



CSR Advisory Council Update

September 21, 2020

Noni Byrnes, Ph.D.
Director
Center for Scientific Review

Welcome: CSR Advisory Council Members



Jinming Gao, Ph.D.

Professor of Pharmacology and
Otolaryngology
University of Texas Southwestern Medical
Center



José López, M.D.

Professor
Hematology
University of Washington



Julie Price, Ph.D.

Professor And Investigator
Radiology and Biomedical Imaging
Harvard Medical School



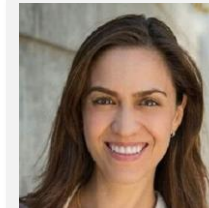
Alfred George, M.D.

Magerstadt Professor and Chair
Department of Pharmacology
Northwestern University



Scott Miller, Ph.D.

Irénée Dupont Professor
Chemistry
Yale University



Elizabeth Villa, Ph.D.

Assistant Professor
Biological Sciences
University of California, San Diego



Yasmin Hurd, Ph.D.

Professor
Psychiatry, Neuroscience, Pharmacology
and System Therapeutics
Mount Sinai School of Medicine



Tonya Palermo, Ph.D.

Professor and Associate Director
Anesthesiology and Pain Medicine
University of Washington

NOT ATTENDING



Denise Wilfley, Ph.D.

Scott Rudolph University Professor
Psychiatry, Pediatrics, Psychological and
Brain Sciences
Washington University at St. Louis



Deanna Kroetz, Ph.D.

Professor
Bioengineering and Therapeutic Sciences
University of California, San Francisco



Mark Peifer, Ph.D.

Hooker Distinguished Professor
Biology
University of North Carolina, Chapel Hill

Welcome...CSR Advisory Council Ad Hocs



Narasimhan Rajaram, Ph.D.

Associate Professor
Department of Biomedical Engineering
University of Arkansas at Fayetteville



Alexis Stranahan, Ph.D.

Associate Professor
Department of Neuroscience and Regenerative
Medicine
Medical College of Georgia, Augusta University

Leadership & Management Transitions [Since March 2020]



Acting Division Director (effective 10/26/20)
Division of Neuroscience, Development and Aging
Delia Olufokunbi Sam



IRG Chief
Bioengineering Sciences and Technologies
Vinod Charles



IRG Chief
Immunology
Audrey Lau



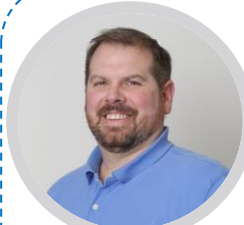
IRG Chief
Biological Chemistry and Macromolecular Biophysics
James Mack

Dual Role Duties



Acting IRG Chief
Musculoskeletal, Oral and Skin Sciences
Dr. Katherine Malinda

Referral Officers



Thomas Beres



Alok Mulky



Raul Rojas



Sudha Veeraraghavan



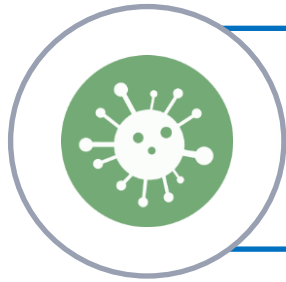
Wei-Qin Zhao



Chief of Staff
Amy Wernimont



Reviewer Training Coordinator
Tasmeen Weik



Impact of COVID-19 on Peer Review

CSR response to COVID-19 pandemic

- **Ahead of the curve:** Acquisition of FedRAMP-certified Zoom platform, 650 licenses in preparation for an emergency. Tested the platform to prepare for adaptation in early/mid 2019
- Most advanced **telework** policy at NIH - enabled 100% of CSR workforce to be virtual with 100% productivity immediately. All **review meetings virtual** with very short notice, relevant security and integrity in place
- **April Review Matters blog on Zoom security** to address community concerns re: Zoom-bombing, etc.



Review Matters

Security of Our Virtual Peer Review Meetings



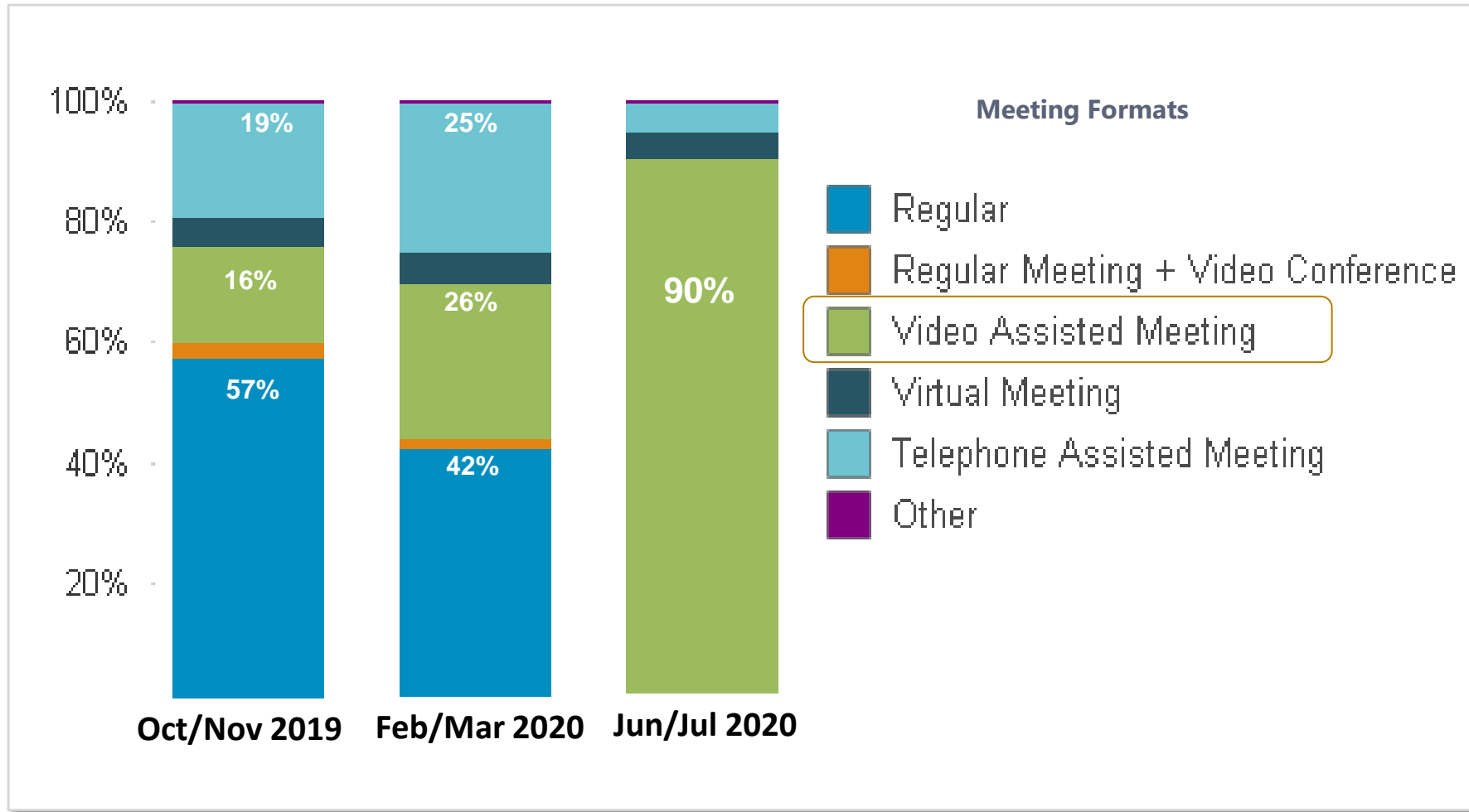
Dipak Bhattacharyya
Chief Information Officer
April 15, 2020

CSR will conduct all summer peer review meetings using one of three platforms – 1) video; 2) telephone; 3) web-based discussion. A majority will take place using the Zoom video platform. We want to provide information about how we are maintaining the security and confidentiality of our review meetings.

The Zoom video platform that we are using is not the same as that used by schools or by you at home. Instead, we are using a [FedRAMP-certified](#) version of [Zoom](#) within the [zoomgov.com](#) domain. It meets requirements for other agencies that handle very sensitive information, including the Department of Homeland Security. FedRAMP certification means, for reviewers, the platform can be used without risking installation of malware and, for applicants, meetings remain confidential. Key features include:

CSR held 600+ Zoom review meetings [Mar-Aug 2020]

>1000 additional planned Sept 2020-Mar 2021

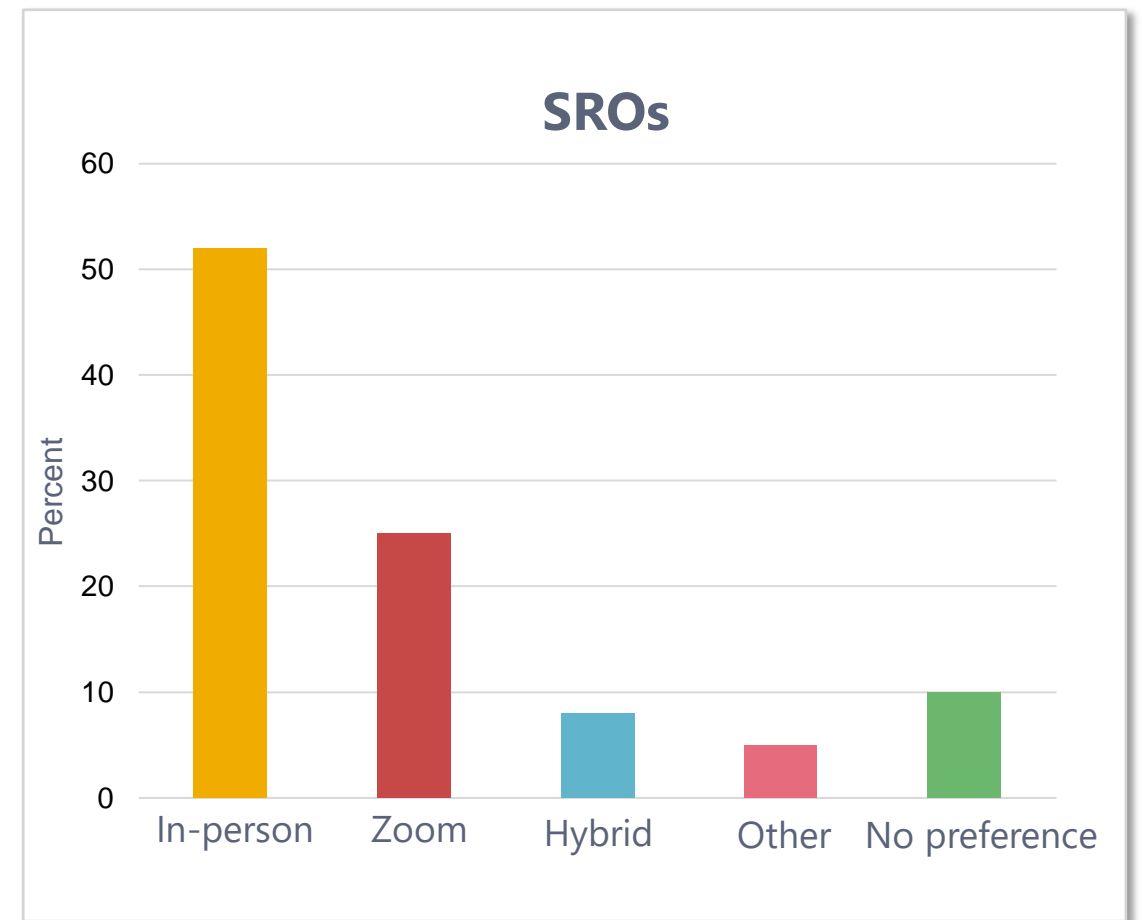
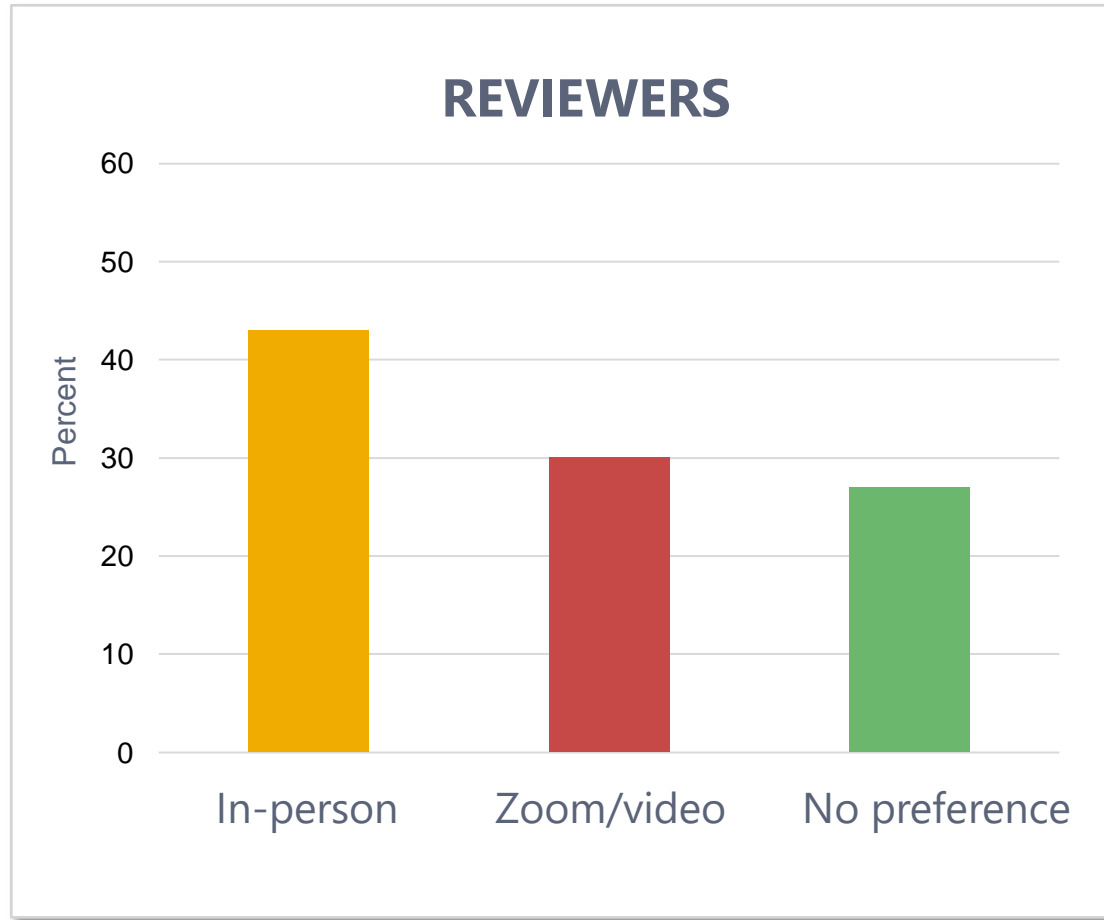




Summer 2020 Reviewer/SRO Survey Results

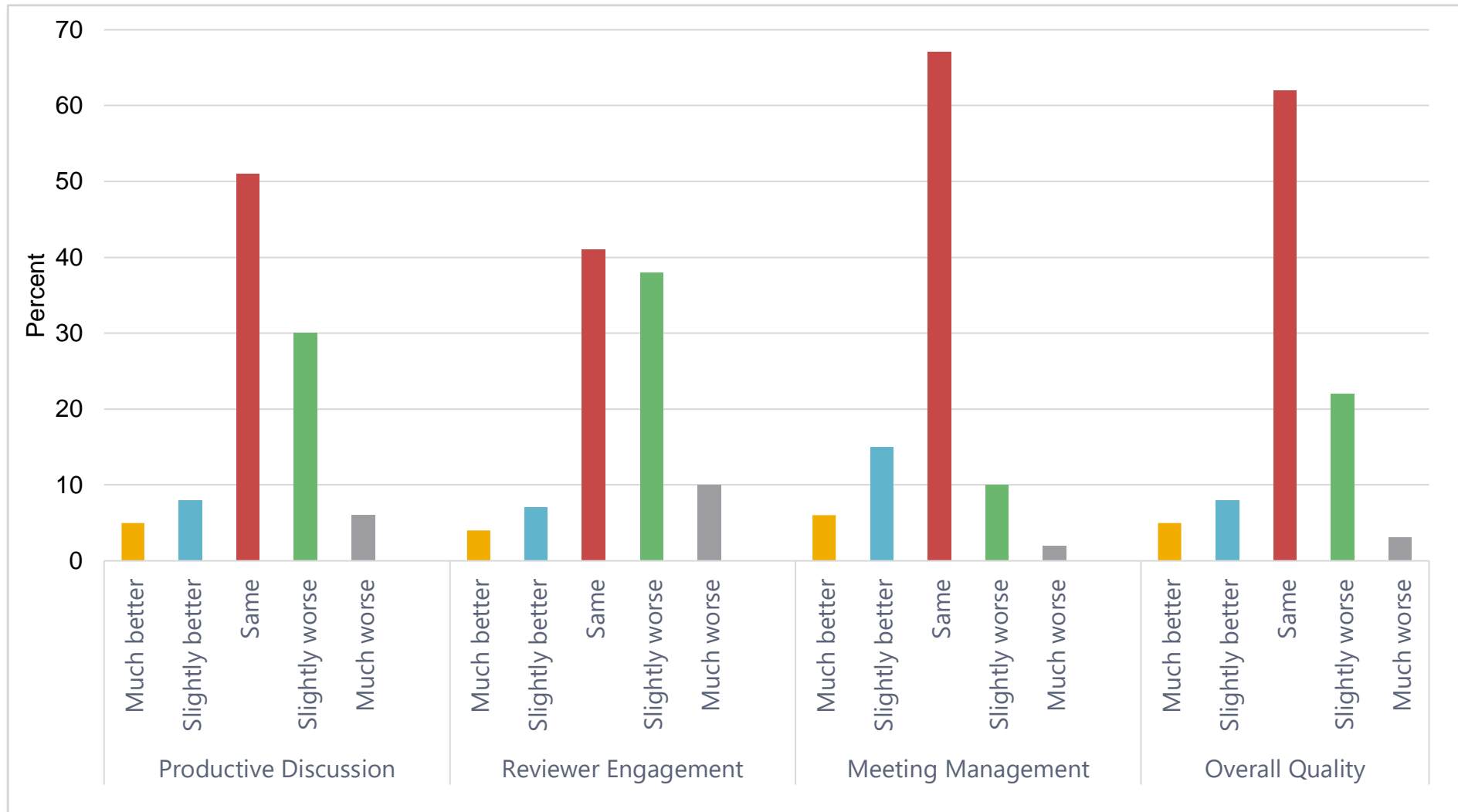
REVIEWER and SRO Meeting Format Preference

Zoom Compared to In-Person



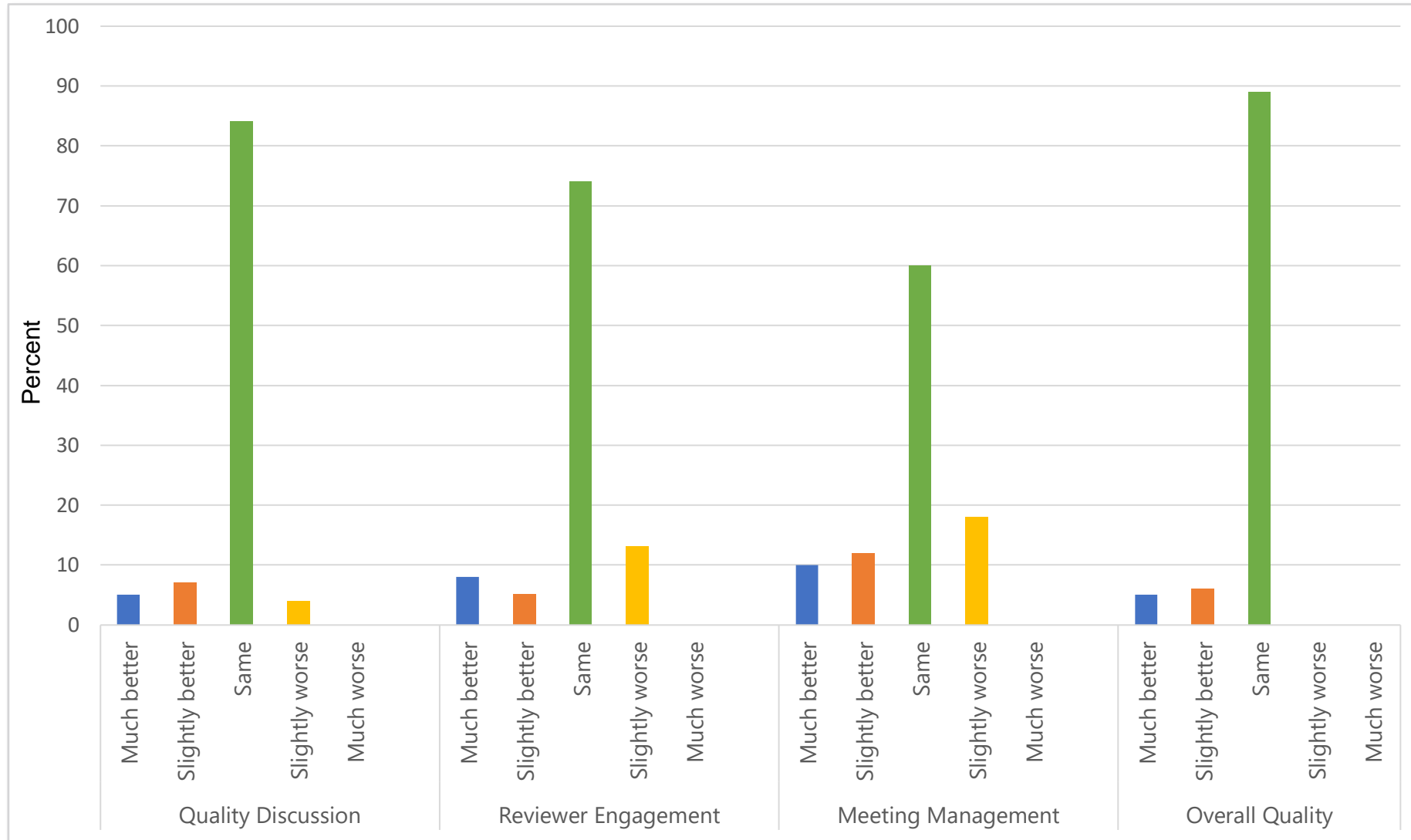
REVIEWER Impressions: Quality of Review

Zoom Compared to In-Person



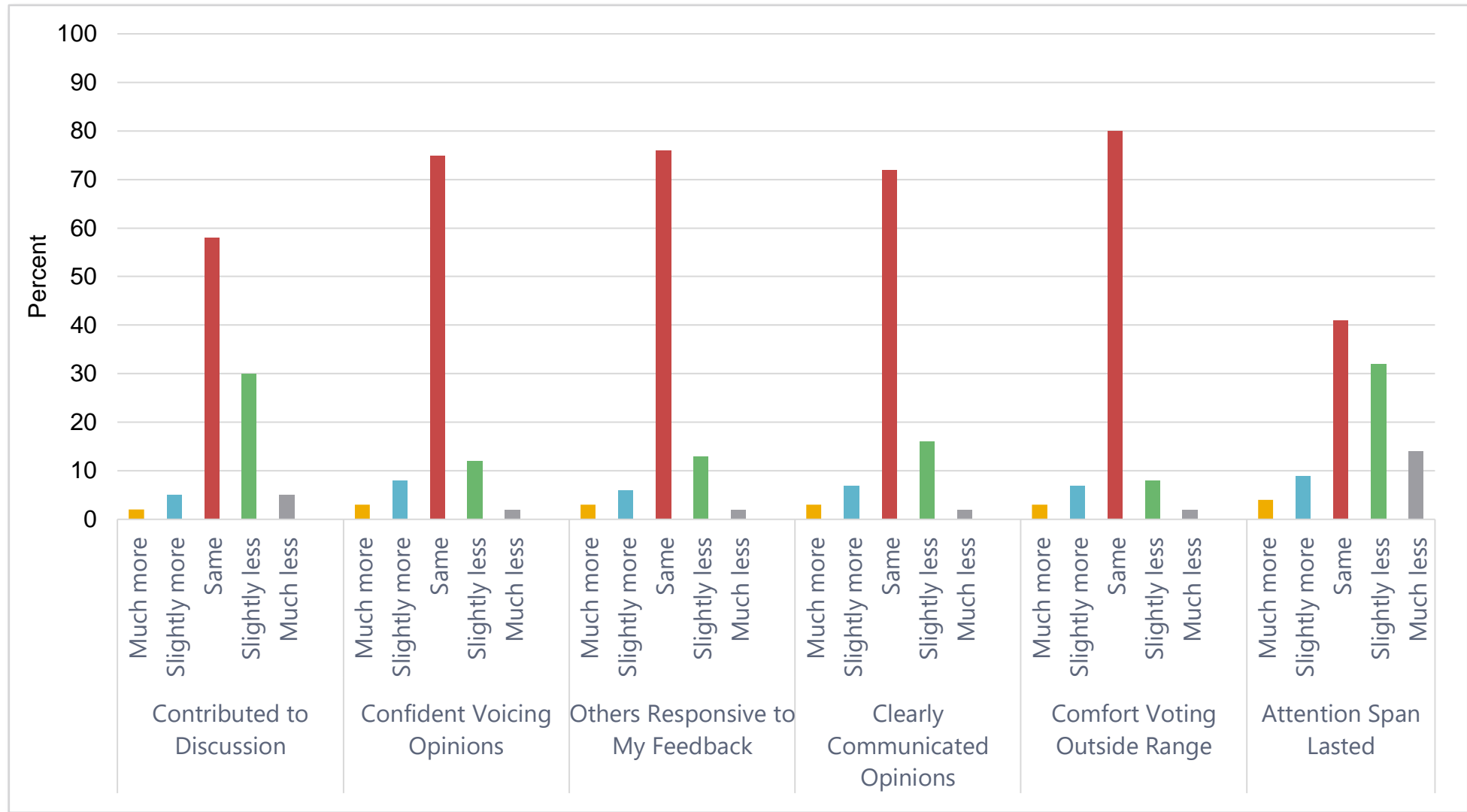
SRO Impressions: Quality of Review

Zoom Compared to In-Person



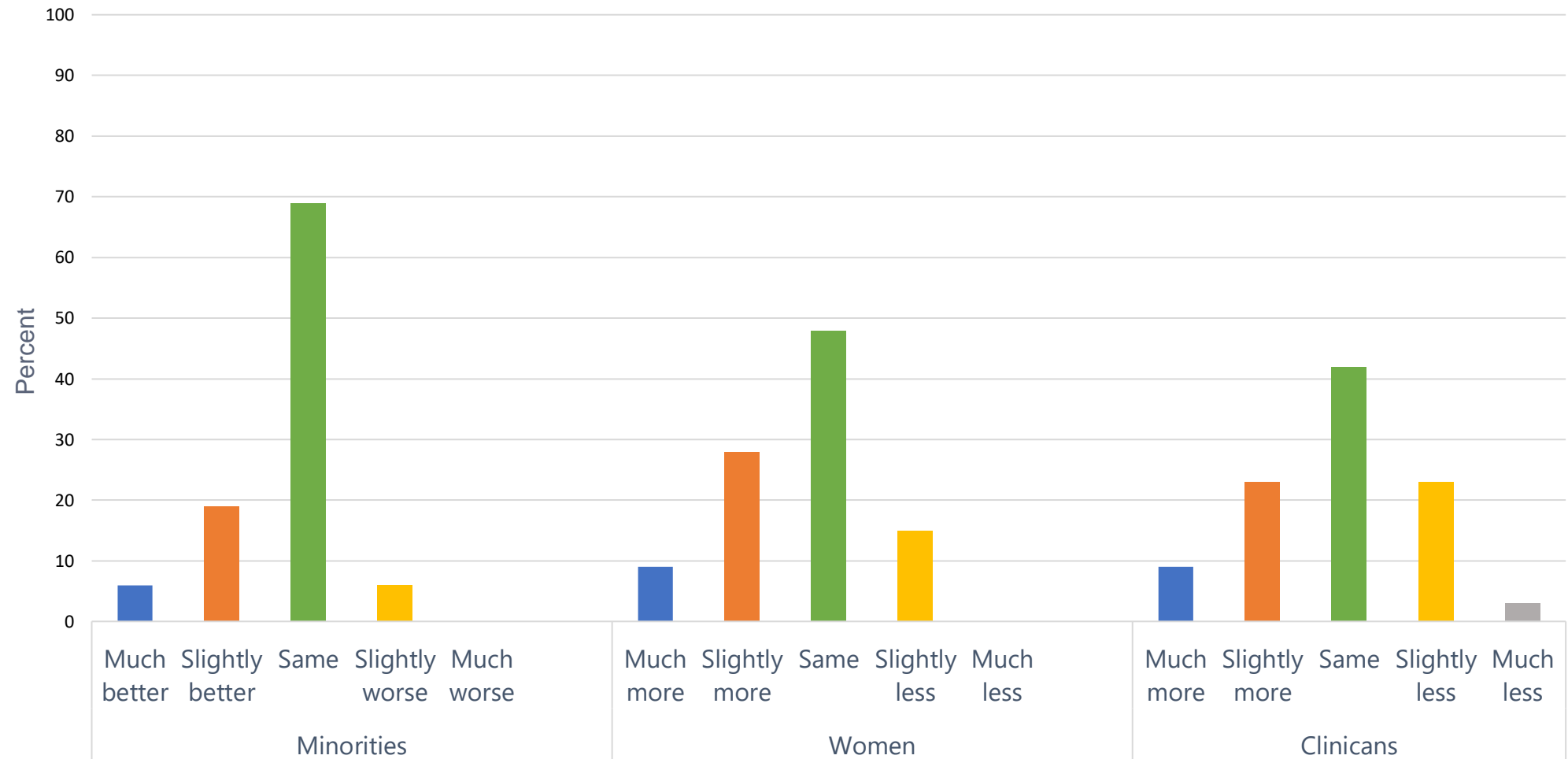
REVIEWER Experience: Participation

Zoom Compared to In-Person



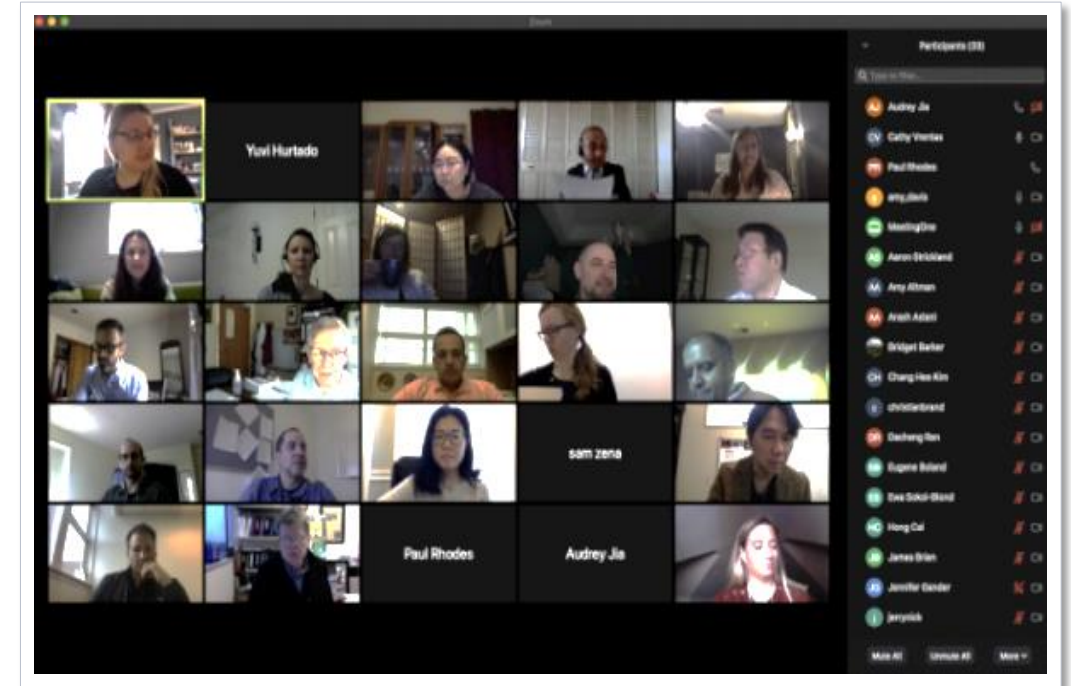
SRO Experience: Ease of Reviewer Recruitment

Zoom Compared to In-Person



Post-pandemic: Future of peer review meetings?

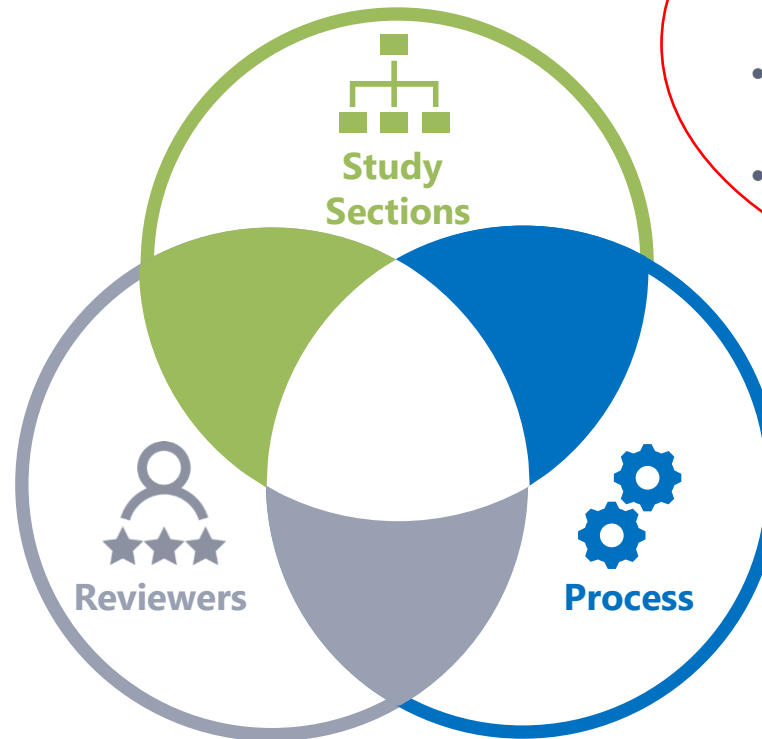
- **Forced Experiment**
 - Zoom vs. older Cisco platform – easier to use
 - Socialization, lowered resistance among staff, reviewers
- **Data-driven decisions** about the future
 - Objective data re: scoring, recruitment, diversity
 - Reviewer/staff surveys re: experience, discussion quality
- **Environmental and fiscal considerations** balanced with primary goal to maintain or improve quality of the NIH review process
- **Unlikely to go back to the way it was** – if safe, then some hybrid reality (1-2 times/year virtual)



Framework: Quality of Peer Review

Reviewers

- Reviewer Training & Evaluation – consistent, transparent
- **Review Service – broadening pool**, incentivizing service



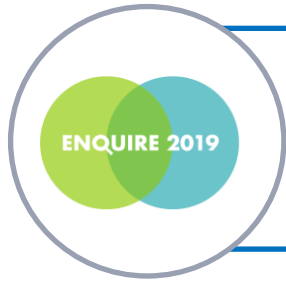
ENQUIRE

Study Sections

- Scientific scope (relevance, adapting to emerging areas, perpetuating stale science)
- Output (identification of meritorious science)
- Size appropriate for competition

Process

- Confidentiality/Integrity in review
- **Bias in Review**
- Assignment/Referral of Applications
- **Review Criteria** and Scoring System







ENQUIRE

Evaluating Panel Quality in Review

ENQUIRE

Multiple Possible Actions Follow

- | | |
|---|--|
|  Change in scientific guidelines |  Redistribute areas across study sections |
|  Merge study sections |  Add emerging areas of science |
|  Create new study sections |  Eliminate study sections |

Process Overview for Each Cluster of Study Sections

- **Cluster Formation**
How? Determined by science, not management structure - 9-12 study sections in each cluster
- **External Scientific Evaluation Panel**
Who? Scientifically broad, senior scientists provided with:
 - current scientific guidelines
 - sample abstracts & aims
 - data on workload trends, bibliometric output, ESI submission and success rates**Asked:** How well does the scope of the study sections align with the current state of the science?
- **Internal Process Evaluation Panel**
Who? NIH extramural staff with broad perspective
 - workload data
 - scoring trends
 - survey feedback from reviewers & program officers
 - site-visit information on meeting function
 - External Scientific Working Group's report**Asked:** Does the study section function in a way that supports optimal identification of high-impact science?
- **Approvals**
 - Office of Extramural Research
 - CSR Advisory Council

ENQUIRE 2019

Implementation – 42 study sections



Healthcare Delivery/Patient Outcomes – 9 study sections



GI, Renal, Endocrine, Metabolism – 11 study sections



Functional/Cognitive Neuroscience – 12 study sections



Cardiac, Vascular, Hematology – 10 study sections

- Approved by CSR Advisory Council, March 2020
- **Implementation delayed due to COVID-19** – from June 5, 2020 to Oct 5, 2020 receipt dates
- **New and restructured study section descriptions** posted on the web
- **Members being reassigned** according to expertise need/scientific area realignment- Nov 2020
- **First study section meetings** of new/restructured committees in Feb 2021

ENQUIRE 2020

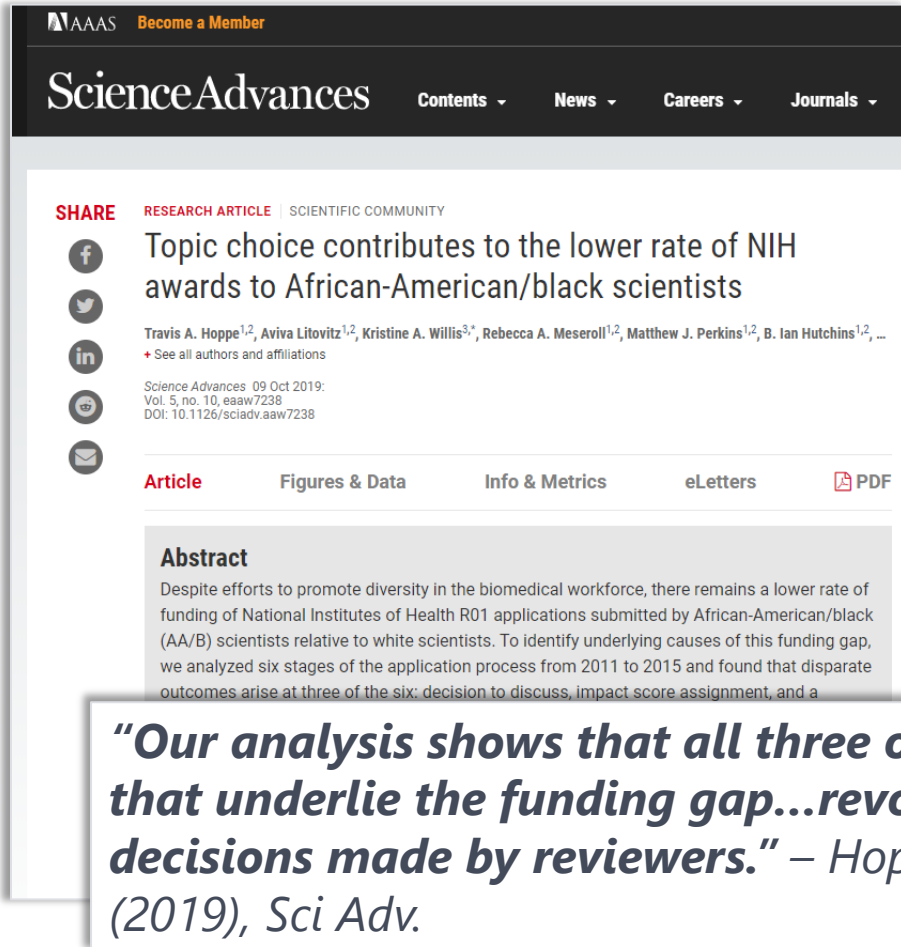
Ongoing: Basic Sciences (16 study sections)

Upcoming (2 clusters, each with 10-12 study sections): Epidemiological & Oncological Sciences



BIAS IN REVIEW

“Reviewer Bias” based on Topic Choice



The screenshot shows the top of a Science Advances article page. The title is "Topic choice contributes to the lower rate of NIH awards to African-American/black scientists". The authors listed are Travis A. Hoppe, Aviva Litovitz, Kristine A. Willis, Rebecca A. Meseroll, Matthew J. Perkins, B. Ian Hutchins, and others. The article is dated 09 Oct 2019. Below the title, there is a tabbed interface with "Article" selected. The abstract is visible, starting with "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".

“Our analysis shows that all three of the factors that underlie the funding gap...revolve around decisions made by reviewers.” – Hoppe et al. (2019), Sci Adv.

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

Open Mike

Helping connect you with the NIH perspective, and helping connect us with yours

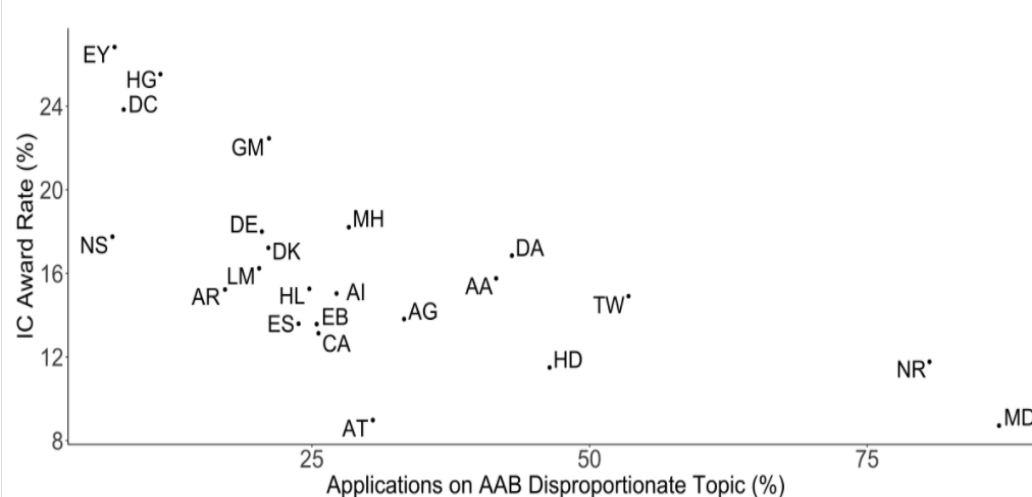


Posted on August 12, 2020 by Mike Lauer

Institute and Center Award Rates and Funding Disparities

In 2011, Ginther et al. found that National Institutes of Health counterparts (Ginther et al. 2011) found that

IC Award Rates and Proportion of Applications on AAB Disproportionate Topics ($r = -0.45$)

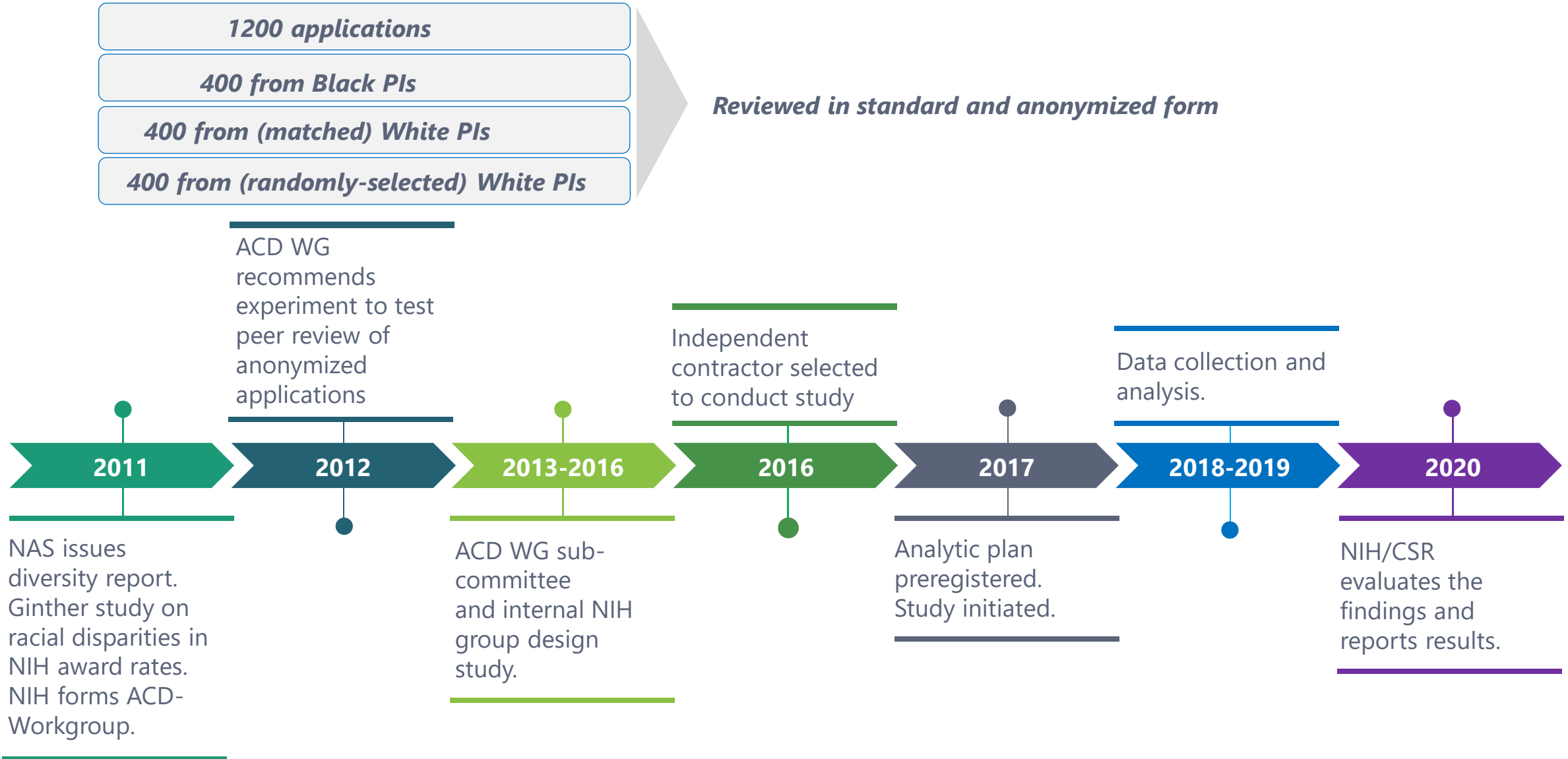


NIH Reanalysis: Added in individual NIH IC award rate as a variable

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%

“These new analyses demonstrate that differential award rates, rather than decisions made by peer reviewers, as indicated in Hoppe, were critical drivers of differences in funding outcomes for applications linked to different topics” - See Open Mike, Aug 12, 2020; Corrigendum submitted.

CSR's "Anonymization" Study



Anonymization Study

Main Results:

- No effect on scores of Black applicants
- Worsens scores of White applicants (significant, small effect size)
- 20% of the time, reviewers could correctly identify the applicant

Publication ready, submitted/rejected without peer review by Sci Adv, preparing for submission elsewhere

Three takeaways:

- *Isolating the effect of race in the peer review process is challenging due to secondary, linked variables (e.g. institutional “prestige”, investigator “pedigree”, Matthew/halo effects, etc.) all tied to racial disparities in opportunity/access. **Positive bias effects***
- *Implicit bias is in all of us, including the 18,000 CSR reviewers*
- *Anon study (post-submission redaction, mail reviews only, no meeting, no discussions, no final scores) not the same as carefully-designed, double-blinded review process*

Piloting Multi-Stage Partially Double-Blinded Review

CSR/Common Fund Collaboration (Fall 2020 transformative R01s)

NIH Director's Transformative Research Award

Funding opportunities for exceptionally innovative and unconventional research projects



NIH DIRECTOR'S
TRANSFORMATIVE
RESEARCH
AWARD

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](#) ▾

- **Self-redaction** by investigators – no identifiers/institutions
- Stage 1: **Editorial Board** reviews Specific Aims; selects top subset.
- Stage 2: **Subject matter experts** evaluate Specific Aims, Abstract, Research Strategy.
- Stage 3: **Editorial Board** selects top subset, gives prelim scores, followed by receiving full application with investigator info, meeting with discussion and final scores of all 5 criteria.
- **Analysis by external contractor** regarding process, outcomes, reviewers' ability to evaluate or identify the applicant, etc. will determine feasibility.

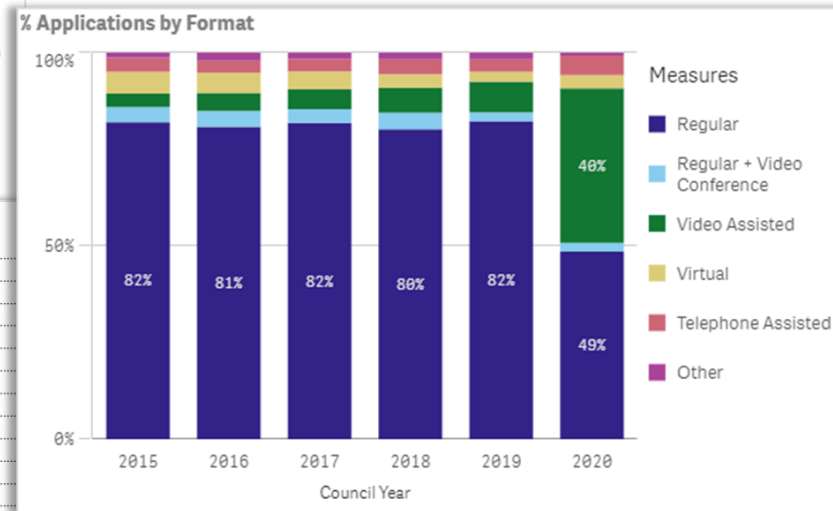
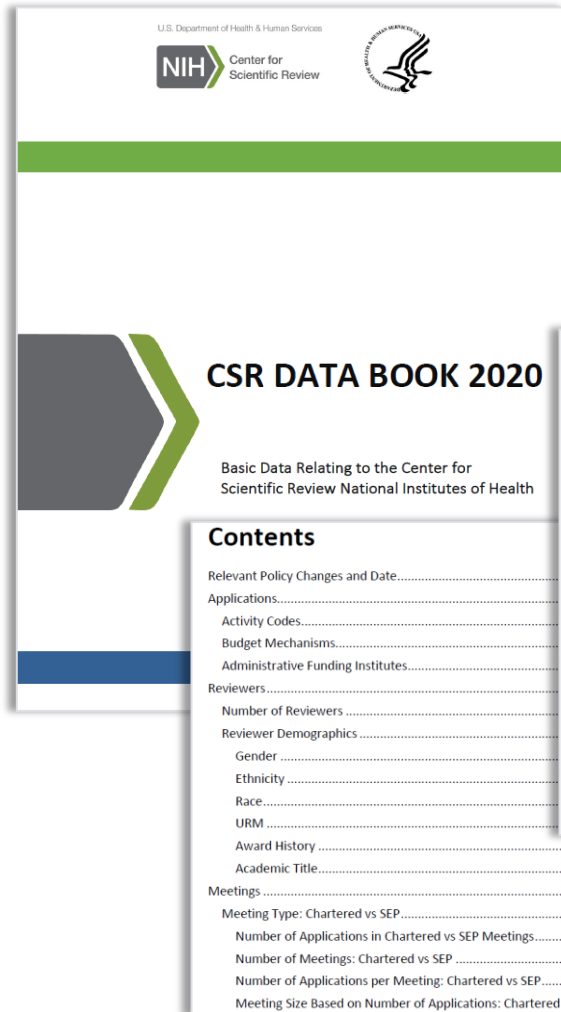
CSR will launch bias awareness module for reviewers, SROs

Spring 2021 (before summer 2021 meetings)

- **Piloted in summer 2020** for NIGMS MIRA reviewers, SROs, POs - collaboration between CSR, NIGMS, and NIH's COSWD
- Based on pilot feedback, CSR is designing multimedia, interactive module for reviewers and SROs – **Planned launch: Apr/May 2021**
 - Bias (including positive bias) awareness in self, in others
 - Case studies in review
 - Mitigation and bystander strategies in review



Under Development: CSR Data Book



- Dynamic, interactive site for public access to CSR peer review data
- Application numbers, meeting data, reviewer data, demographics, etc.
- Accuracy, Transparency, Accountability

Demographics, Career-Stage of CSR Reviewers 2020

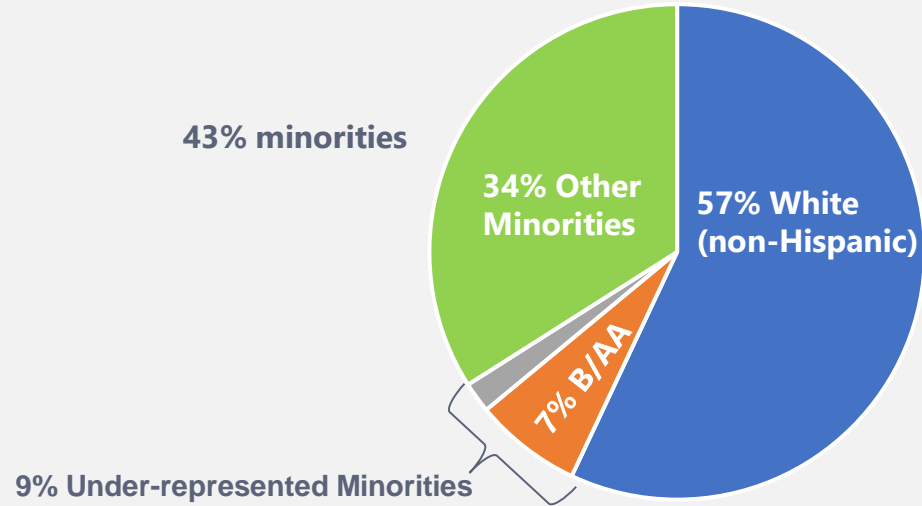
	%F		%URM		%B/AA	
	2015	2020	2015	2020	2015	2020
Applicants	33.5%	34.9%	7.8%	8.4%	2.3%	2.6%
Study Section Members	40.2%	42.9%	11.2%	13.2%	4.1%	4.2%
All Reviewers	34.2%	38.2%	7.4%	8.5%	2.0%	2.5%

Professor		Associate		Assistant	
2015	2020	2015	2020	2015	2020
55.5%	49.8%	29.1%	32.1%	6.3%	10.5%

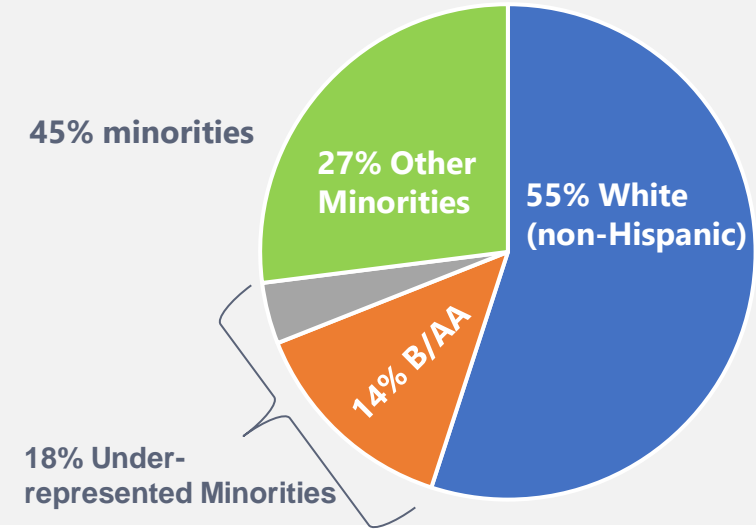
CSR Scientific Review Officer Demographics [June 2020]

Ethnicity

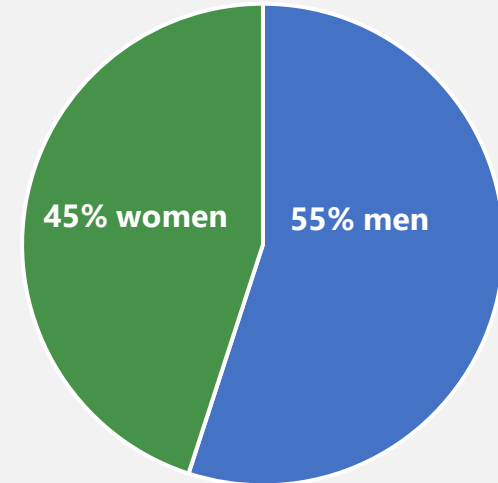
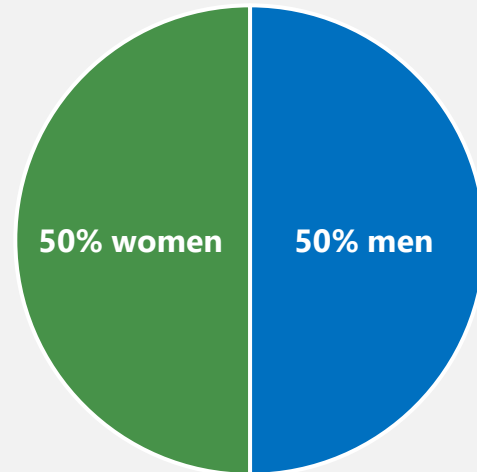
SRO Workforce



Supervisors



Gender





Broadening the Pool of Reviewers

Broadening the Pool


Early Career Reviewer Program Expanded

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



Jumpstart Your Research Career

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

<h4>Employment</h4> <p>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>	<h4>Grant & Review History</h4> <p>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/P1 role</p>
<h4>Research</h4> <p>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/PO 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>

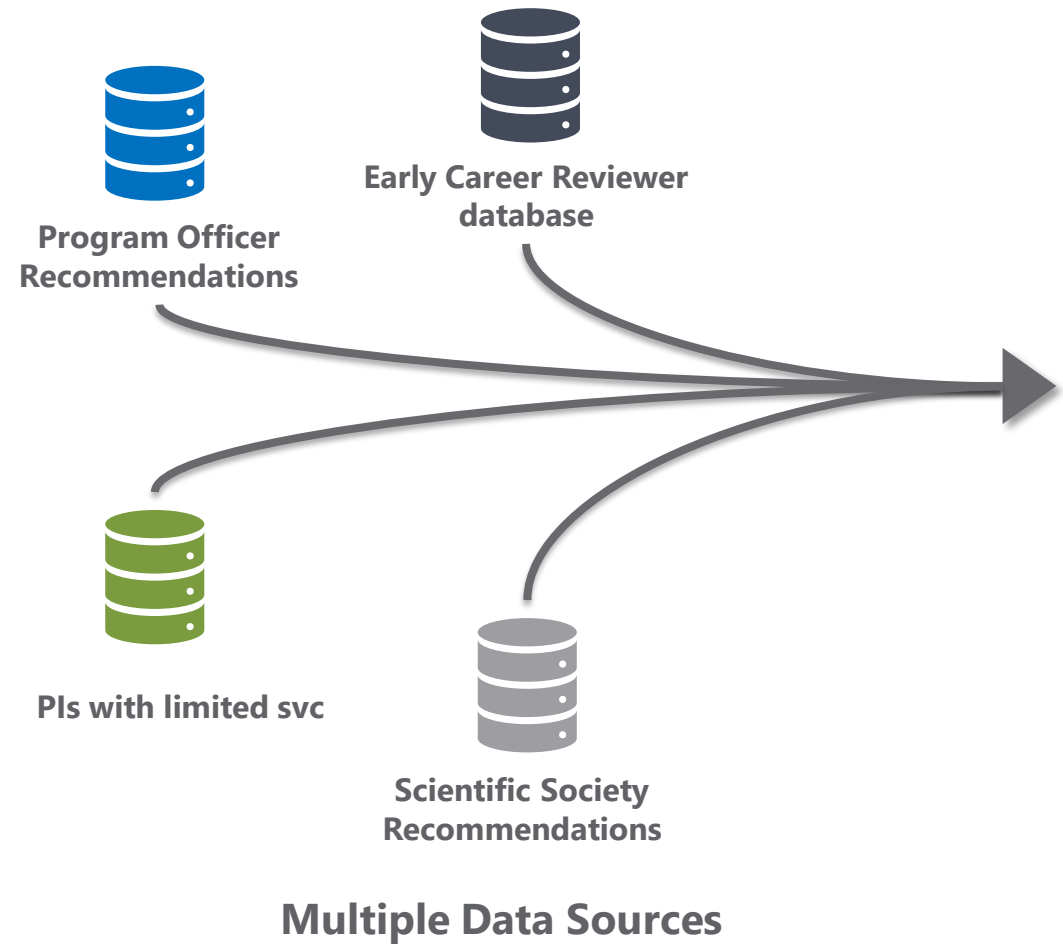
- **Sept 2019 CSRAC Working Group Recommendations** re: qualifications, usage, consistency, engagement
- **Sept – Dec 2019:**
 - Database revamped – usable, trackable, accurate
 - CSR SRO guidance developed
 - 2 ECRs/standing committee
 - 2 ECRs/SEP with >49 R01/R21
 - 1 ECR/SEP with 25-49 R01/R21
- **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

The critical role of SROs

- Increased attention to diversity on Special Emphasis Panels (SEPs)
- Moving away from diversity as a “requirement” to recognition of the critical need for the NIH to hear diverse (race/ethnicity, gender, career-stage, scientific fields) perspectives to identify the best, most disruptive, novel science.
- Moving away from old habits of recruiting from the “mental rolodex” approach
- New and enhanced resources to make it easier for SROs to interrogate a broad pool of scientific expertise (CSR’s Reviewer Finder Tool)

Broadening the Pool: Aug 2020 Launch of CSR Reviewer Finder



Source ☐ ECR ☐ Society ☐ ICRR ☐ Funded PI ☒ All

Advance Search

Last name

Expertise Keywords

Profile ID

Study Section

Study Section

Approved ECR (813)

Society Recommendations (96)

NIH

IC Recommendations (161)

\$\$\$

Funded PI (3300)

Search Result: 4370

Export all results to Excel

Reviewer Name	Profile ID	Expertise	State	Study Section Matches	PO Name	Institution	Source	CV
Doe, John	123456	developmental neuroendocrinology, neuroanatomy early development of feeding circuitry in the hypothalamus	NY	IPOD	Brad Cooke	NIH	ICRR	
Doe, John	123456	MEDICAL glycobiology, heparan sulfate.	NY	ACTS	Hung Tseng	University of California, San Francisco	ICRR	
Doe, John	123456	INFECTIOUS DISEASES	NY	PTHE	Dona Love	NIH	ICRR	
		MECHANISM OF ACTION OF ENVIRONMENTAL CARCINOGENS; AROMATIC AMINES; POLYCYCLIC AROMATIC HYDROCARBONS; METHOD DEVELOPMENT FOR EXPOSURE TO NITRO PAH; BIOMARKERS DEVELOPING NOVEL CHEMOPREVENTIVE AGENTS						

One Interface – user-friendly for SROs

Update: CSR AC Working Group on Simplifying Review Criteria [Jan 2020 – Mar 2020]

1. Reorganize the current five scored review criteria into three scored factors
2. Define each criterion and factor conceptually
3. Alter templates to focus reviewer attention on score driving factors
4. Clarify reviewer responsibility for evaluating the budget
5. Relieve reviewers of responsibility for most “additional review considerations”
6. Convene an additional workgroup for review criteria for clinical trials applications

Shared with NIH leadership – very well-received, go-ahead to convene CT WG

Next steps forward with OER/ICs after CSRAC WG on Simplifying CT Review Criteria has a final report



Discussion