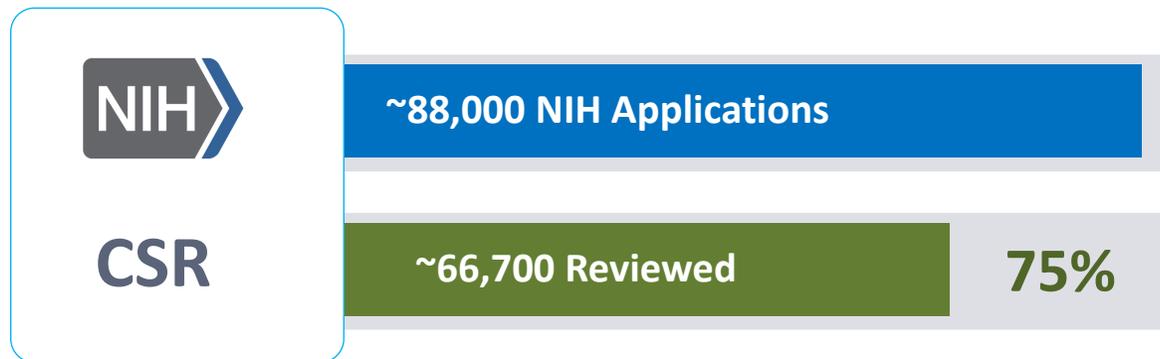
CSR's Initiatives to Address Bias in Peer Review

Noni Byrnes, Ph.D.
Director, NIH Center for Scientific Review (CSR)

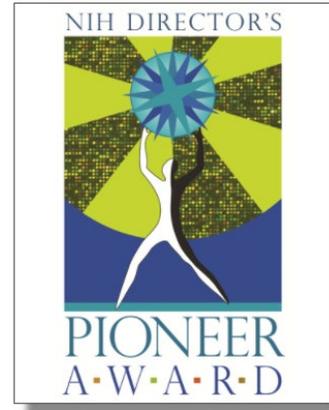
*National Advisory Child Health and Human Development (NACHHD)
Council*

January 11, 2022

Fiscal Year 2021 Applications, Major Mechanisms



FY21: 182 Special Initiatives Reviewed by CSR



- PLUS
- SBIR Commercial Readiness
 - Cancer Nanotechnology
 - Chronic Fatigue Syndrome
 - Electronic Nicotine Delivery (ENDS)
 - Radx-Rad (PREVAIL)
 - Sex and Gender Influences on Health
 - Tobacco Regulatory Research
 - Extramural building projects
 - NARCH
 - INCLUDE
 - MIRA
 - Transformative Research
 - RM1 Centers
 - Trailblazers
 - Alzheimer's
- And many more...*



NOSI: Research to Address Vaccine Hesitancy, Uptake, and Implementation Among Populations that Experience Health Disparities



Literature Overview – NIH Funding Gap

Ginther papers:

- 2011:** 83k R01s from PhDs in 2000-2006: Black/AA PIs are 13 percentage points less likely than WH PIs to be funded.
- 2012:** Extended 2011 paper to MDs. Black PIs at med schools less likely than white PIs to be funded but the gap was narrower than at non-med schools.
- 2016:** Extended 2012 paper to examine gender. Black female PhDs more successful than Black male PhDs but Black female MDs less successful than Black male MDs.
- 2018:** 2,397 NIH Biosketches from FY 2003 and 2006: bibliometric measures explained half of the Black/white funding gap.

Ginther more circumspect in later papers – “reviewers can’t see applicants’ race” and “direct evidence of implicit bias in peer review has not been documented”

Other recent papers:

- **Forscher 2019:** By changing names, created 4 versions of 48 different NIH R01s (gender X race(BL/AA)) = 4 versions. Conducted simulated NIH review. No evidence of white male advantage.
- **Erosheva 2020:** R01 applications from 2014-16. Black applicants 55% as likely as WH to be funded. Primary study question was whether the relationship of criterion scores to overall impact scores is different, depending on race of PI. Answer is no.

2019 NIH Analysis: “Reviewer Bias” based on Topic Choice

AAAS Become a Member

ScienceAdvances Contents News Careers Journals

SHARE RESEARCH ARTICLE | SCIENTIFIC COMMUNITY

Topic choice contributes to the lower rate of NIH awards to African-American/black scientists

Travis A. Hoppe^{1,2}, Aviva Litovitz^{1,2}, Kristine A. Willis^{3*}, Rebecca A. Meseroll^{1,2}, Matthew J. Perkins^{1,2}, B. Ian Hutchins^{1,2}, ...
+ See all authors and affiliations

Science Advances 09 Oct 2019:
Vol. 5, no. 10, eaaw7238
DOI: 10.1126/sciadv.aaw7238

Article Figures & Data Info & Metrics eLetters PDF

Abstract

Despite efforts to promote diversity in the biomedical workforce, there remains a lower rate of funding of National Institutes of Health R01 applications submitted by African-American/black (AA/B) scientists relative to white scientists. To identify underlying causes of this funding gap, we analyzed six stages of the application process from 2011 to 2015 and found that disparate outcomes arise at three of the six: decision to discuss, impact score assignment, and a

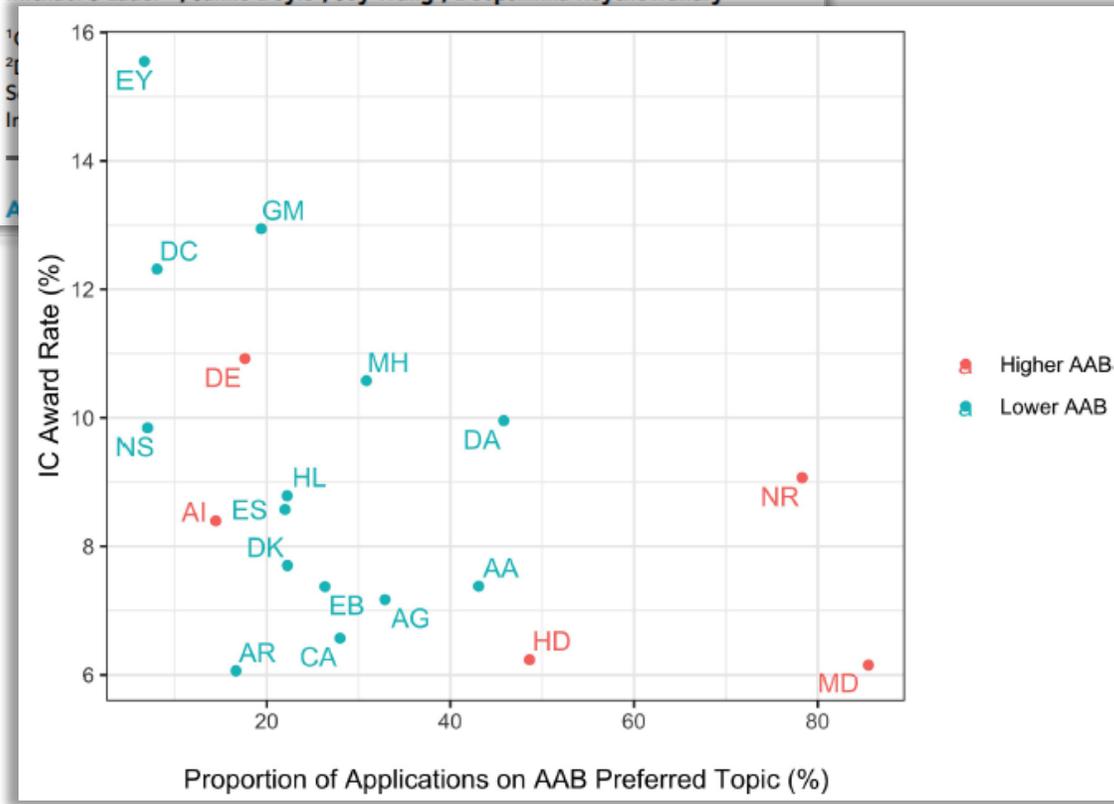
Important Points to Note:

- Award rates differ 4-fold across different topic clusters
- E.g. Cluster A (low award rate): child obesity intervention, physical activity, weight loss program...Cluster B (high award rate): corneal wound healing, ocular surface, cataract development...
- The science of high and low award rate topic clusters are generally not reviewed in the same study sections, so “reviewer bias” to explain differential award rates was puzzling.

“Our analysis shows that all three of the factors that underlie the funding gap...revolve around decisions made by reviewers.” – Hoppe et al., 2019, Science Advances 5:eaaw7238

Associations of topic-specific peer review outcomes and institute and center award rates with funding disparities at the National Institutes of Health

Michael S Lauer^{1*}, Jamie Doyle², Joy Wang³, Deepshikha Roychowdhury³



2021 NIH Reanalysis: Added individual NIH IC award rate as a variable

IC Characteristic or Outcome	ICs Higher AAB PIs (N applications = 29,285)	All Other ICs (N applications = 128,120)
PI AAB	3% (796)	1% (1478)
Discussed	55% (15,980)	55% (70,369)
Priority Score Median (25 th -75 th percentile)	36 (26-45)	36 (26-45)
Score Mean (SD)	36 (13)	36 (13)
Percentile Rank Median (25 th -75 th percentile)	27 (14-41)	27 (14-40)
Percentile Rank Mean (SD)	28 (16)	27 (16)
Funded	13% (3950)	17% (21,554)
Funded if discussed (N=86,349)	25%	31%

Open Mike, 12 Aug 2020

“The lower rate of funding for these topics was primarily due to their assignment to ICs [Institutes or Centers] with lower award rates, not to peer-reviewer preferences.” - Lauer et al. 2021, eLife; 10:e67173

2021: CSR's Anonymization study published

Design

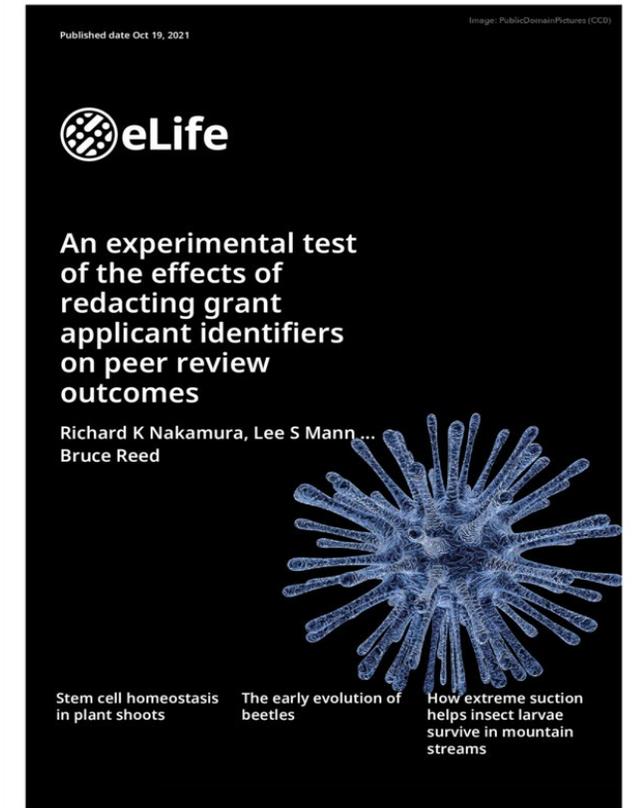
- 400 R01s from Black PIs, 400 from matched white PIs, 400 from randomly-selected white PIs
- Full and redacted versions underwent simulated peer review
- Data collection and analysis done by an external contractor (SSI) using a preregistered plan

Results

- Redaction did not affect scores of Black PIs but worsened scores of white PIs (significant, but small effect size).
- 21% of the time, reviewers identified the PI despite redaction (similar to other studies). Removing these cases did not change the findings.

What does this mean?

- Isolating the effect of race is challenging due to secondary, linked variables (e.g., institutional “prestige”, investigator “pedigree”) tied to racial disparities in access. Redaction may have reduced these “halo effects”.
- **Findings support review approaches that diminish the role of PI identity.**



*Nakamura et al. eLife 2021;10:e71368.
DOI: <https://doi.org/10.7554/eLife.71368>*

CSR Initiatives

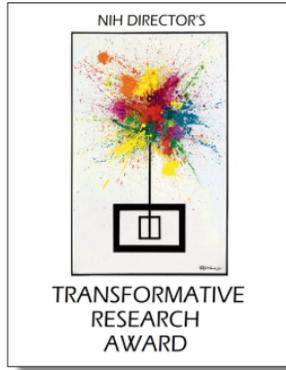
- **Exploring Blinded Review Processes**
- **Bias Awareness in Peer Review Training for Reviewers & Chairs**
- **Bias Reporting**
- **Broadening the Reviewer Pool to Diversify Review Committees**

Exploring Blinded Review Processes

CSR/Common Fund HRHR Collaboration: Transformative Research Award (tR01) Reviews

NIH Director's Transformative Research Award

Funding opportunities for exceptionally innovative and unconventional research projects



Part of the [High-Risk, High-Reward Research program](#), the award supports individuals or teams proposing **transformative projects that are inherently risky and untested** but have the potential to **create or overturn fundamental paradigms** and may require very large budgets.

- Open to all career stages
- Open to individuals or teams
- No preliminary data required
- Flexible budgets
- Effort commensurate to project needs

More ▾

No identifiers (Abstract/Aims/Research Plan only):

- Stage 1: **Editorial Board** selects top subset
- Stage 2: **Subject matter experts** assess
- Stage 3: **Editorial Board** gives preliminary scores, sets discussion order

Identifiers provided (Investigator/Institution)

- Study section meeting with discussion and final scores of all 5 criteria.

- **Study section in April 2021, evaluation of process by external contractor → encouraging results with statistically significant increase in demographic diversity of applicant pool**
- **25% of respondents: anonymized process affected decision to apply (reasons: funding project, not people, less institutional prestige bias, applicant demographic, avoids rich getting richer)**

Exploring Blinded Review Processes

CSRAC Working Groups' recommendations open the door...

CSR Advisory Council Workgroup: Simplifying Review Criteria for Clinical Trials

Bruce Reed, PhD
Deputy Director
Center for Scientific Review

Tonya Palermo, PhD
Professor of Anesthesiology,
Pediatrics, and Psychiatry
University of Washington

Major Recommendation of both Working Groups:
Reorganize the current five scored review criteria into three scored factors:

- 1) Importance of the science
- 2) Feasibility and rigor
- 3) Investigators and environment

Allows for a multi-stage, partially-blinded review process

U.S. Department of Health & Human Services



CSR Advisory Council Workgroup: Simplifying Review Criteria

Bruce Reed, PhD
Deputy Director
Center for Scientific Review

Tonya Palermo, PhD
Professor of Anesthesiology,
Pediatrics, and Psychiatry
University of Washington

March 30, 2020

CSR Initiatives

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Incorporating Bias Training in Annual Summer Chair Orientation Sessions

~90 Incoming Study Section Chairs/year, 9-10 sessions

Orientation for New Study Section Chairs – 2021



CSR provided orientation and guidance

to incoming study section chairs. While the material is geared towards chairs, others in the community might find it useful in better understanding the review process and how meetings are conducted.

Brief Overview – Key Issues in Peer Review – Dr. Noni Byrnes, Director, CSR

[Slides](#)

[Video](#)

Preparing to Chair a Study Section – Dr. Bruce Reed, Deputy Director, CSR

[Slides](#)

[Video](#)

Facilitated Discussion Among Chairs

[Video](#)

Two-hour, interactive, facilitated session

- 15 min overview
- 15 min nuts-and-bolts of chairing
- 1.5 hours of interactive discussion, using a vignette-based framework

Fairness of the Peer Review Process

What Can You Do As Chair?

- Recognize your influence – in setting and changing the study section culture
- Actively foster a positive study section culture - confidentiality, integrity, encouraging broader participation/inclusion across the committee, call out statements that bias the scientific assessment (institution, career-stage, field, race/gender)
- Promote a focus on significance (ask the question), and consistency in scoring – score/word match, aligned to score guidance.

CSR Bias Awareness Training for Reviewers Launched in August 2021

- Objectives – raise awareness of potential biases in peer review, provide tools to intervene
- Targeted the most common biases in the peer review process. *It is not implicit bias training.*
- 30-min, sent to ~10,000 reviewers before their meeting – surveys to inform future versions
- Includes personal testimonials, interactive exercises, narrated mock study section
- Very well-received by scientific community - early survey results indicate increased ability of reviewers to identify bias, increased comfort in intervening



Kevin M. King
@KMKing_Psych

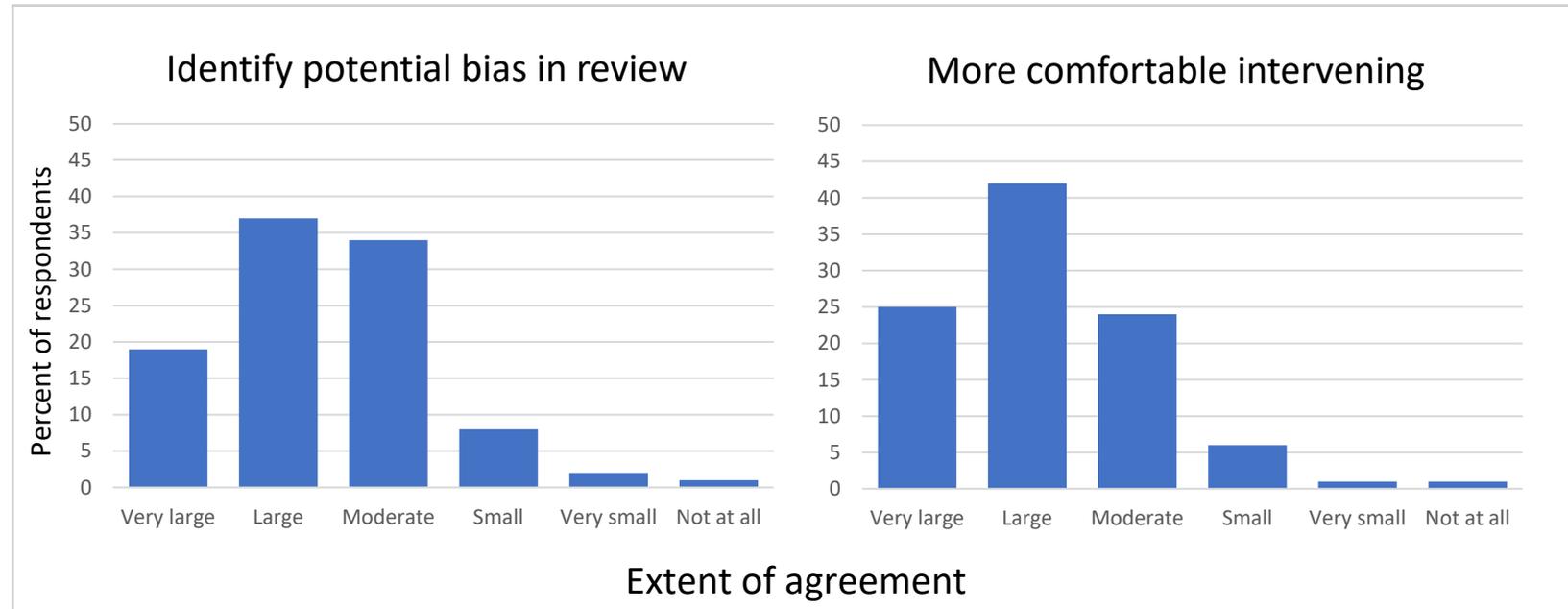
Sitting through an @NIH training on combatting bias in peer review. It's very well done, with specific and concrete examples that I've personally seen in review.



Bitia Moghaddam بیتا مقدم @bita... · Sep 21, 2021

I am generally not a fan of on-line bias awareness training but this was very good and examples were spot-on

Well done @CSRpeerreview



Acknowledgment CSRAC WG: Bias Awareness Training Module Development

CSR AC Members



Scott Miller, Ph.D.
Yale University



Julie Price, Ph.D.
Harvard Medical School



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

Working Group Ad Hoc



Doug Andres, Ph.D.
University of Kentucky



Markus Brauer, Ph.D.
University of
Wisconsin-Madison



Elizabeth Cosgriff-Hernandez,
Ph.D.
University of Texas, Austin



Carlos Crespo, Ph.D.
Portland State
University



Karine Gibbs, Ph.D.
University of California,
Berkeley



Xuemei Huang, Ph.D.
Pennsylvania State
University



Rakale Quarells, Ph.D.
Morehouse College



Germán Rosas-Acosta, Ph.D.
University of Texas at El Paso



Steve Varga, Ph.D.
University of Iowa

NIH Staff



Hope Cummings, Ph.D.
CSR



Kristin Kramer, Ph.D.
CSR



Charlene Le Fauve, Ph.D.
COSWD



Michael Sesma, Ph.D.
NIGMS



Tasmeen Weik, Ph.D.
CSR

CSR Initiatives

- **Exploring Blinded Review Processes**
- **Bias Awareness in Peer Review Training for Reviewers & Chairs**
- **Bias Reporting**
- **Broadening the Reviewer Pool to Diversify Review Committees**

Reporting Bias in Peer Review: G.Fosu_AssocDir@csr.nih.gov

~1.5k meetings, ~65k apps, ~18k reviewers, ~200k critiques, mistakes will occur

For issues related to respectful interactions, bias or anything else that could affect the fairness of the review process, contact your SRO or the CSR Associate Director of Diversity & Workforce Development at G.Fosu_AssocDir@csr.nih.gov.



Gabriel Fosu, Ph.D.

- On every outgoing staff email
- On CSR's web page
- On every study section page

Existing CSR policy regarding a potentially flawed/biased review

Assessment by CSR management – is it a flawed review?

- Yes - CSR re-reviews the application in the same council round.
- No – CSR refers PI to program officer for guidance on council appeal process

CSR Initiatives

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Broadening the Pool of Reviewers

Expansion of the Early Career Reviewer (ECR) program [2020]

Early Career Reviewer (ECR) Program

The program aims to help early career scientists become more competitive as grant applicants through first-hand experience with peer review and to enrich and diversify CSR's pool of trained reviewers.

[Benefits of ECR](#) | [Qualifications for ECR](#) | [Apply to ECR](#) | [ECR Training](#) | [ECR Webinars](#)

Benefits of ECR



1. Work side-by-side with some of the most accomplished researchers in your field to help NIH identify the most promising grant applications
2. Learn how reviewers determine overall impact scores
3. Improve your own grant-writing skills by getting an insider's view of how grant applications are evaluated
4. Serve the scientific community by participating in NIH peer review
5. Develop research-evaluation and critique-writing skills

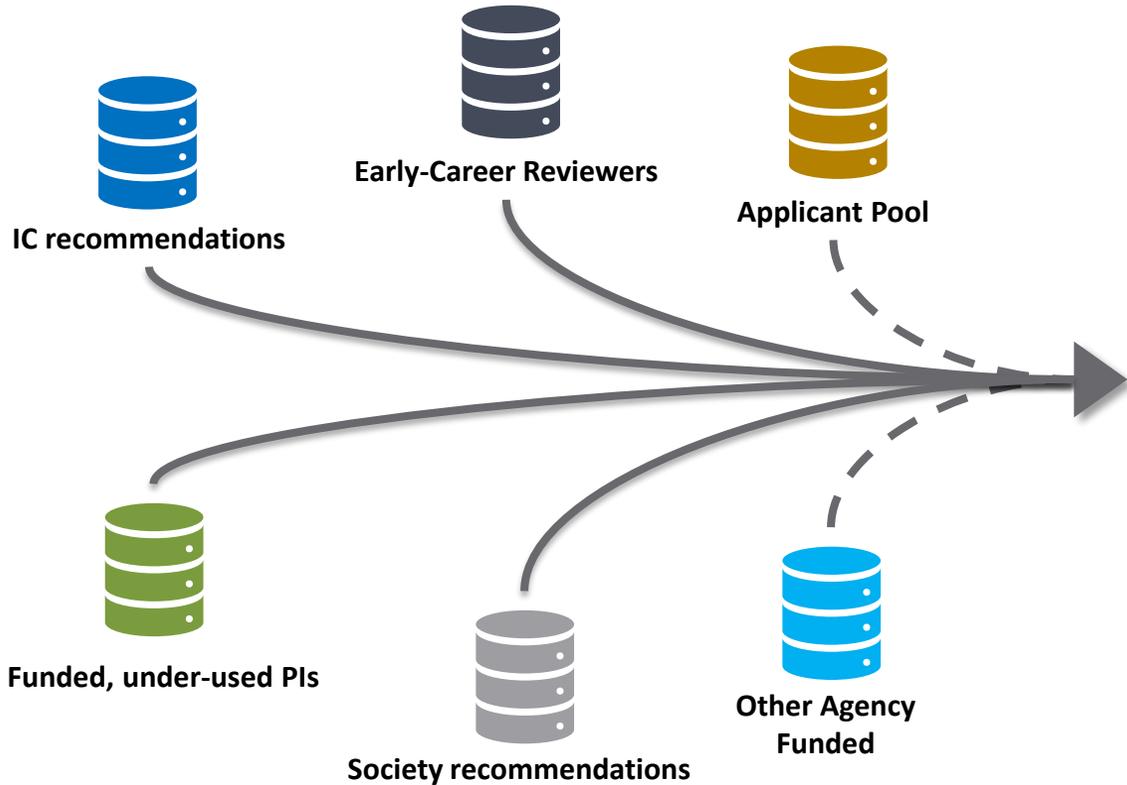
ECR Qualifications

 <p>Employment You have at least 2 years of experience as a fulltime faculty member or researcher in a similar role. Post-doctoral fellows are not eligible.</p> <p>You must be an Assistant Professor or in an equivalent role. Because the program is focused on early career scientists, Associate Professors are not eligible.</p>	<p>Grant & Review History You have not served on an NIH study section in any capacity aside from as a mail reviewer. (Mail reviews do not include participation in the meeting.)</p> <p>You have not held an R01 or R01-equivalent (R35, R37, RF1, R23, R29, DP1, DP2, DP5, U01, RL1) grant in the PD/PI role</p>
<p>Research You show evidence of an active, independent research program. Examples include publications, presentations, institutional research support, patents, acting as supervisor of student projects.</p> <p>You have at least 1 senior-authored research publication in a peer-reviewed journal in the last 2 years plus at least 1 additional senior-authored research publication since receiving a doctorate.</p> <ul style="list-style-type: none">• In press publications are considered; preprints are not.• We consider "senior author" as single author, corresponding author, or first or last author.	<p>You must have submitted a grant proposal, in the PI/PD role, to the NIH and received the associated summary statement; any grant mechanism that results in a summary statement other than F30, F31, F32 fulfills this requirement.</p>

- **Sept – Dec 2019: ECR Program Revamped**
 - New database - usable, trackable, accurate
 - CSR SRO guidance developed
 - Single vetting committee to ensure consistency in approving ECR qualifications
- **2020: ECR Program Expanded**
 - 940 ECRs recruited in 2020, compared to 575 in 2019
- **ECR pool is more diverse; 12.1% URM vs. 8.5% for all CSR reviewers in 2020**

Broadening the Pool of Reviewers

Aug 2020: Launched CSR Reviewer Finder Tool (for SROs to find “lesser-known” qualified reviewers)



Multiple Data Sources

Select a pool below to use the Advanced Filters Advanced Filters

You can search by study section request but because study sections end and start, a search by expertise might be more useful.

Source ECR Society ICRR Funded PI NIH Applicants All Search for Reviewers

Last name Expertise Keywords Profile ID Study Section

Recommending Society

Recommending IC Recommending PO Region State R15

IRG [Region Map View](#)

Approved ECR (1077)

Society Recommendations (273)

IC Recommendations (225)

Funded PI (5368)

Applicants (11349)
See for BDCN, CVRS, GGG, BCMB

URM Academics Coming Soon!

Search Result: 59 Export all results to Excel

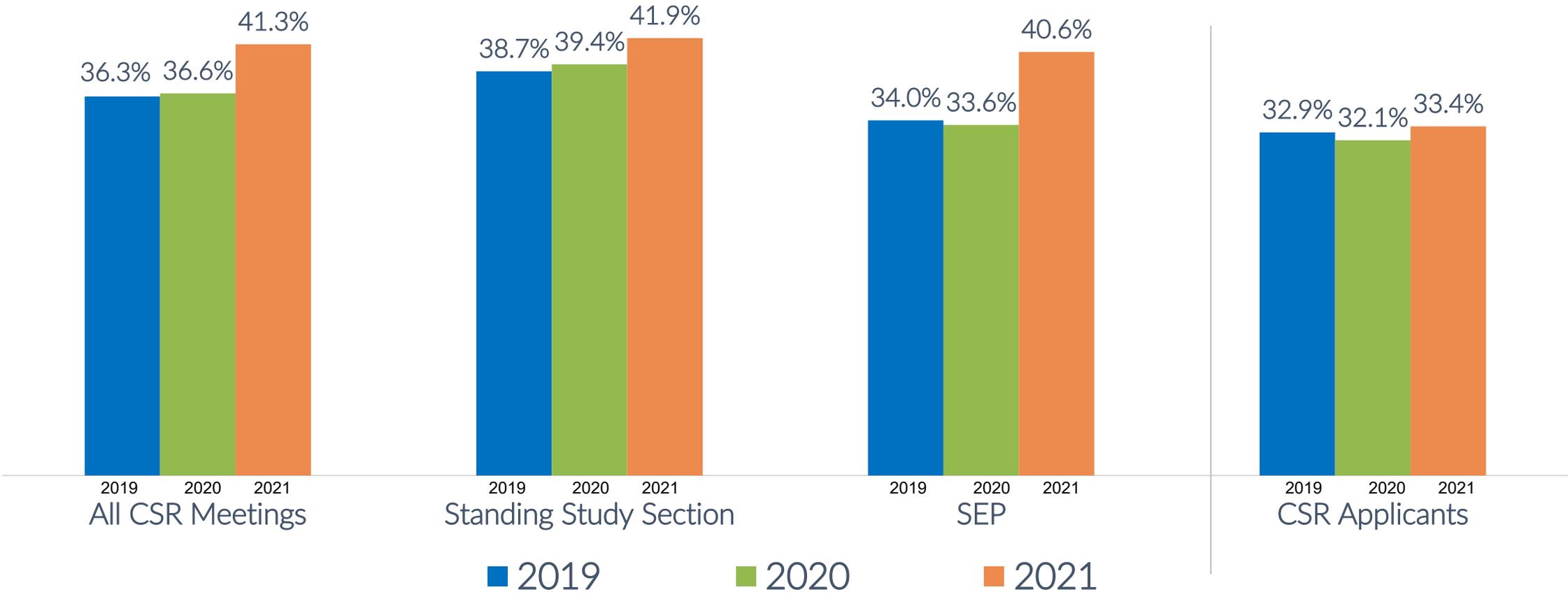
Reviewer Name	Profile ID	Expertise	Gender	URM	Race	Ethnicity	State	Study Section Matches	PO Name	Source	CV
M. Knight, Jennifer		Psychiatry, Psycho-Oncology, hematopoietic stem cell transplantation (HCT) translational research, randomized controlled pharmacologic and behavioral trials					TX	MESH,BGES,BMHO		SR	
Suffoletto, Brian		behavioral interventions longitudinal repeated measures; multilevel modeling					IL	BMHO,ARM,PDRP		SR	
Baucom, Katherine		Behavioral Intervention; Community-Based Participatory Research; Couples; Couples Therapy; Diabetes Prevention; Effectiveness; Efficacy; Health Promotion; Interpersonal Relations;					UT	BMHO, LCBH, HPC, HSDO		ECR	

One interface – user-friendly for SROs

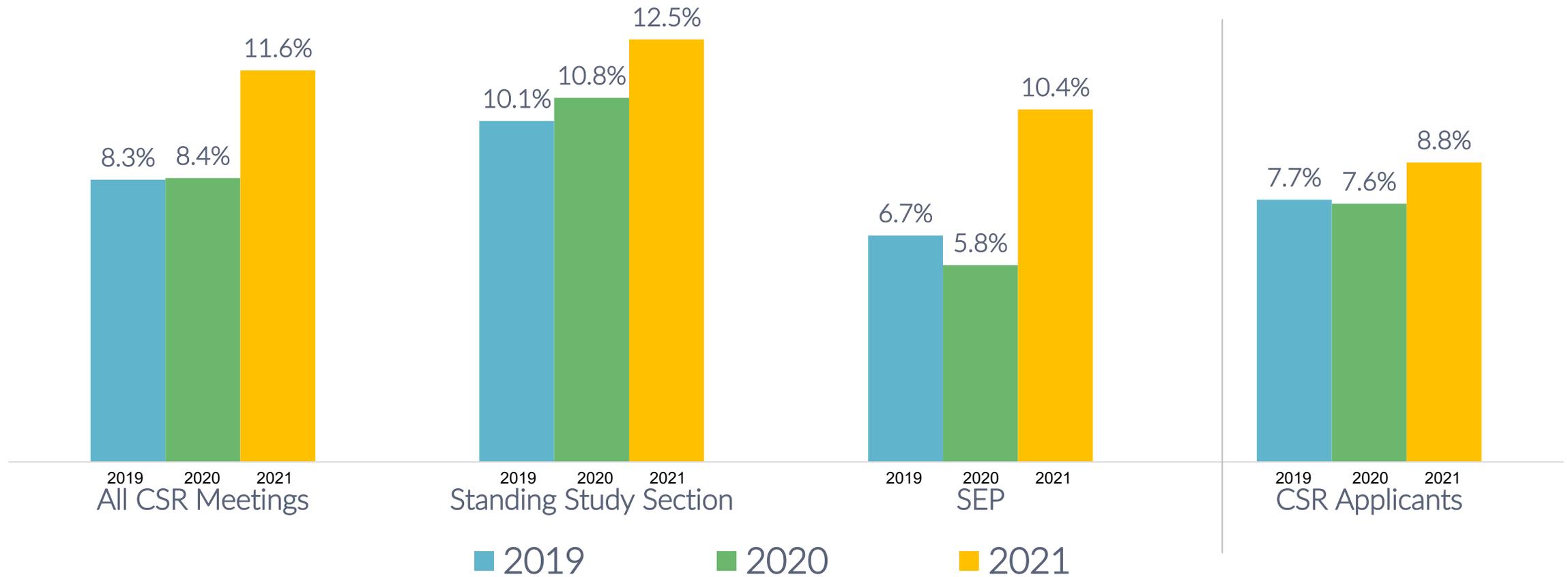
Strategies for Diversifying Review Panels

- Emphasizing **critical need** for the NIH to hear diverse perspectives to fulfill peer review's mission of identifying the best, most disruptive, novel science.
- The most effective, highest-quality review committees are **broadly diverse in multiple dimensions**. These include: 1) scientific background and perspective; 2) demographic/geographic; 3) career stage and; 4) peer review experience
- Standing study section membership process is thorough, multiple levels of oversight and approval. We are focusing on enhancing diversity on **Special Emphasis Panels**
- **Raising collective awareness**, setting expectations, sharing panel-level data with management/staff
- Providing **tools** for SROs to find “lesser-known” well-qualified reviewers, building up database with multiple sources of scientific experts [Reviewer Finder]
- **SRO training**, esp. SRO-to-SRO sharing of best practices in broader recruitment strategies

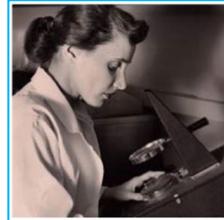
% of Women in CSR Meetings (All, Standing Study Section, SEP, Applicants) Summer 2019, 2020, 2021



% of URM in CSR Meetings (All, Standing Study Section, SEP, Applicants) Summer 2019, 2020, 2021



Up Next: CSR Advisory Council Working Group to Improve NRSA Fellowship Review



Ruth L. Kirschstein
National Research Service Awards



CSR AC Members



Scott Miller, Ph.D.
Yale University



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



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

External



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



Barbara Kazmierczak, MD, Ph.D.
Yale University



Nathan Vanderford, Ph.D.
University of Kentucky



Katherine Friedman, Ph.D.
Vanderbilt University



Robin Queen, Ph.D.
Virginia Tech



Judith Yanowitz, Ph.D.
Magee-Womens Research Institute & Foundation

NIH Staff



Ericka Boone, Ph.D.
NIH OD



Lystranne Maynard-Smith, Ph.D.
CSR



Alison Gammie, Ph.D.
NIGMS



Bruce Reed, Ph.D.
CSR



Cibu Thomas, Ph.D.
CSR

Soliciting your input

Review Matters

Strengthening Fellowship Review

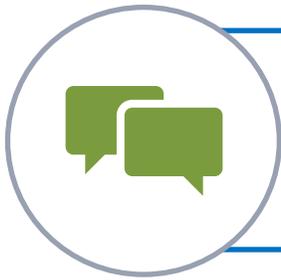


Bruce Reed, Lystranne Maynard Smith, Cibu Thomas
January 6, 2022

Have you applied for, sponsored, or reviewed NIH fellowship applications? We would like to hear your thoughts on what works, what doesn't, and how the process could be improved.

National Research Service Award (NRSA) Fellowship (F) awards are intended to support training that will enhance pre- and post-doctoral trainees' potential to develop into productive, independent research scientists. In 2021, CSR handled the review of more than 5500 of the approximately 6800 NRSA F applications received by NIH. We recently convened a [CSR Advisory Council working group](#), charged with evaluating the fellowship review process and making recommendations to make it as effective and fair as possible for all.

<https://www.csr.nih.gov/reviewmatters/2022/01/06/strengthening-fellowship-review/>



Discussion