



NANDS COUNCIL | SEPTEMBER 10, 2020

NINDS Director's Report

Walter J. Koroshetz, MD

Director, National Institute of Neurological
Disorders and Stroke

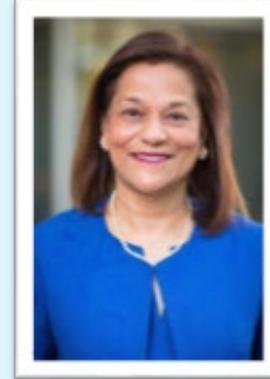


National Institute of
Neurological Disorders
and Stroke

NIH Leadership Changes



Michael F. Chiang, M.D.
Director, National Eye Institute
Previously: Knowles Professor of Ophthalmology & Medical Informatics and Clinical Epidemiology at Oregon Health & Science University



Rena N. D'Souza, D.D.S., M.S., Ph.D.
Director, National Institute of Dental and Craniofacial Research
Previously: Assistant Vice President for Academic Affairs and Education for Health Sciences, Professor of Dentistry, Neurobiology and Anatomy, Pathology and Surgery at University of Utah



Lindsey A. Criswell, M.D., M.P.H., D.Sc.
Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases
Previously: Vice Chancellor of Research, Professor of Rheumatology at University of California, San Francisco

Appropriation History

(Dollars in Thousands)



	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 Appropriation	FY 2021 President's Budget	FY 2021 House Mark
NINDS	1,604,607	1,692,833	1,778,688	1,888,130*	1,947,965*	2,110,256*	1,928,789*	2,146,499*
NINDS % Change	1.0%	5.5%	5.4%	6.15%	4.17%	7.5%	-8.6%	1.7%
NIH	30,311,349	32,345,549	34,161,349	36,228,080**	38,023,000**	40,684,000**	37,015,989**	41,250,778**
NIH % Change	0.5%	6.7%	5.6%	6%	4.9%	6.7%	-8.8%	1.4%

- The FY 2021 President's Budget has an average cut of 9% cut across NIH ICs.
- FY 2021 21st Century Cures for BRAIN is \$100M (\$50M to NINDS, \$50M to NIMH).
- Not included in the table above, the FY 21 House Mark includes \$5 billion in COVID-19 emergency appropriations for the NIH OD to offset costs from lost research productivity.

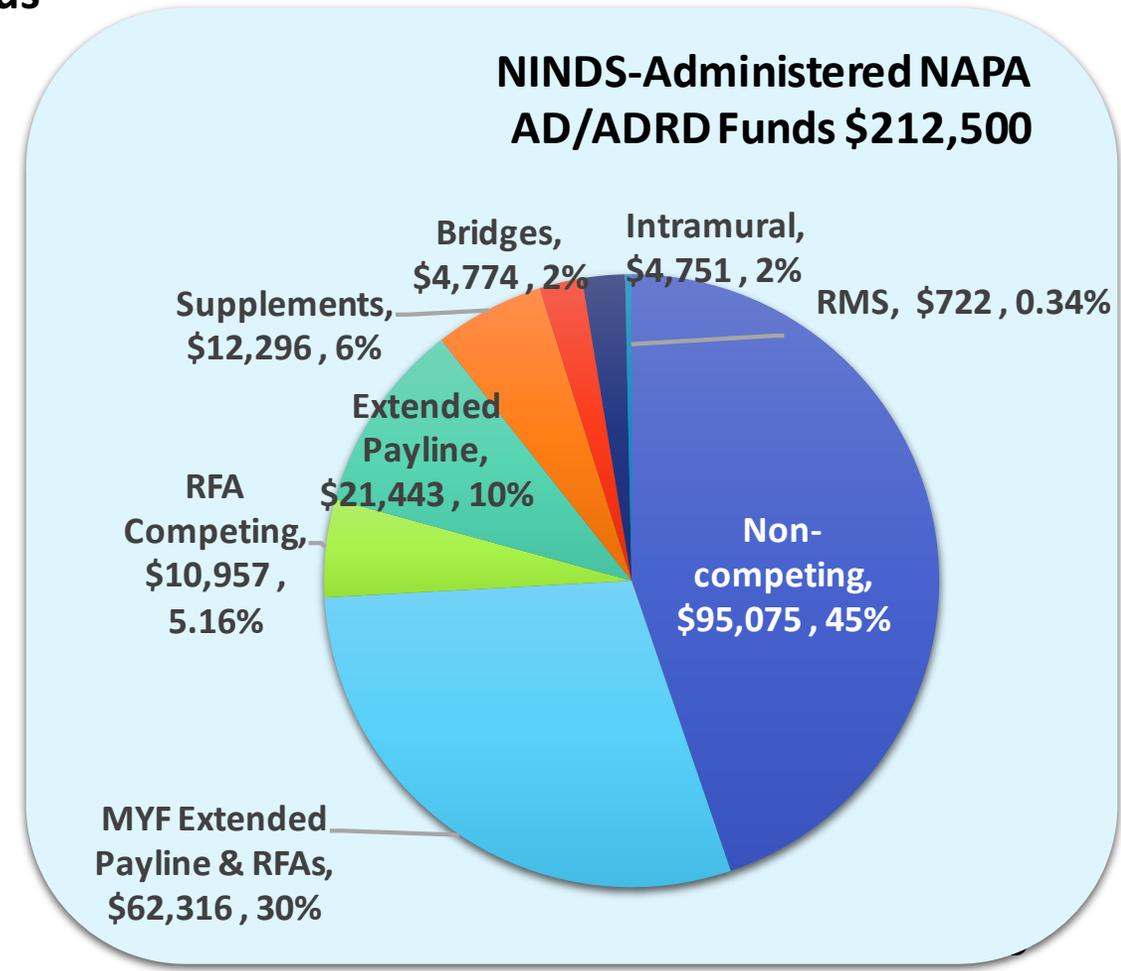
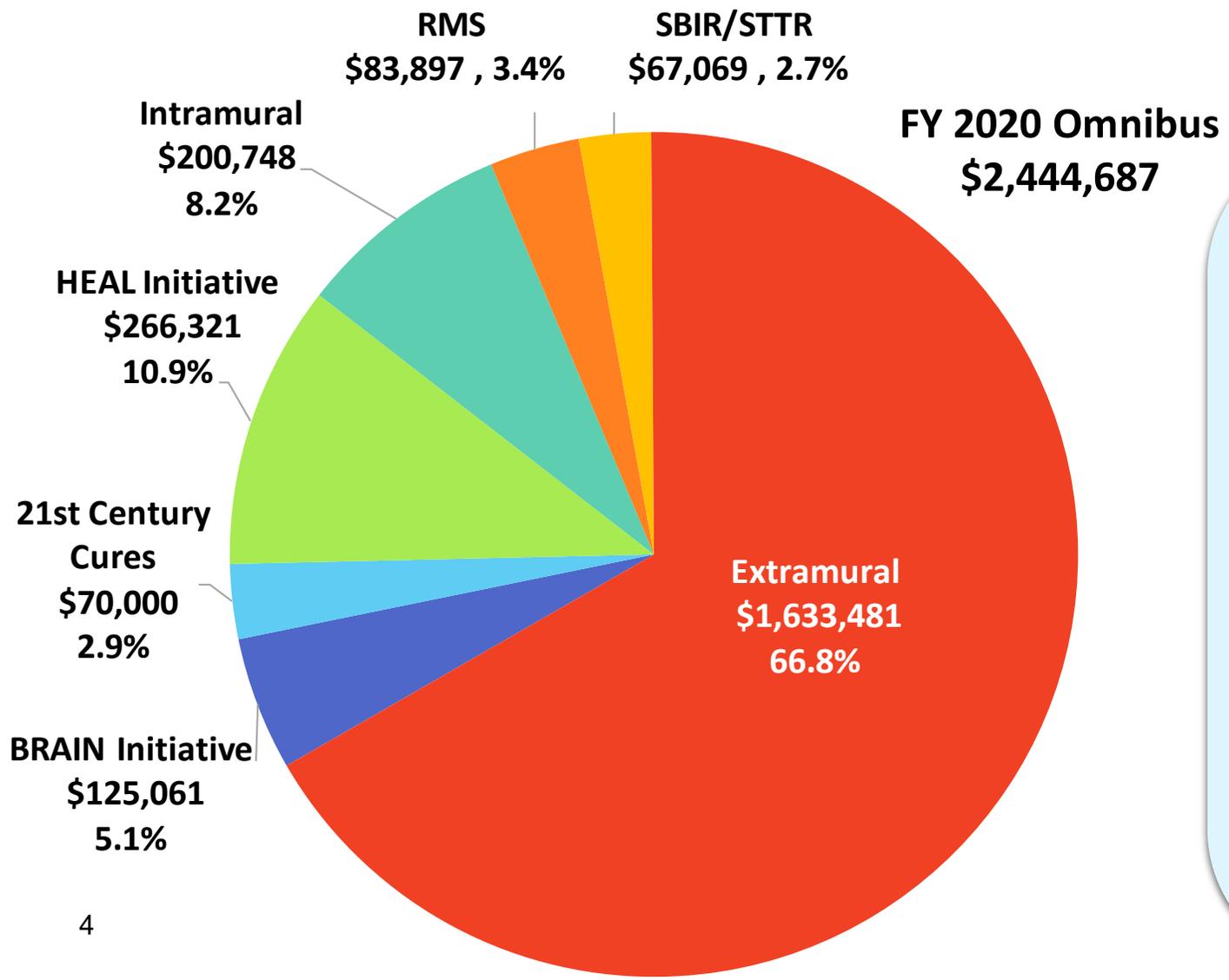
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* These columns do not include the monies that NINDS received for the HEAL Initiative and CURES Act.

** These columns do not include the monies that NIH received for the PHS Evaluation, HEAL Initiative and CURES Act.



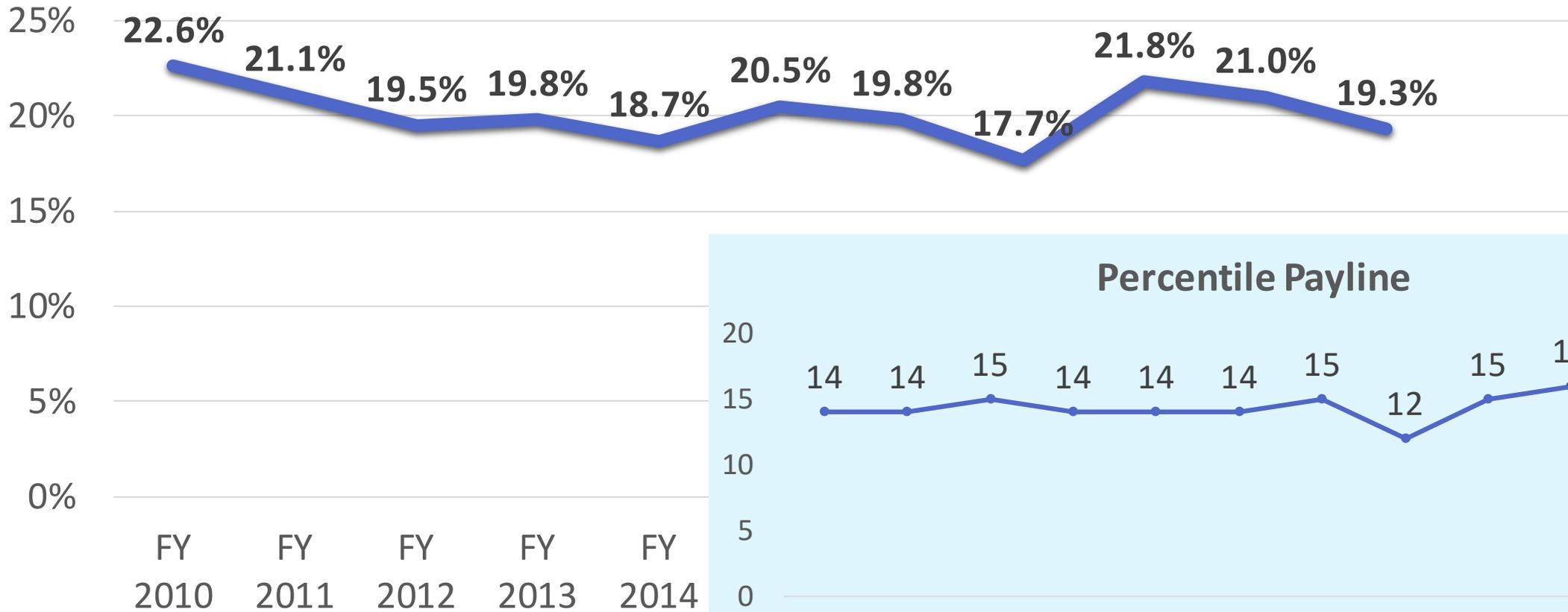
FY 2020 NINDS Appropriation Budget Distribution



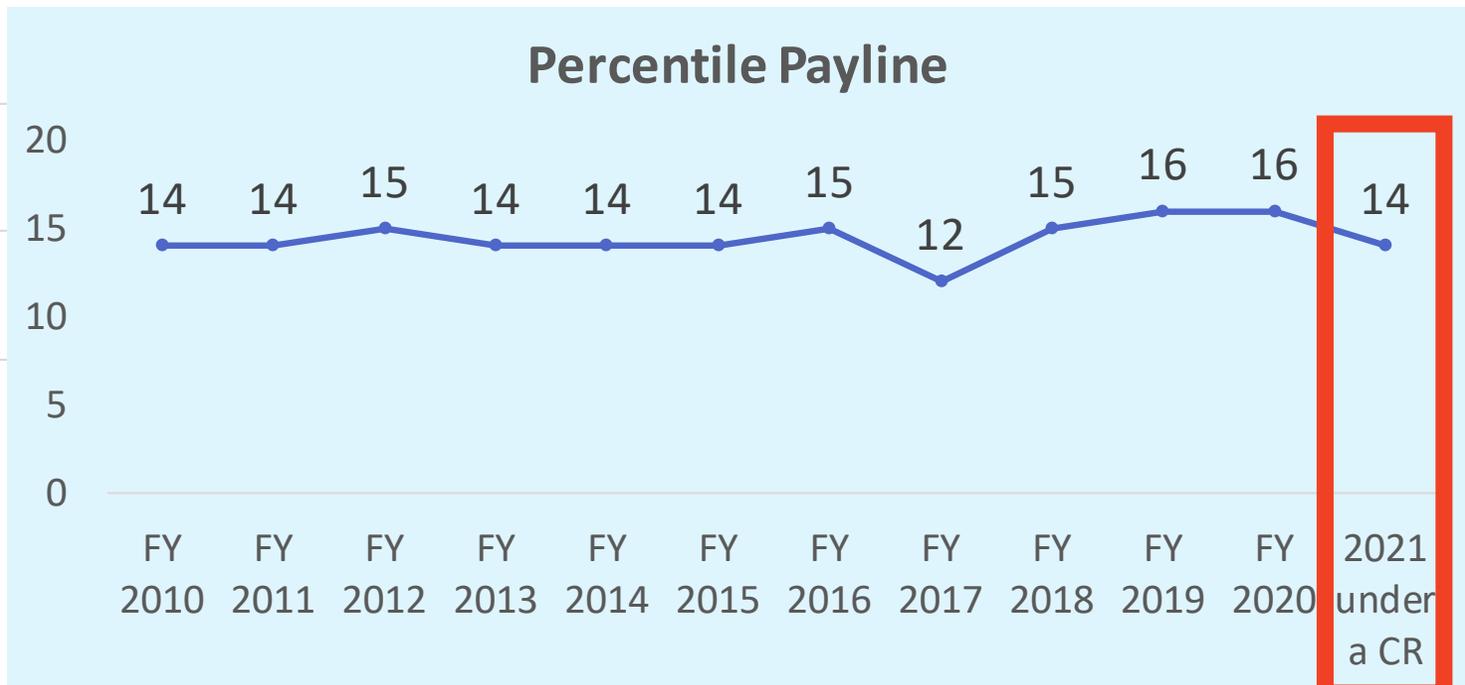
FY 2020 Parent RPGs and Success Rate



Success Rate

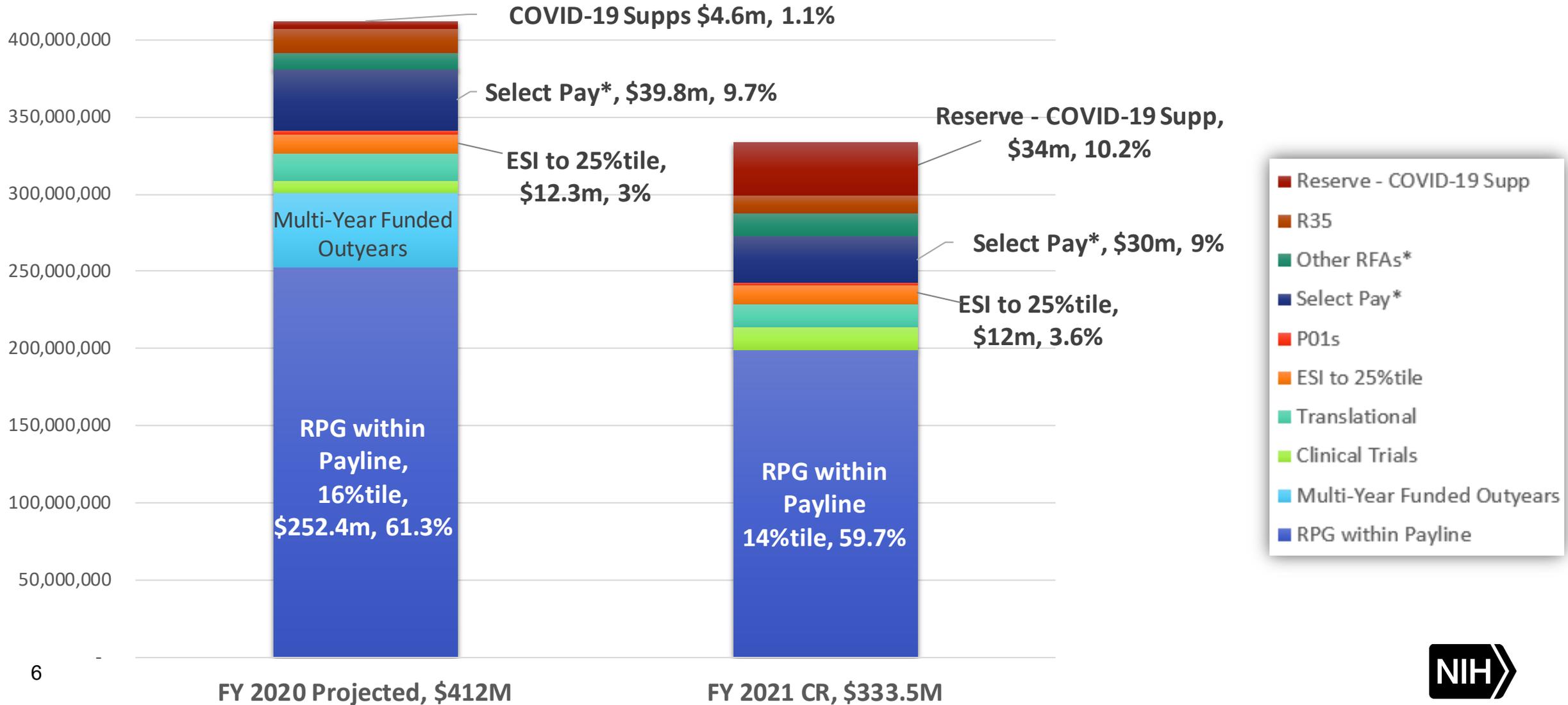


Percentile Payline



5 * FY 2020 is estimated. NOT finalized.
CR: Continuing Resolution

FY 20/FY 21 NINDS Competing Research Project Grants



NINDS Funding Decisions



To advance our mission, NINDS is constantly surveying the scientific landscape and analyzing our portfolio to ensure the holistic health of the science effort

Most of our competing budget supports the ingenuity of the research enterprise and funds investigator-driven research proposals within an annually established payline; in addition,

We design programs and funding opportunities

- to capitalize on scientific opportunities (Ex: BRAIN)
- to fill gaps (Ex: basic neuroscience)
- to rise to meet public health challenges (Ex: ADRD, HEAL, COVID-19)
- to train and sustain the biomedical workforce (Ex: Training, R35)

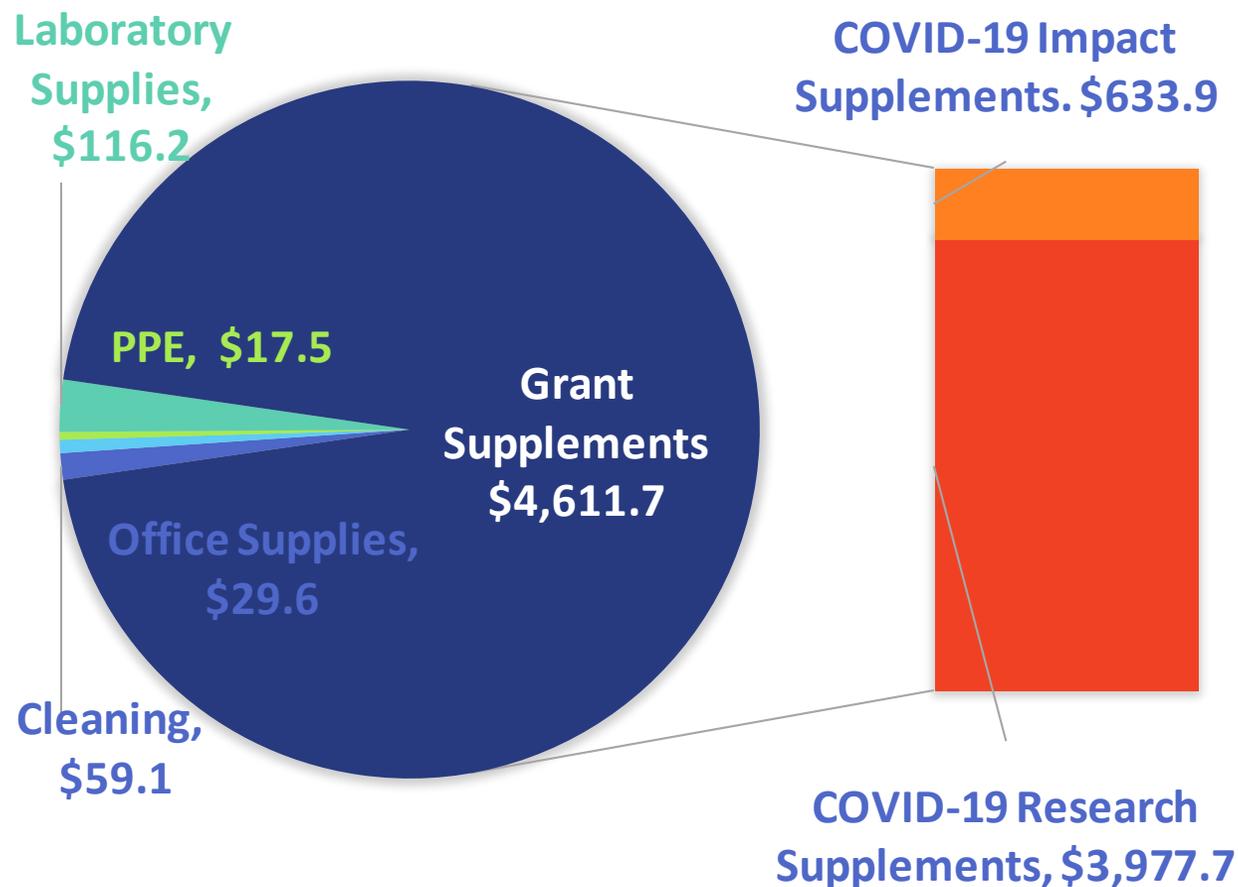
NINDS Funding Decisions: Select Pay



We fund applications beyond the payline (select pay) to ensure the health of the neuroscience research community as a whole

- In select pay funding decisions, we examine meritorious grants (usually within 10 points of the payline)
- We present applications to Council based on their contribution to the holistic health of the NINDS science community and their ability to fill scientific gaps
- Examples:
 - **Bridge awards** to investigators without other lab support to prevent loss of human and infrastructure
 - **Early stage investigators** (within 10 years of terminal degree) to equalize their success rates with those of established investigators
 - Grants that bring **diverse perspectives** to excellent science (either tools, skills, or to the workforce)
 - **High risk, potentially high impact** applications that offer exceptional opportunities for progress

FY 2020 COVID-19 Expenditures



Research Supplements:

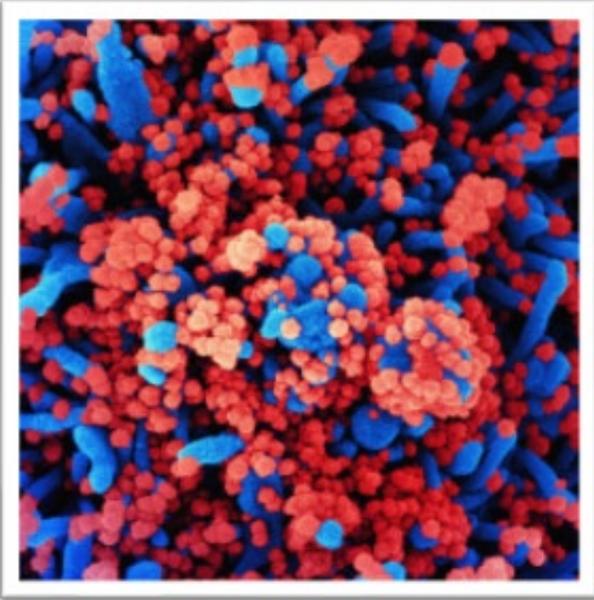
Notice of Special Interest (NOSI): Availability of Urgent Competitive Revisions and Administrative Supplements For Research on Biological Effects of the 2019 Novel Coronavirus on the Nervous System
Notice Number: NOT-NS-20-051

Five supplements funded – still seeking applications

Notice of Special Interest regarding the Availability of Administrative Supplements and Urgent Competitive Revisions for the Establishment and Maintenance of a Research Database for Neurological Manifestations of the SARS-CoV-2
Notice Number: NOT-NS-20-046

NOSI closed. Funded NIH COVID-19 NeuroDatabank and NeuroBioBank

NIH-supported Projects to Prevent and Treat COVID-19 Infections



Colorized scanning electron micrograph of a cell (blue) heavily infected with SARS-CoV-2 virus particles (red), isolated from a patient sample. *NIAID*

- NIH is supporting multiple multi-site, Phase 3 clinical trials evaluating investigational COVID-19 vaccines, including one using mRNA and another using adenovirus as the delivery platform
- NIH is supporting randomized, controlled clinical trials for various treatments, including trials to test:
 - ACTIV-2 & 3 Whether neutralizing monoclonal antibodies can treat SARS-CoV-2 coronavirus infection
 - ACTIV-1 The safety and efficacy of a treatment regimen consisting of 3 host targeted immune modulators
 - ACTIV-4 Anticoagulants and anti-platelet treatment to prevent thrombosis in SARS-CoV-2 infection

NIH is committed to supporting several Phase 3 vaccine trials to increase the odds that one or more will be effective in preventing COVID-19 and put us on the road to recovery from this devastating pandemic

-- NIH Director Francis S. Collins, M.D., Ph.D.

Rapid Acceleration of Diagnostics (RADx)



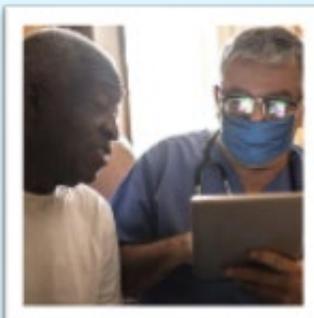
RADxSM Tech

Goal: To speed development, validation, and commercialization of innovative point-of-care and home-based tests & improve clinical laboratory tests **Budget: \$500 Million**



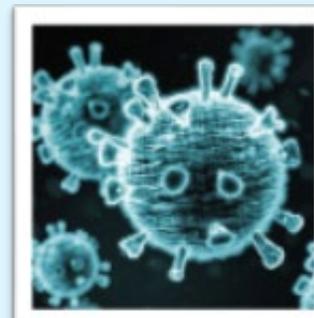
RADxSM Radical (RADx-rad)

Goal: To address gaps in COVID-19 testing through new, non-traditional approaches, as well as new applications of existing approaches **Budget: \$200 Million**



RADxSM Underserved Populations (RADx-UP)

Goal To understand and ultimately reduce the factors associated with disparities in COVID-19 morbidity and mortality for underserved and vulnerable populations **Budget: \$500 Million**



RADxSM Advanced Technology Platforms (RADx-ATP)

Goal: To increase testing capacity and throughput by identifying and rapidly scaling-up or expanding geographical placement of existing and late-stage COVID-19 testing platforms **Budget: \$230 Million**

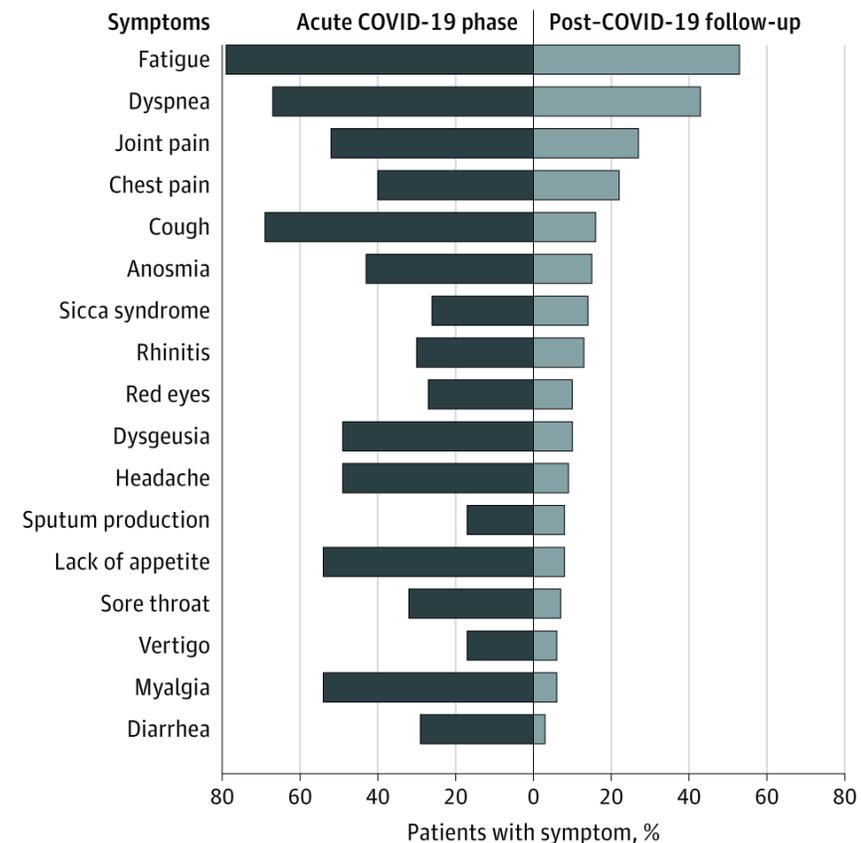
16 awards worth \$378 Million made so far

Neurologic Complications of COVID-19: Research Needed



- COVID-19 causes blood clots to form throughout the body and can lead to ischemic stroke
- COVID-19 infections are linked to “Multisystem inflammatory syndrome” in children, which can cause stroke and inflammation of the heart and other organs.
- Absence of clear evidence of infection in brain itself
- Following recovery from COVID-19 infection, rare cases of acute necrotizing hemorrhagic encephalopathy, acute disseminated encephalomyelitis, anti-NMDA receptor encephalitis, transverse myelitis, and Guillain Barré Syndrome have been reported
- Emergence of post-COVID syndrome with a high rate of reported fatigue – raises potential for long-term disability
- NINDS funded 5 supplements to collect clinical, imaging, and other data on neurologic aspects of COVID-19

Persistent Symptoms in Patients After Acute COVID-19



Impact of COVID-19 on Research

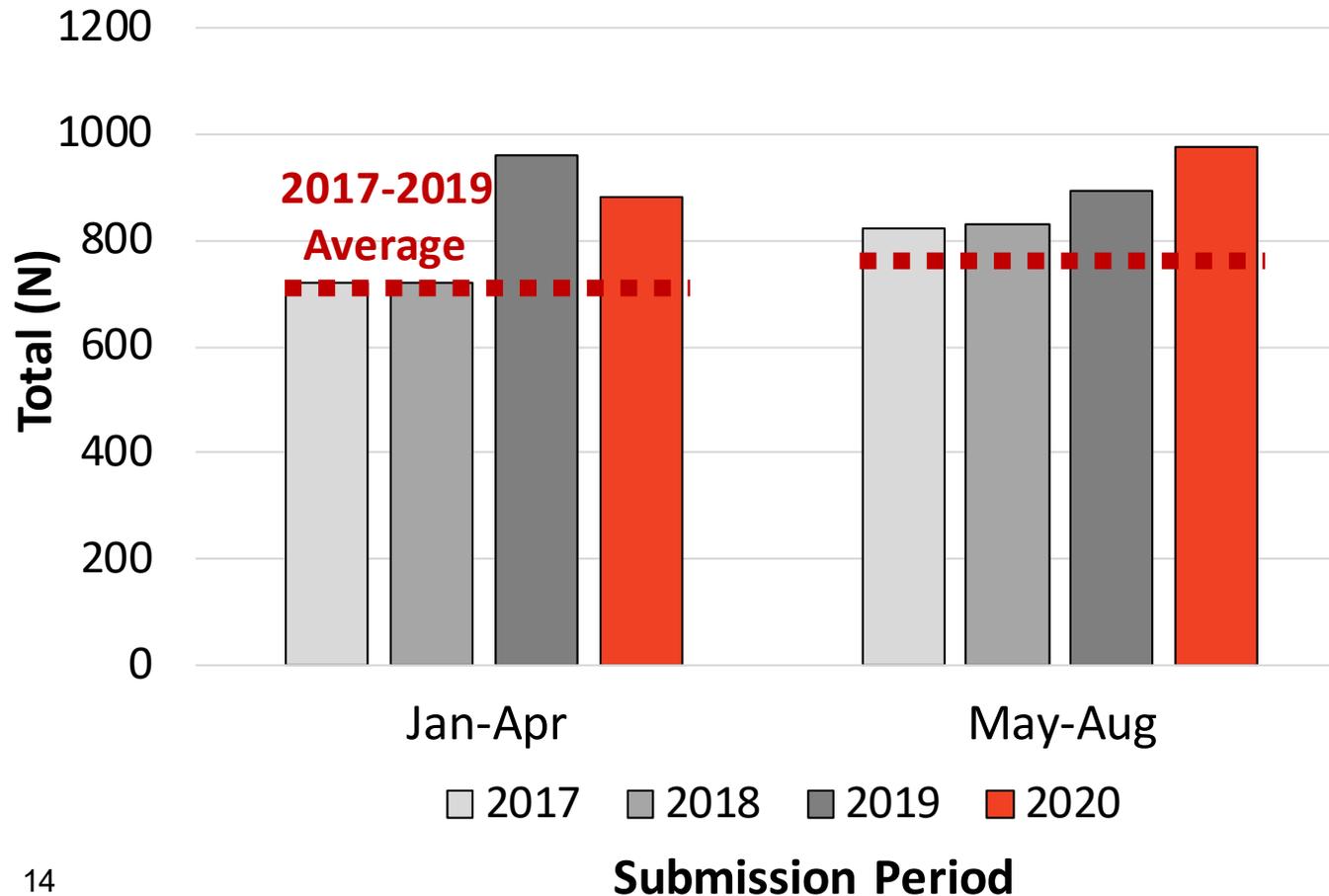


- COVID-19 research prioritized over nearly all other research
- Clinical trial enrollments disrupted, labs just opening up
- Loss of animal colonies
- Parents with young children appear to have been disproportionately affected, with a worrying report of a decline in women authors on preprints
- Concerns that investigators earlier in their career might be more affected

2020 R01 Applications Up Slightly Over Previous 3-year Period



NINDS R01 Applications



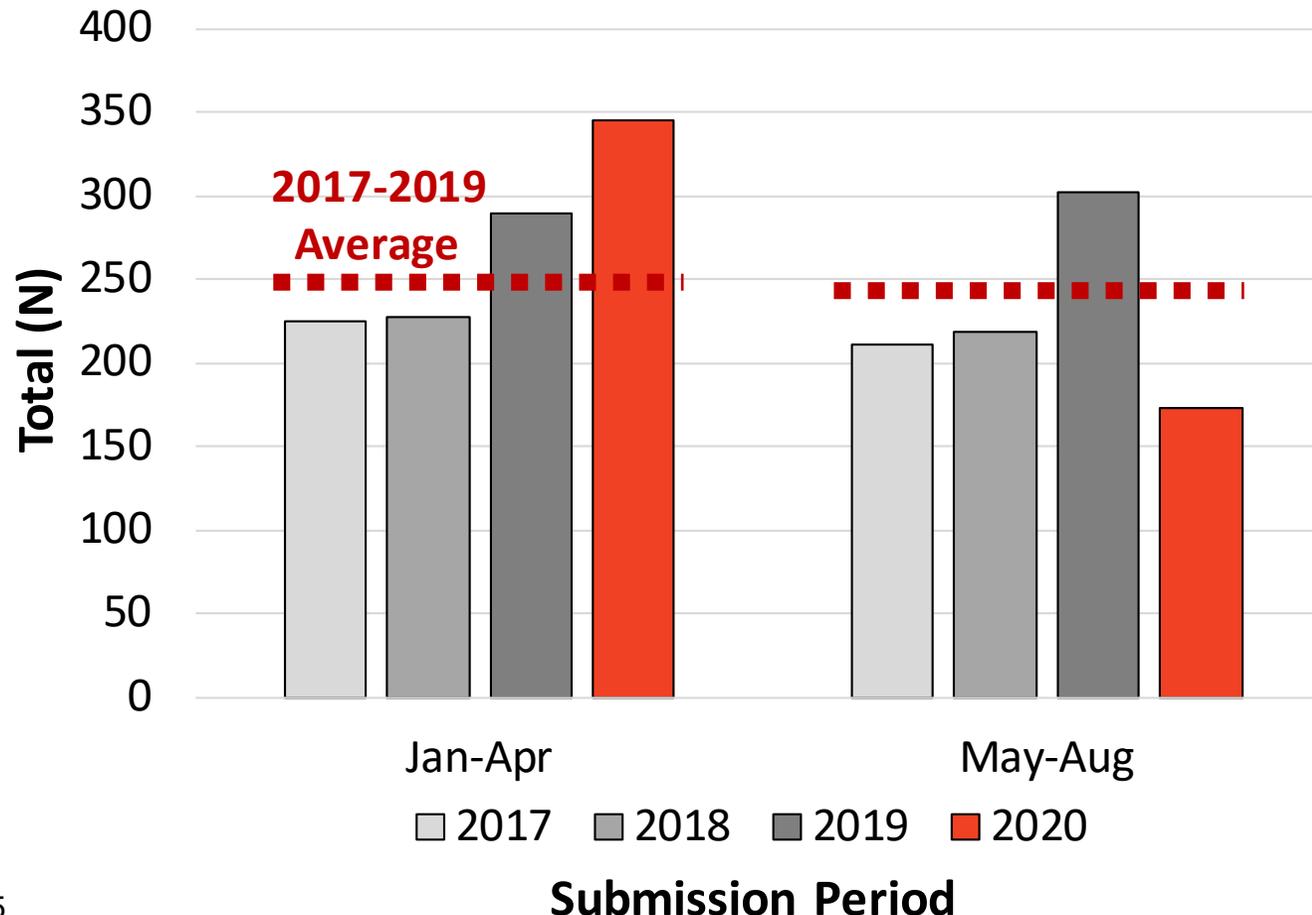
Note: NIH analyzed R01 and RPG applications submitted between May 1 and June 5:

- # applications was ~ 10% higher than the same time last year
- Proportion of applications with female PI was stable
- They will continue to assess and share their data through the Open Mike Blog

Trainee Applications May Be Decreasing as Pandemic Continues



NINDS Trainee Applications



NINDS found no change in submissions patterns from:

- Applications by career stage
- Applications from women
- Applications from underrepresented minorities

Whether this pattern is reflective of any broader impact is uncertain – the numbers are small and often fluctuate. We will continue to watch these data closely and update Council at next Council round

Administrative Flexibilities



Accommodations for Loss of Research Time

- NIH will be flexible with extending time constraints for early stage investigators, fellowship, career development, and training awards, including phased awards. For example:
 - NINDS T32 application receipt dates were extended to June 29, 2020
 - NIH provided a two-receipt cycle extension (roughly 8 additional months) of eligibility for K99/R00 applicants from the June/July 2020 through the February/March 2021 due dates
 - NINDS provided a two-receipt cycle extension (roughly 8 additional months) of eligibility for K22 applicants, from the June/July 2020 through the February/March 2021 due dates. In addition, those who normally would have been eligible to apply for the June/July 2021 receipt date will have a 1-receipt cycle (roughly 4 months) extension
 - NINDS funding extensions F32's, K99's, K22's for postdocs caught in transition

FAQs: grants.nih.gov/faqs#/covid-19.htm

**Break for Discussion on Part 1.
Part 2 to follow.**

Combating Racism and Promoting Equity at NINDS



The mission of NINDS is to seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease, *for all people*

What can we at NINDS do?

We are:

1. an employer,
2. a funding agency, and
3. we support research that can decrease the burden of neurological disorders in Black Americans and other underserved populations.

Director's Corner



A time for change: NINDS' commitment to diversity and eliminating racial bias

Friday, June 19, 2020

The events of the past few weeks, catalyzed by George Floyd's death, have unveiled for many the multifaceted racism faced by the Black community for centuries.

[Read complete Director's Message](#)

- [Director's Bio](#)
- [Director's Messages](#)
- [Director's Blog Posts](#)
- [Director's Publications](#)
- [Follow the Director on Twitter](#)

Listening to the Neuroscience Community



LIVE DISCUSSION

Black Lives Matter and Neuroscience: Why This Moment Matters

THURSDAY, JULY 2 / 12-1 P.M. EDT

Nii Addy, PhD
Jennifer Robinson-Williams, PhD
Marguerite Matthews, PhD
Fitzroy 'Pablo' Wickham

Dr. Gentry N. Patrick Leadership Story

How does one take a kid from Compton, CA, on a life journey and academic and career path to Full Professor in Neurobiology at UC San Diego by way of UC Berkeley (B.A.), Harvard University (PhD), and postdoctoral studies at California of institute of Technology?...

The answer is simple: Access, Mentorship and Advocacy!



LIVE NEURONLINE COMMUNITY CHAT

Black Lives Matter in Neuroscience: Continuing the Conversation

FRIDAY, SEPTEMBER 4 / 1-2 P.M. EDT

Nii Addy, PhD
Marguerite Matthews, PhD
Fitzroy 'Pablo' Wickham

Cell
Leading Edge

CellPress

Commentary For Black Scientists, the Sorrow Is Also Personal

Kafui Dzirasa^{1,2,3,*}
¹Departments of Neurobiology, of Psychiatry and Behavioral Sciences, and of Neurosurgery, Duke University Medical Center, Durham, NC 27710, USA
²Department of Biomedical Engineering, Duke University, Durham, NC 22208, USA
³Twitter: @KafuiDzirasa
 *Correspondence: kafui.dzirasa@duke.edu
<https://doi.org/10.1016/j.cell.2020.06.028>

I have tried to live in a world that does not see color but have only succeeded in living in a world that does not see me.

RACIAL JUSTICE, DIVERSITY, EQUITY, AND INCLUSION IN NEUROSCIENCE TRAINING

First in a Virtual Workshop Series on Neuroscience Training

August 20, 2020
12-2pm (EDT)
with discussion to follow

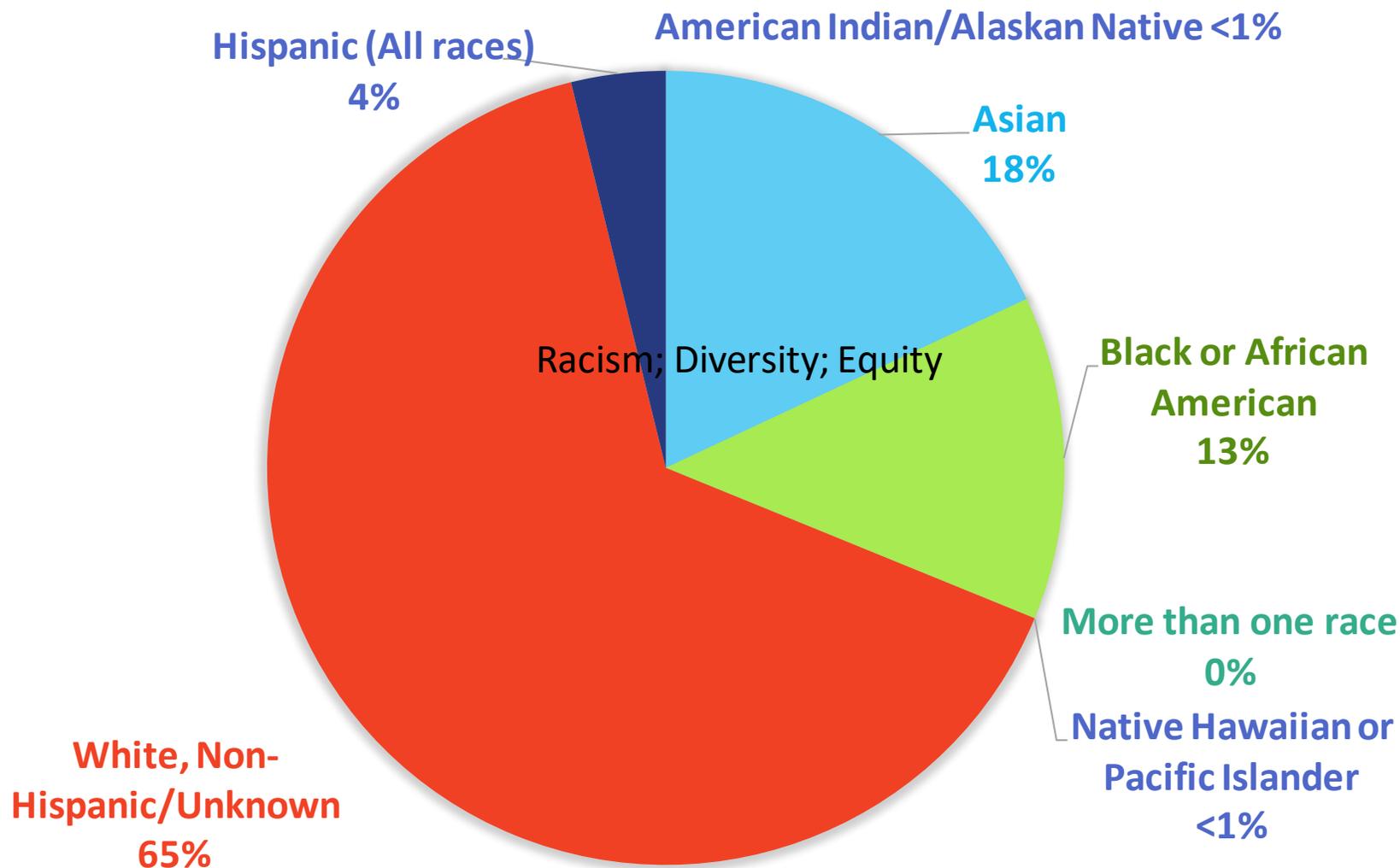
The National Academies of SCIENCES ENGINEERING MEDICINE

#BlackInNeuroWeek

JULY 27 - AUG 2, 2020
ALL TIMES EDT

<p>MONDAY JULY 27 #BlackNeuroRollCall</p> <ul style="list-style-type: none"> SHARE YOUR POP TALK ALL DAY - SHARE, RETWEET, & AMPLIFY BLACK IN NEURO SCHOLARS! 	<p>TUESDAY JULY 28 #NeuroRacism</p> <ul style="list-style-type: none"> PANEL - 12:30 PM JOURNAL CLUB - 5:00 PM
<p>WEDNESDAY JULY 29 #BlackJourneyToNeuro</p> <ul style="list-style-type: none"> PRE-GRAD PANEL - 12:30 PM GRAD PANEL - 2:00 PM CAREERS PANEL - 3:30 PM 	<p>THURSDAY JULY 30 #BlackNeuroArt</p> <ul style="list-style-type: none"> ALL DAY - PHOTO CONTEST GODSPEED Q&A W/ FILMMAKER SADE ABIODUN - 3:00 PM
<p>FRIDAY JULY 31 #BlackNeuroMentors</p> <ul style="list-style-type: none"> ROUNDTABLE CHAT - 11:00 AM SKYPE A BLACK NEUROSCIENTIST - 12:00 PM / 1:00 PM / 2:00 PM 	<p>SATURDAY AUGUST 1 #BlackWomenInNeuro</p> <ul style="list-style-type: none"> SHARE YOUR STORY SPOTLIGHT INTERVIEW W/ DR. STACEY DUTTON - 2:00 PM SOCIAL - 5:00 PM
<p>SUNDAY AUGUST 2 #BlackJogInNeuro</p> <ul style="list-style-type: none"> ALL DAY SHARE WHAT BRINGS YOU JOY & PEACE OUTSIDE OF NEURO IG LIVE DANCE CLASS - 1:00 PM 	<p>Follow @BlackInNeuro & visit our website www.BlackInNeuro.com</p> <p> </p>

NINDS Staff Demographics



Data representing all NINDS Full-time Equivalent employees (FTE) as of 2nd Quarter FY 2020



NIH Intramural Principal Investigators by Race/Ethnicity



Race/Ethnicity	Representation across Faculty Positions*
American Indian/Alaskan Native	<1%
Asian/Pacific Islander	9-28%
Black or African American	0-5%
More than one race	0-2%
White, Non-Hispanic/Unknown	59-86%
White, Hispanic	0-8%
Unknown Race	<1%

***Positions:** Senior investigator, Investigator, Senior Clinician, Senior Scientist, Assistant Clinical Investigator

Data as of end of 2019

<https://oir.nih.gov/sourcebook/personnel/irp-demographics/intramural-research-program-personnel-demographics-end-fy19>

8 Changes for Racial Equity at the NIH - from the NIH Community



- Publicly and explicitly identify diversity, inclusion, and anti-racism as top NIH priorities
- Track and publicly report NIH workforce diversity data annually
- Improve representation of Black, Indigenous, and Latinx staff at NIH
- Implement an annual workplace climate survey that includes questions specifically addressing the experience of perceived race-based discrimination
- Develop required anti-racism and anti-discrimination training for ALL NIH employees (with special emphasis on leadership and HR roles)
- Require and incentivize leadership to be active participants in NIH diversity, equity, and inclusion initiatives (e.g., workforce recruitment, retention, and promotion efforts)
- Implement a wage equity plan
- Rebrand the NIH “Harassment Doesn’t Work Here” Initiative as “Racism, Discrimination, and Harassment Don’t Work Here” and expand course offerings

NINDS Actions as an Employer



Greater outreach to those with diverse backgrounds in our hiring into Extramural and Office of the Director

Greater outreach in recruiting young scientists from diverse backgrounds to intramural program

Hiring from Science Scholars Program in intramural office of the Director to build the workforce diversity of independent research scientists by selecting scholars who have a commitment to building a diverse Intramural Research Program (IRP).

Scale up training programs in intramural inclusive of underrepresented groups

NINDS has a successful outreach program to Native American and a summer program with strong diverse makeup

Provide an inclusive environment and culture that promotes diversity - the “seed on fertile ground” analogy

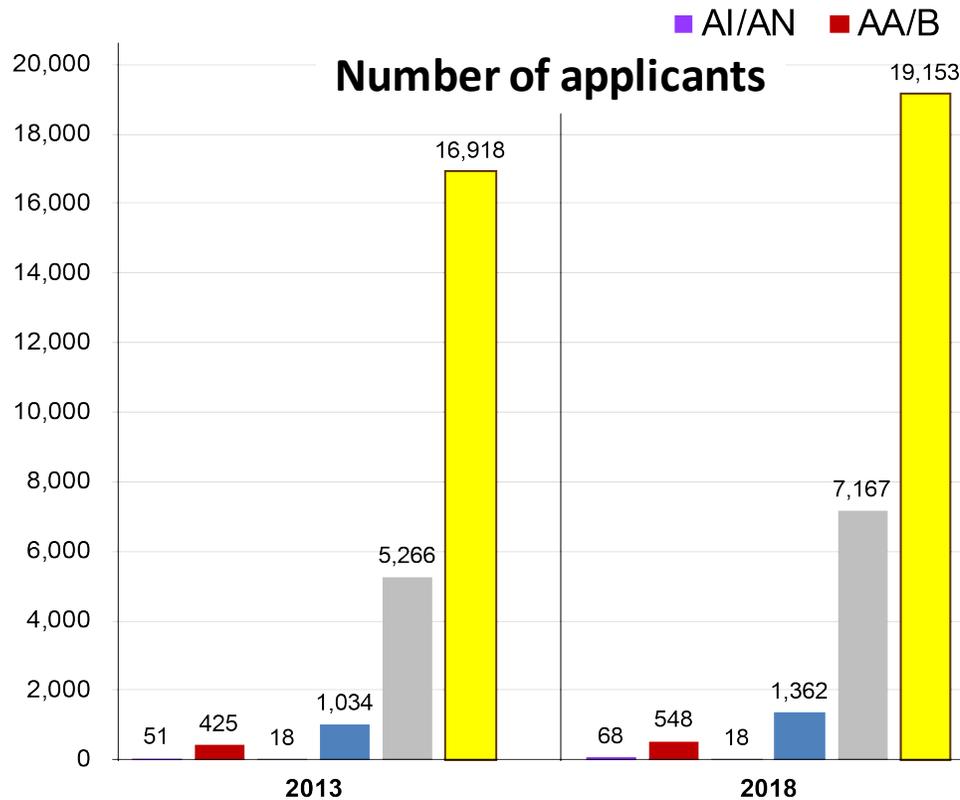
NINDS PROACTIVE program is a workplace support network that organizes and trains a cadre of peer advisors to provide support, guidance, and resource information to coworkers (federal employees, contractors, and trainees) related to a wide variety of workplace issues



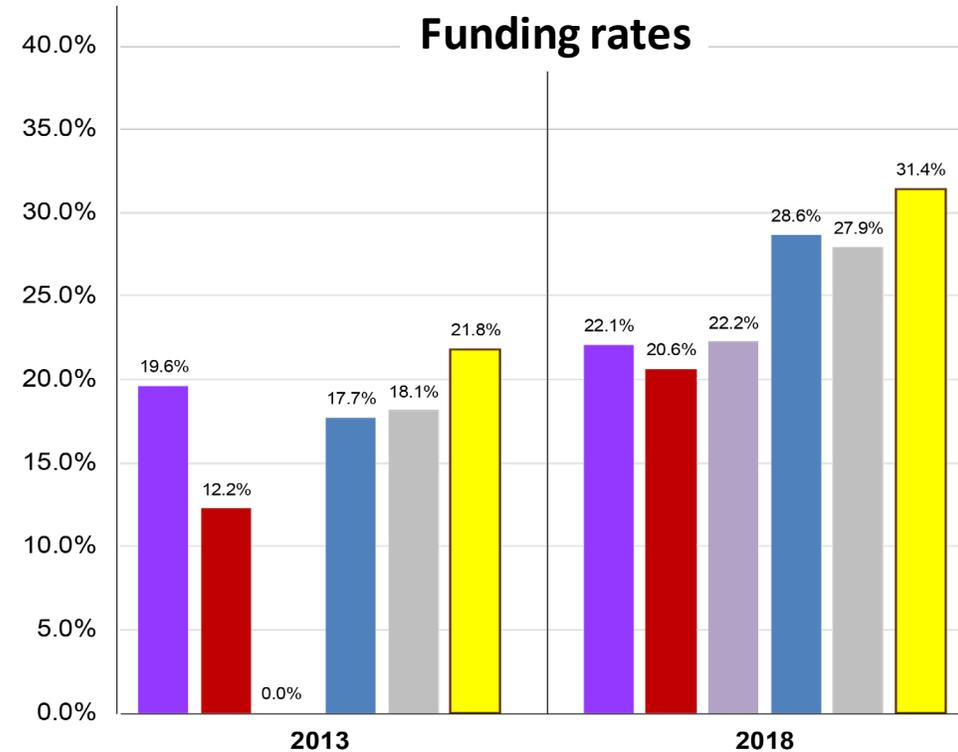
Maureen Gormley, MPH, Ph.D., RN
Associate Director for Management, NINDS

NIH/NINDS as a Grant Funding Agency

R01eq Applicants* and Funding Rates (Type 1 and 2) Race/Ethnicity FY2013 and FY2018



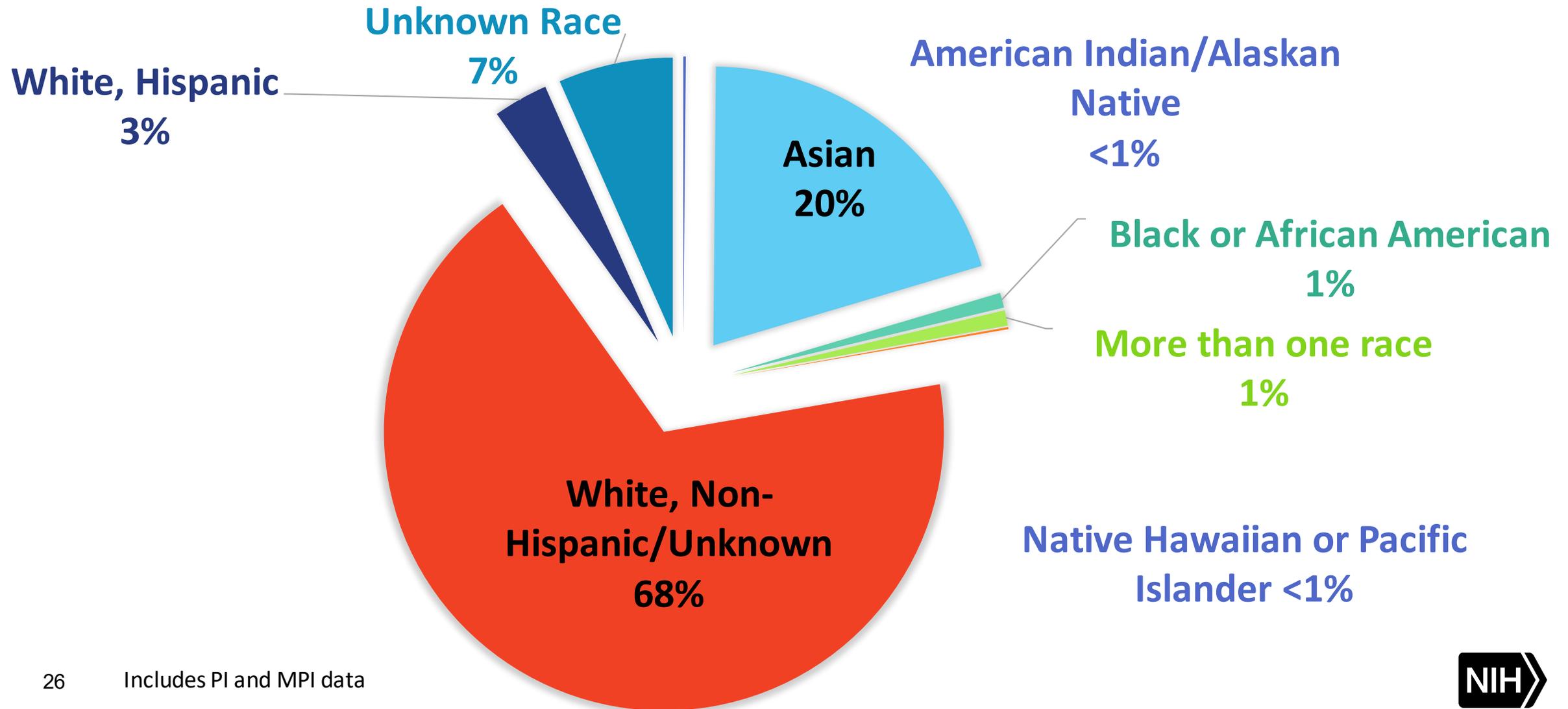
- 28.9% increase in AA/B applicants
- 13.2% increase in white applicants



- 68.9% increase in AA/B funding rate
- 9.6 % gap exists between AA/B and white funding rates

Overall 2% of NIH R01 awards have AA/B PI*

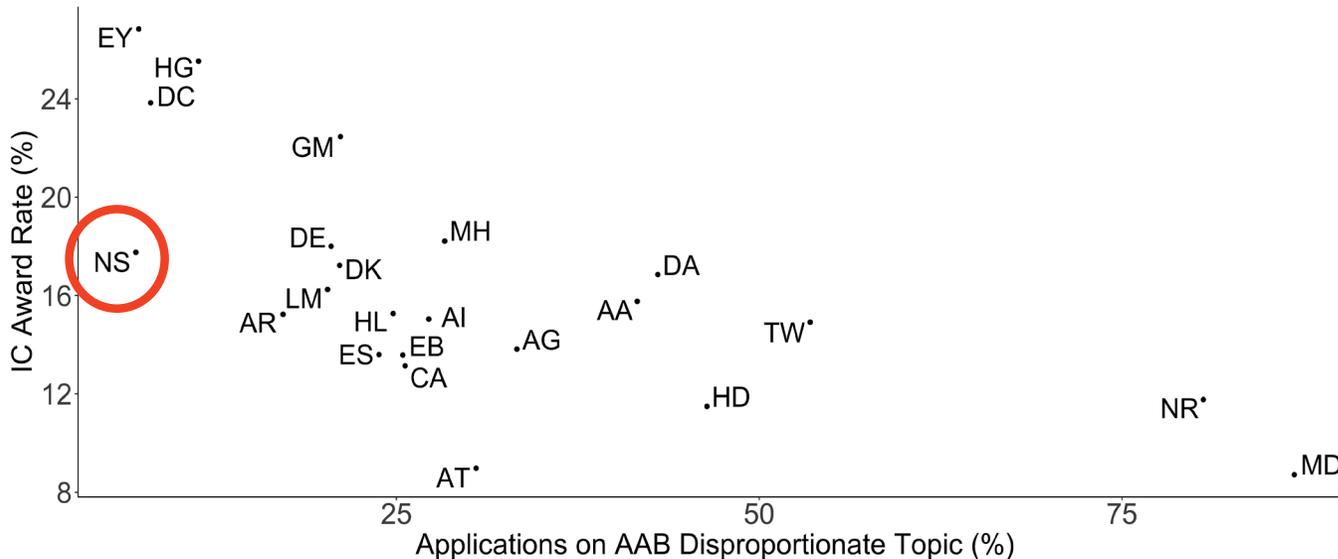
2015 – 2019 Unique NINDS R01 Investigators



Role of Research Topic Selection and IC Award Rates in African American/Black Funding Rates



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



- Hoppe et al (2019) found that African American/Black applicants tend to propose research on topics with lower award rates.
 - For example: Research at the community and population level, as opposed to more fundamental and mechanistic investigations
- 17 topics, representing 40,307 R01 applications, account for 50% of AA/B submissions
- IC's receiving a greater proportion of applications in these topics had lower award rates
- NINDS received a small proportion of applications in these topics and had a moderately low award rate

CellPress Neuron

NeuroView
NINDS Strategies for Enhancing the Diversity of Neuroscience Researchers

Michelle Jones-London^{1,*}
¹Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN), National Institute of Neurological Disorders and Stroke, NIH, Rockville, MD, USA
^{*}Correspondence: jonesmiche@ninds.nih.gov
<https://doi.org/10.1016/j.neuron.2020.06.033>

Neuroscience is one of the fastest growing fields and highlights the excitement about research, but it also demonstrates the impact that our large scientific community can make in prioritizing equity and inclusion throughout science. I discuss strategies at multiple systemic levels where opportunities and interventions could be implemented to enhance neuroscience workforce diversity.



NINDS, Office of Programs to Enhance Workforce Diversity
Dr. Michelle Jones-London
jonesmiche@ninds.nih.gov

**Diversity is not a problem
It's the solution.**

From Potential to Action: NINDS Trainees Navigate Diverse Paths to Success

<https://www.ninds.nih.gov/About-NINDS/Workforce-Diversity/Success-Stories>

Important to Include Perspectives in Science Representative of U.S. Population (ie., people who fund us)



NIH grants go to institutions not individuals

- Grant funding decisions can not be made on the basis of the applicant's race or ethnicity.
- Funding comes from the U.S. taxpayer and should reflect the needs of all segments of population.

Diverse sets of perspectives and approaches is an asset to science

- US biomedical science benefits from a diversity of perspectives brought to its science, particularly in its international make up
- NIH and NINDS science is bereft of the kind of inputs that should come from our Hispanic, African American, and Native/American Indian populations, as well as from women

Each of these populations suffer from tragic disparities in NeuroHealth

- Solving disparities in NeuroHealth is not the responsibility of those from affected groups, but clearly solving disparities in NeuroHealth would be enhanced by scientists from affected populations

How to Address Gaps in the Diversity of Perspectives Brought to our Science



1. Pipeline- start early, string programs together that span the training trajectory, scale up to cover regions with few opportunities for exposure to science, identify and plug leaks in pipeline along the path to science jobs. However, we agree that pipeline solutions don't solve all challenges
2. Identify and root out bias in peer review and all other aspects of funding decisions
3. Break the ice with programs that can accelerate the health of the science at the faculty level
 - **Programs for post doc- faculty awards** NINDS K22, BRAIN Initiative K99, NIH MOSAIC to bring diverse perspectives to research in academia. (may also help the pipeline)
 - **NIH FIRST Program** –a NIH common fund program to create a culture of inclusive excellence, recruit cohorts of investigators into a science area who have demonstrated a strong commitment to promoting diversity and inclusive excellence
 - **Select Pay**- Include contributions to a research environment of inclusive excellence in the mix of factors in the choosing high program priority grants for “select pay
4. Develop and track metrics openly

NIH Leadership is Considering Next Steps



Potential recommendations fall into six key themes



**Listen, Learn, &
Articulate Findings**



Engage Communities



**Revitalize Policies,
Transparency, &
Oversight**



**Grow Pipeline,
Training, Mentoring,
& the Professoriate**



**Enhance Review &
Funding
Deliberations**



**Boost Funding &
Research Support**

**NINDS mission is to reduce the
burden of neurological disease
*for everyone***

NINDS Health Equity Strategic Planning



NINDS is committed to reducing the disproportionate burden of neurological disease borne by underserved groups of society by funding a spectrum of research from basic science through clinical studies and training the next generation of health disparities investigators

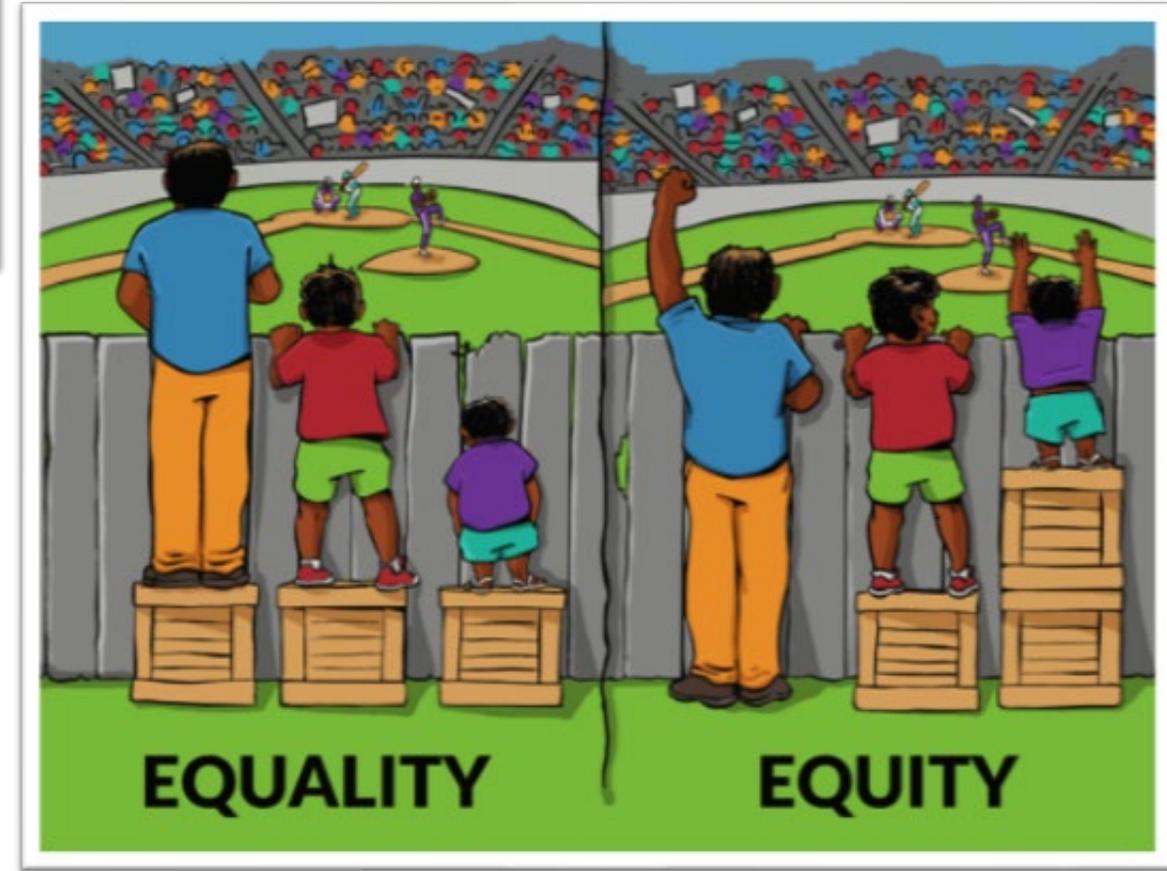
Looking ahead: More research is required with a Health Equity Lens

For example, recent analysis of NINDS-funded REGARDS study found

- Only 40% of Black-White incidence disparity is attributed to prevalence of traditional risk factors
- 60% of the remaining disparity unclear factors, may be related to racism



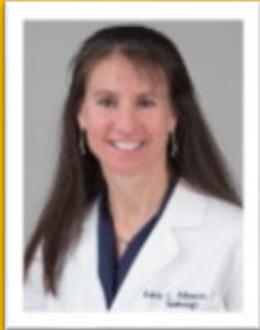
Richard Benson, MD, PhD
Director, Office of Global Health and Health Disparities, NINDS



NINDS Health Equity Strategic Planning



NANDS Working Group



Karen Johnston, MD
(Chairperson)



Edwin Trevathan, MD, MPH
(member)

A. Three Workgroups:

- NANDS Working Group of Council to advise us and document the process
- NINDS extramural program Health Equity Workgroup (HEW) for portfolio analysis, literature review and determination of gaps
- Trans-NIH HD workgroup to determine potential points of intersectionality and collaboration

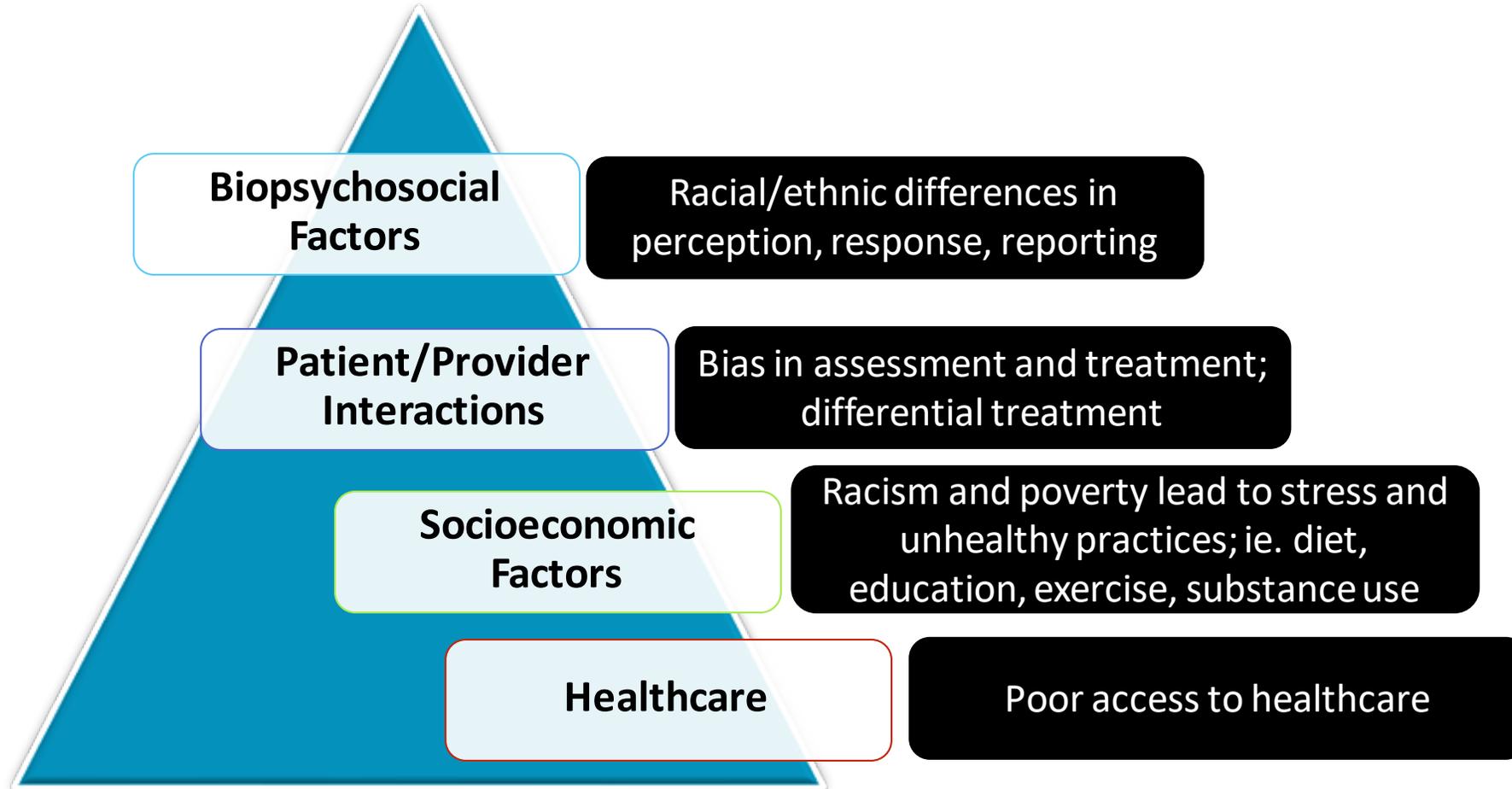
B. Information gathering from multiple stakeholders:

- Request for Information (RFI) seeking input about known/perceived areas of disparity/inequity (e.g. race/ethnic, gender/sex, regional/geographic, and socio-economic) in neurological disease, treatment, and provision of services across the lifespan. Currently analyzing ~140 responses.

C. Compile and discuss information with stakeholders:

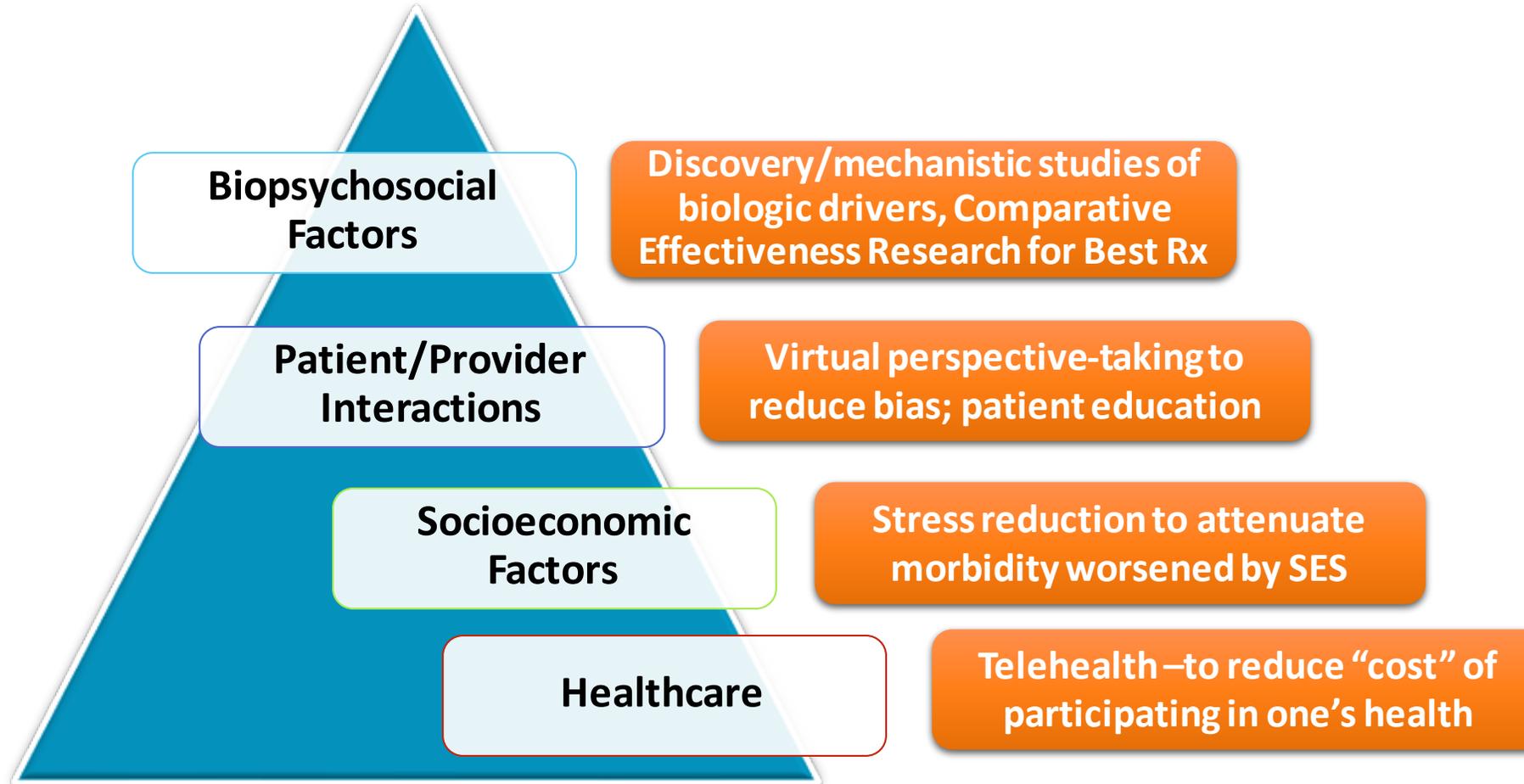
- Workshop to discuss areas of priority and potential interventions to address the most impactful areas to achieve health equity
- Save the Date! **September 23 – 24, 2021**

Health Disparities: Barriers to NeuroHealth



Cheryse Sankar, PhD
NINDS Office of Pain Policy and Planning

Research Targeted at the Barriers to NeuroHealth



Questions?
Answers?
Suggestions?
Discussion



National Institute of
Neurological Disorders
and Stroke



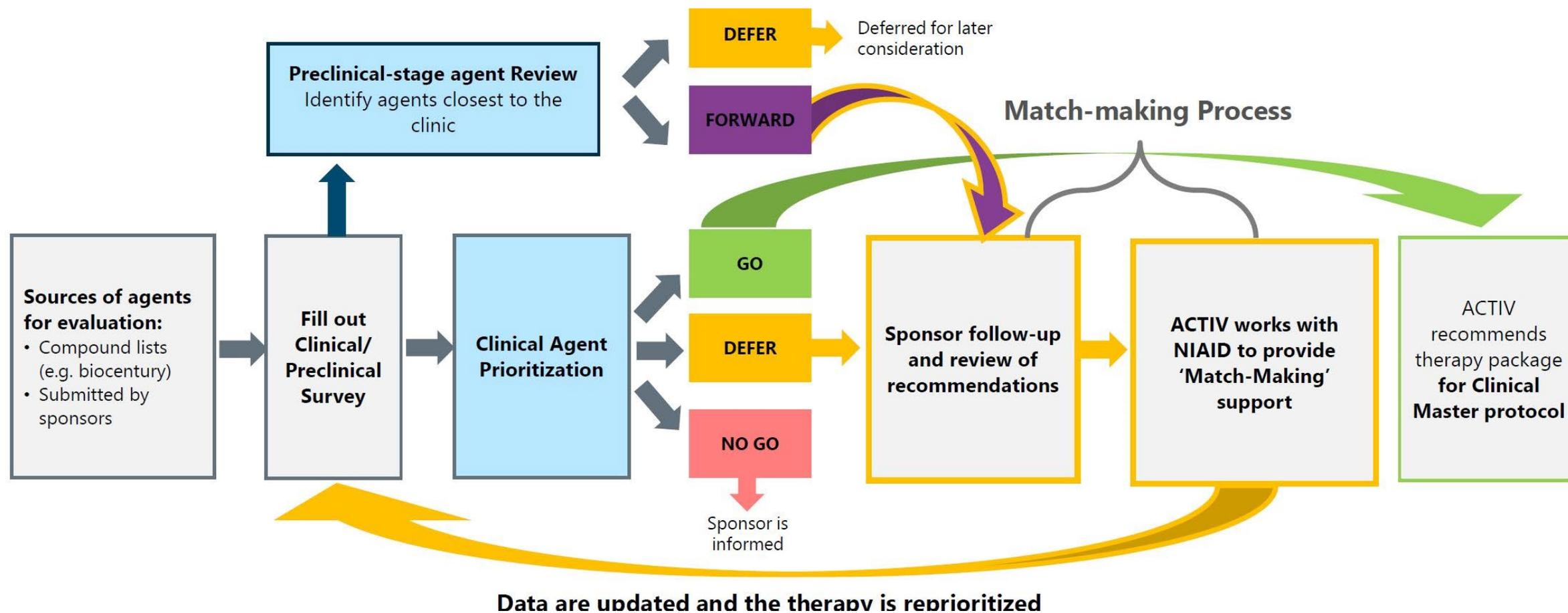
Supplementary Slides Not Presented to Council



National Institute of
Neurological Disorders
and Stroke

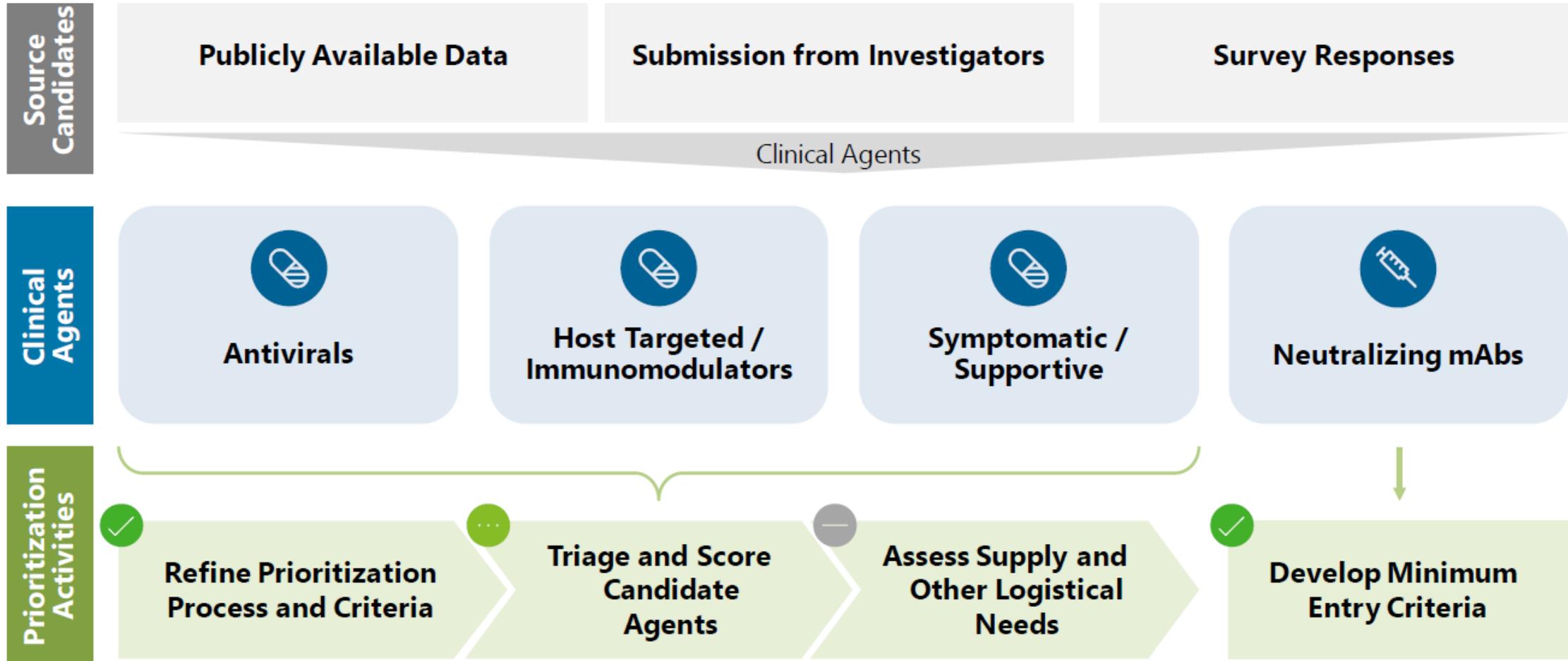
COVID-19 Supplementary Slides

ACTIV-Accelerating Covid-19 Therapeutic Interventions and Vaccines



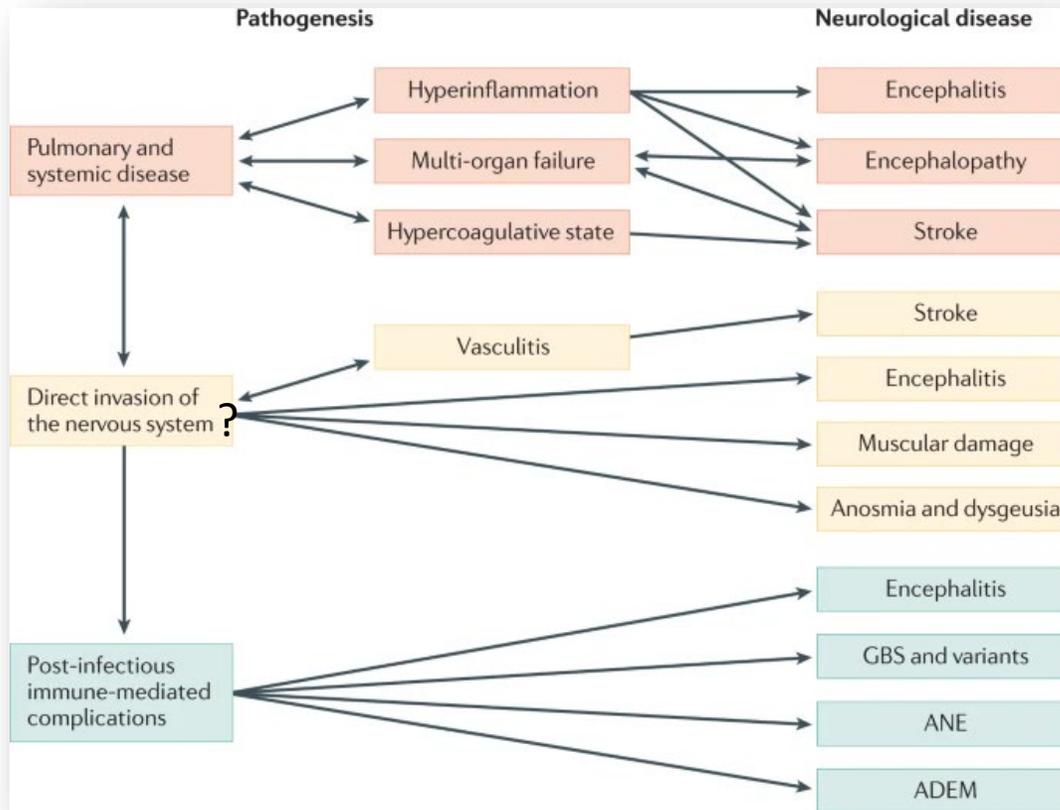
Supplementary Slide

ACTIV- Accelerating Covid-19 Therapeutic Interventions and Vaccines: Therapeutics Clinical Working Group



Supplementary Slide

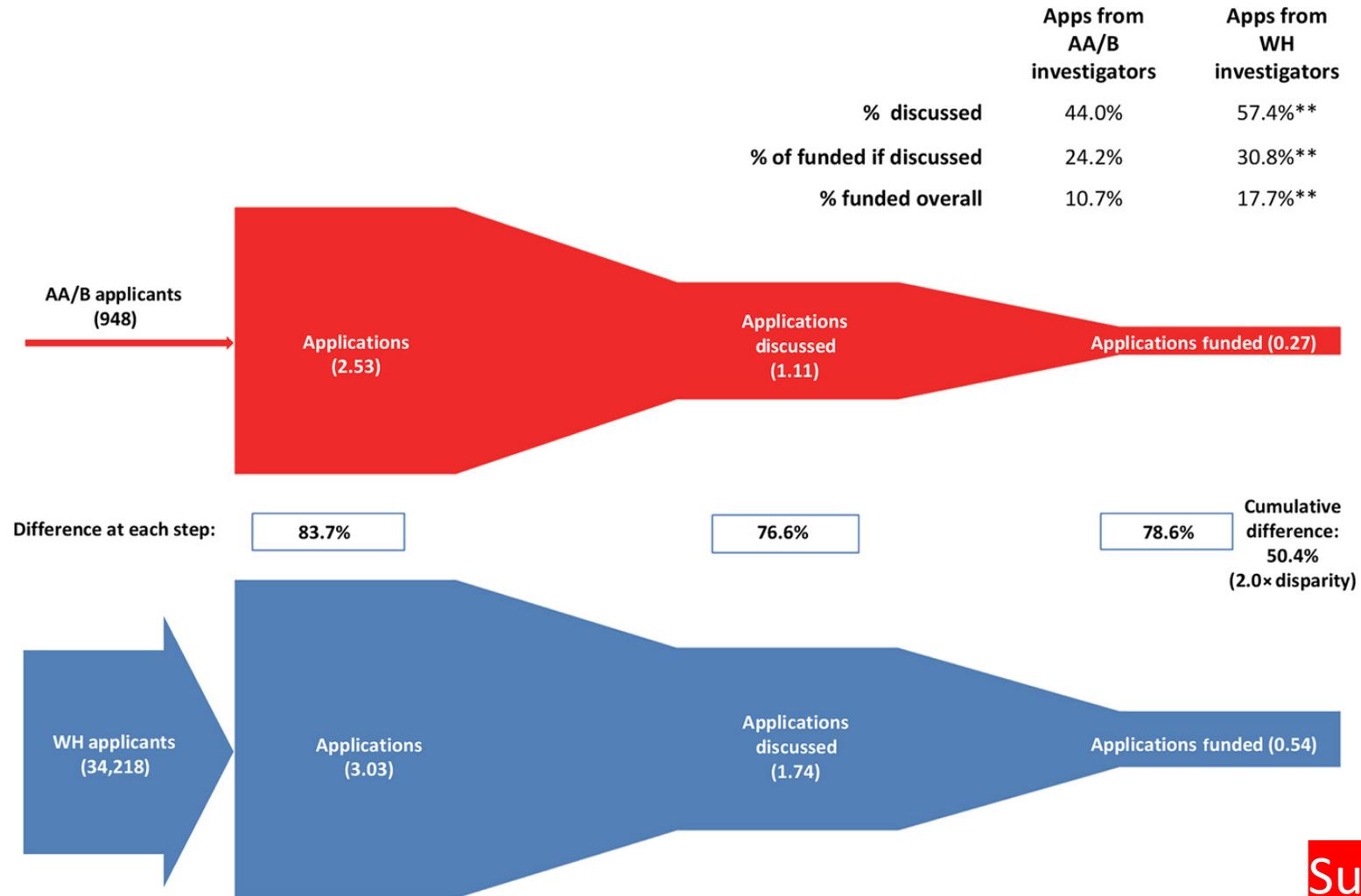
Neurologic Complications of COVID-19: Research Needed



- COVID-19 causes blood clots to form in small blood vessels in the brain as well as in the heart, lungs and other organs. This coagulation disorder can lead to ischemic stroke.
- COVID-19 infections are linked to “Multisystem inflammatory syndrome” in children which can cause stroke and inflammation of the heart and other organs in children and adolescents
- Absence of clear evidence of infection in brain itself
- Following recovery from COVID-19 infection, rare cases of acute necrotizing hemorrhagic encephalopathy, acute disseminated encephalomyelitis, anti-NMDA receptor encephalitis, transverse myelitis, and Guillain Barre Syndrome have been reported.
- Emergence of post-COVID syndrome – with a high rate of reported fatigue – raise potential for long-term disability

Combating Racial Bias and Promoting Equity Supplementary Slides

Fig. 1 Funding gap between AA/B and WH scientists at each stage of the R01 application and review process.



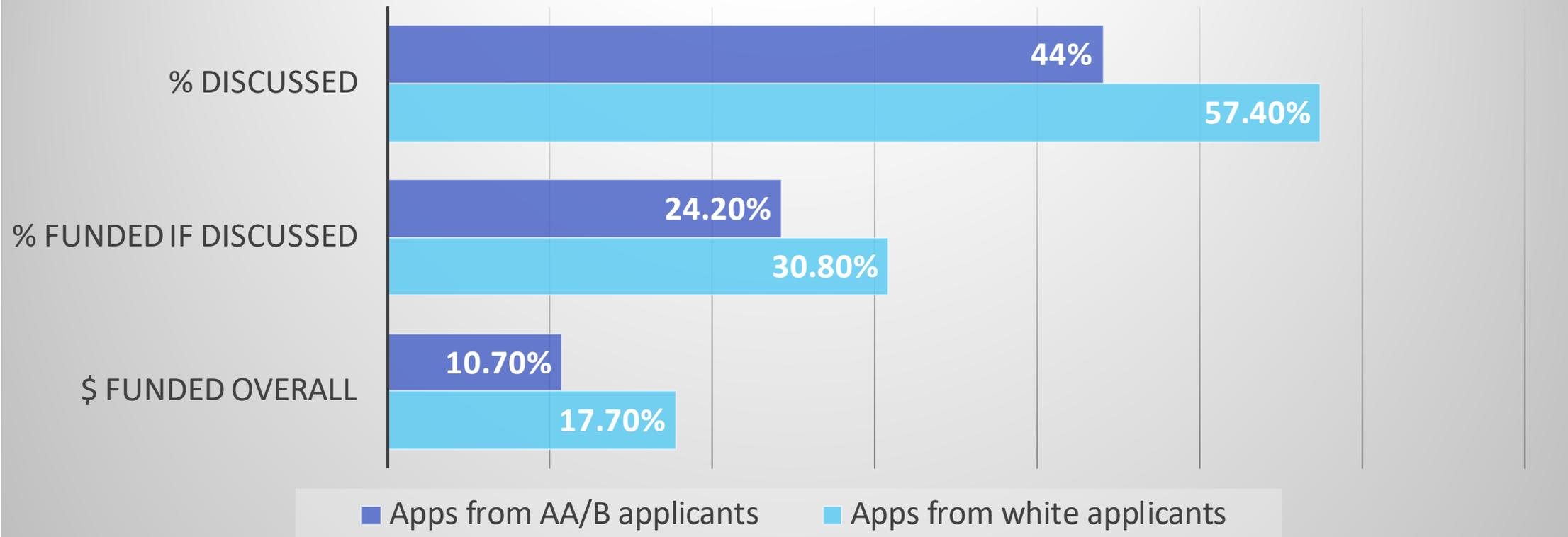
Supplementary Slide

Travis A. Hoppe et al. Sci Adv 2019;5:eaaw7238



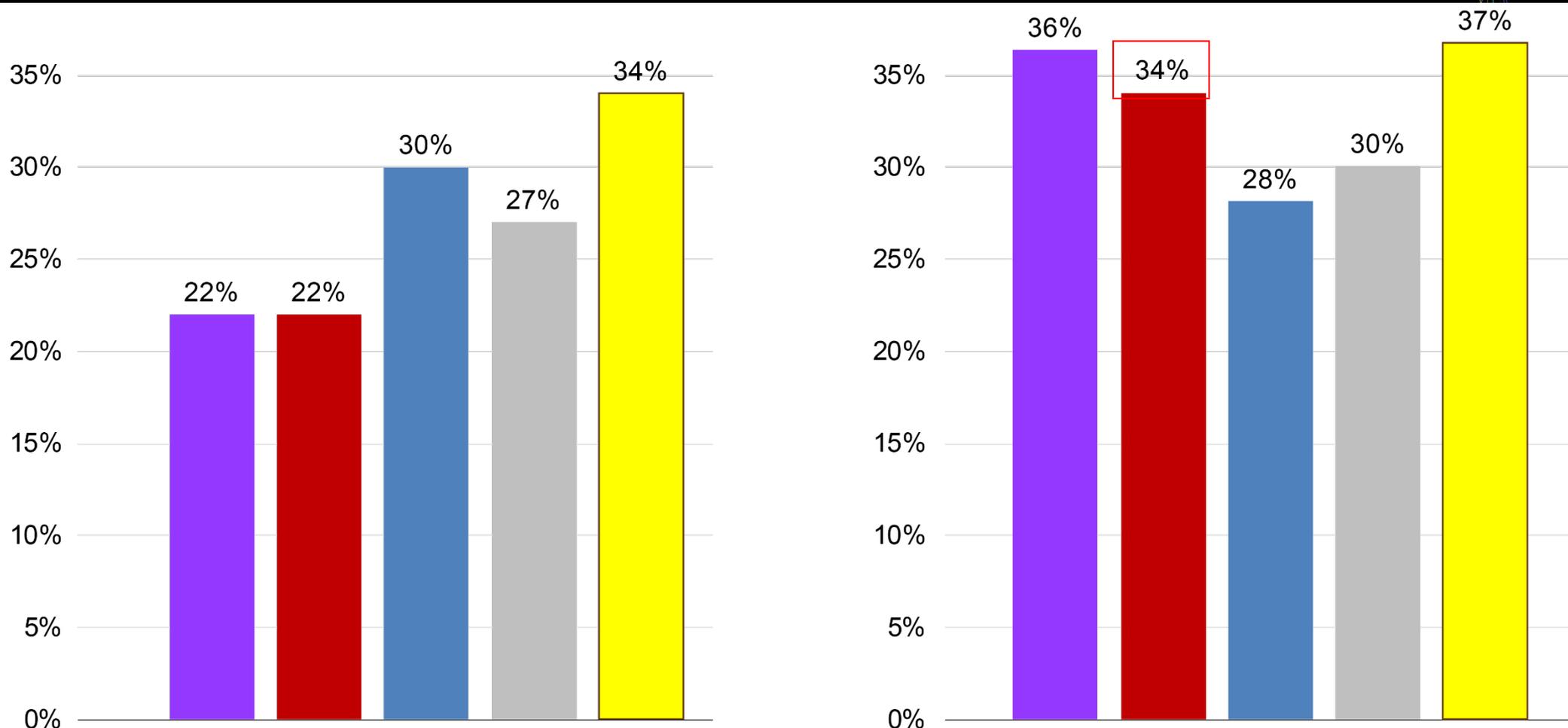
Funding Gap between white and African American/Black Applicants

0% 10% 20% 30% 40% 50% 60% 70%



Funding Rates Mentored Career-Development (K-Series) Awardees*

Type 1 and Type 2: FY2013 and FY2018



■ American Indian/ Alaska Native
 ■ Black or African-American
 ■ Hispanic or Latino
 ■ Asian
 ■ White

* Principal Investigators

NIH Consensus for Change



- **Three significant ICD meeting discussions**
- **Systemic racism lies at the intersection of prejudice and power, and NIH is part of this longstanding dynamic**
- **Improve diversity and inclusion in the workforce and change the culture throughout the biomedical research enterprise.**
 - Pipeline solutions don't solve all challenges
- **Prioritize health disparities research**
 - Role of structural racism
 - Focus on interventions and implementation
- **Identify and redress sources of bias in funding decisions**
- **Develop and track metrics openly**

Supplementary Slide

NINDS Strategy to Improve Diversity, Change the Culture for the Neuroscience Workforce



Identify diverse students early in the pipeline to recruit and prepare trainees

- NIH Blueprint ENDURE

Develop meaningful mentorship and connect diverse individuals to supportive scientific and professional development networks

- Neuroscience Scholars Program at Society for Neuroscience

Assess and monitor the NINDS investment

- Ongoing monitoring of the diversity of our applicant/awardee pool for all programs
- Outcomes of Diversity Supplement Program

Focus on programs that can accelerate the health of the science at the professorial level

- NINDS Diversity K22, BRAIN Initiative K99, NIH MOSAIC programs
- NIH FIRST Program –a NIH common fund program to create a culture of inclusive excellence, recruit cohorts of investigators into a science area who have demonstrated a strong commitment to promoting diversity and inclusive excellence
- Include contributions to a research environment of inclusive excellence in the mix of factors in the choosing high program priority grants for “select pay”

NINDS Actions as Employer



Greater outreach to those with diverse backgrounds in hiring for Extramural Divisions and Office of the Director

Greater outreach in recruiting young scientists from diverse backgrounds to intramural program

- Science Scholars Program -- select scholars who have a commitment to building a diverse Intramural Research Program (IRP)
- Continue our training programs in intramural inclusive of underrepresented groups
 - NINDS has a successful outreach program to Native American and a summer program with strong diverse makeup

Provide an inclusive environment and culture that promotes diversity – just adding new seeds to bad soil cannot yield the desired outcome

- Held Town Hall, regular discussion topic in intramural and extramural staff meeting, active internal outreach for concerns, ideas, suggestions
- NINDS launching PROACTIVE program – trains a cadre of peer advisors to provide support, guidance, and resource information to coworkers related to a wide variety of workplace issues to help prevent conflicts and disputes or address difficult situations before they escalate
- Proposal to create a NINDS Associate Director for Workforce Diversity

NINDS Efforts in increasing investigator diversity



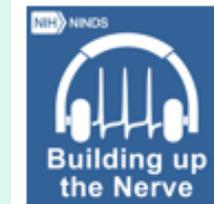
 **Walter J. Koroshetz**
@NINDSdirector

#NINDS mission is to generate knowledge that reduces the burden of neuro disorders for ALL people. Director's Message with #NINDS's commitment to diverse neuroscience workforce, eliminating racial bias @NINDS and reducing disparities in neurohealth [bit.ly/30XYcPI](https://www.ninds.nih.gov/News-Events/Directors-Messages/All-Directors-Messages/NINDS-commitment-to-diversity)

12:36 PM · Jun 19, 2020 · Twitter Web App

<https://www.ninds.nih.gov/News-Events/Directors-Messages/All-Directors-Messages/NINDS-commitment-to-diversity>

Podcast: Building Up the Nerve
Subscribe at ninds.buzzsprout.com



*For neuroscience trainees:
Takes you through the life cycle
of a grant from idea to award*

Diversity-focused Listserv

**Sign up at:
NINDSDIVERSITYNEWSTOUSE@LIST.NIH.GOV**

Information on other diversity-focused programs at:

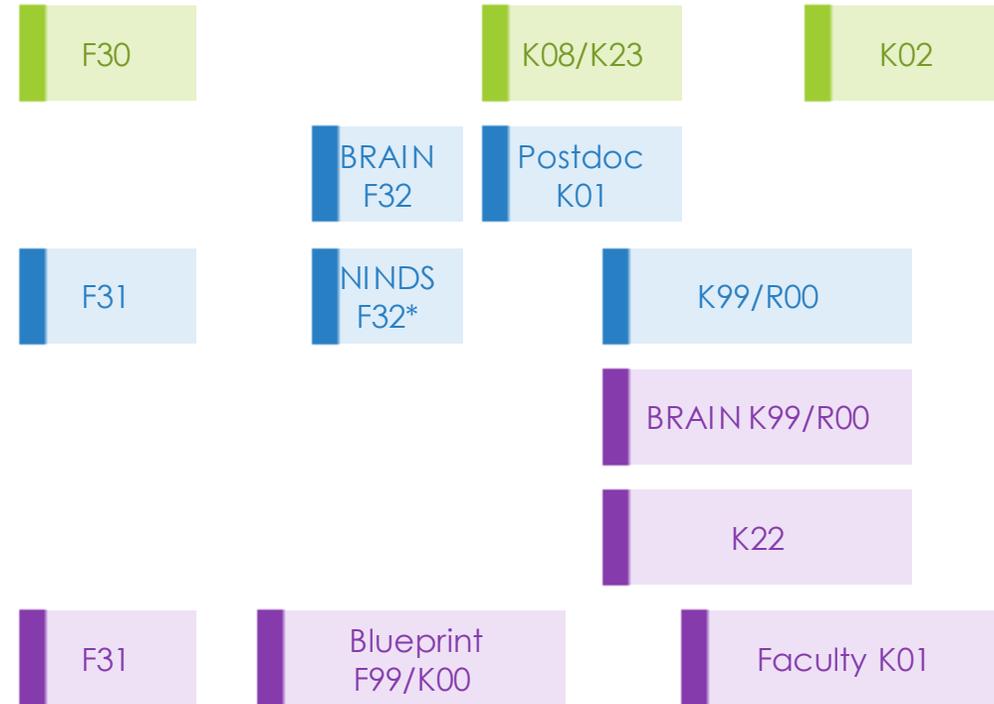
<https://www.ninds.nih.gov/Funding/Training-Career-Development/Diversity-Awards>



Supporting the pipeline of diverse researchers



<https://www.ninds.nih.gov/Funding/Training-Career-Development>



*Eligibility measured from date joined lab

Diversity R25 Programs

Diversity (General, SBIR/STTR, BRAIN Initiative and ADRD) and Reentry Research Supplements

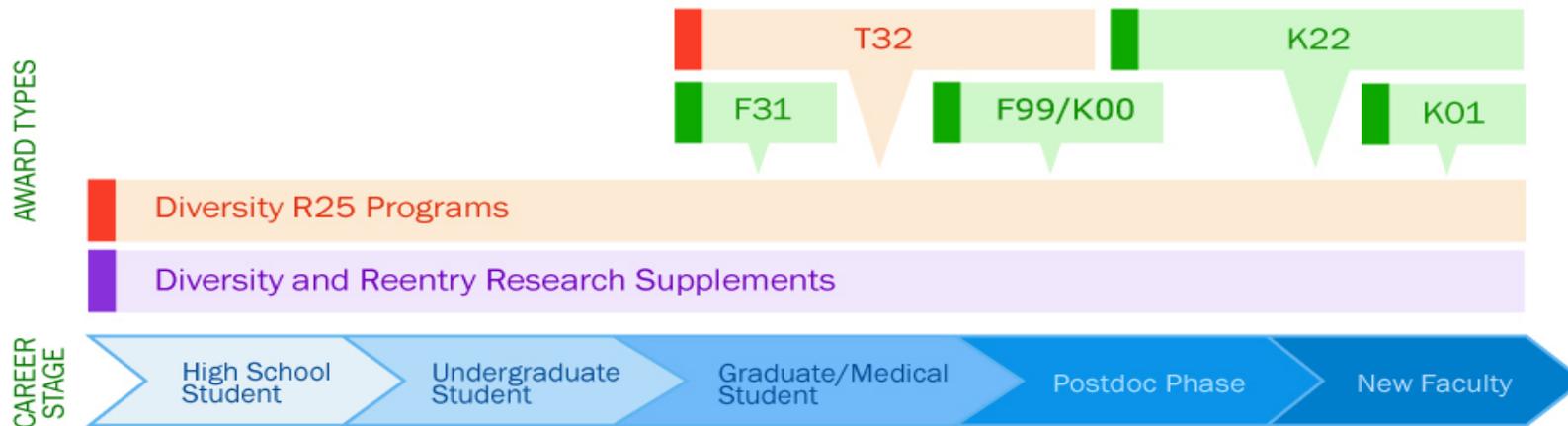


Supplementary
Slide

NINDS OPEN Pathways



NINDS DIVERSITY SCIENTIFIC TRAINING AND CAREER OPPORTUNITIES



Supplementary Slide

	Individual Awards	Institutional Awards
NINDS PROGRAMS	<p>Diversity F31 - Predoctoral fellowship</p> <p>NIH Blueprint D-SPAN F99/K00 - Predoc to postdoc transition award</p> <p>Diversity NINDS K22 - Postdoc to faculty transition award</p> <p>DiversityNINDS K01 - New tenure track faculty</p>	<p>NINDS T32 - Institutional Research Training Grant recruitment and retention plans to enhance diversity</p> <p>NIH Summer R25 - Research opportunities for high school and undergraduate students</p> <p>NIH Blueprint ENDURE R25 - Pairs diverse undergraduates with neuroscience focused T32 programs</p> <p>NINDS Neuroscience Development for Advancing the Careers of a Diverse Research Workforce R25 - Supports educational programs designed to attract, train, and further careers of diverse graduate students, postdocs and junior faculty</p>
	<p>Research Supplements to Promote Diversity in Health-Related Research</p> <ul style="list-style-type: none"> • Under-represented racial and ethnic backgrounds • Individuals with disabilities • Individuals from disadvantaged socioeconomic backgrounds • Individuals reentering research 	

NINDS Commitment to Diversity



Podcast: Building Up the Nerve
Subscribe at ninds.buzzsprout.com



*For neuroscience trainees:
Takes you through the life cycle
of a grant from idea to award*

NIH Summer
Internship Program



NINDS BrainSTEM
Program



Michelle Jones-London, Ph.D.

*Chief, Office of Programs to Enhance
Neuroscience Workforce Diversity*



NIH Blueprint for Neuroscience Research

- NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award
- NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) (R25)

Supplementary Slide

Faculty Institutional Recruitment for Sustainable Transformation (FIRST)



ISTOCK.COM/ERHUI1979, ADAPTED BY C. AYCOCK/SCIENCE

NIH's new cluster hiring program aims to help schools attract diverse faculty

By Jeffrey Mervis | Jan. 30, 2020, 11:30 AM

Notice of Intent to Publish Released
Funding Opportunity Coming in Fall
Applications Due November

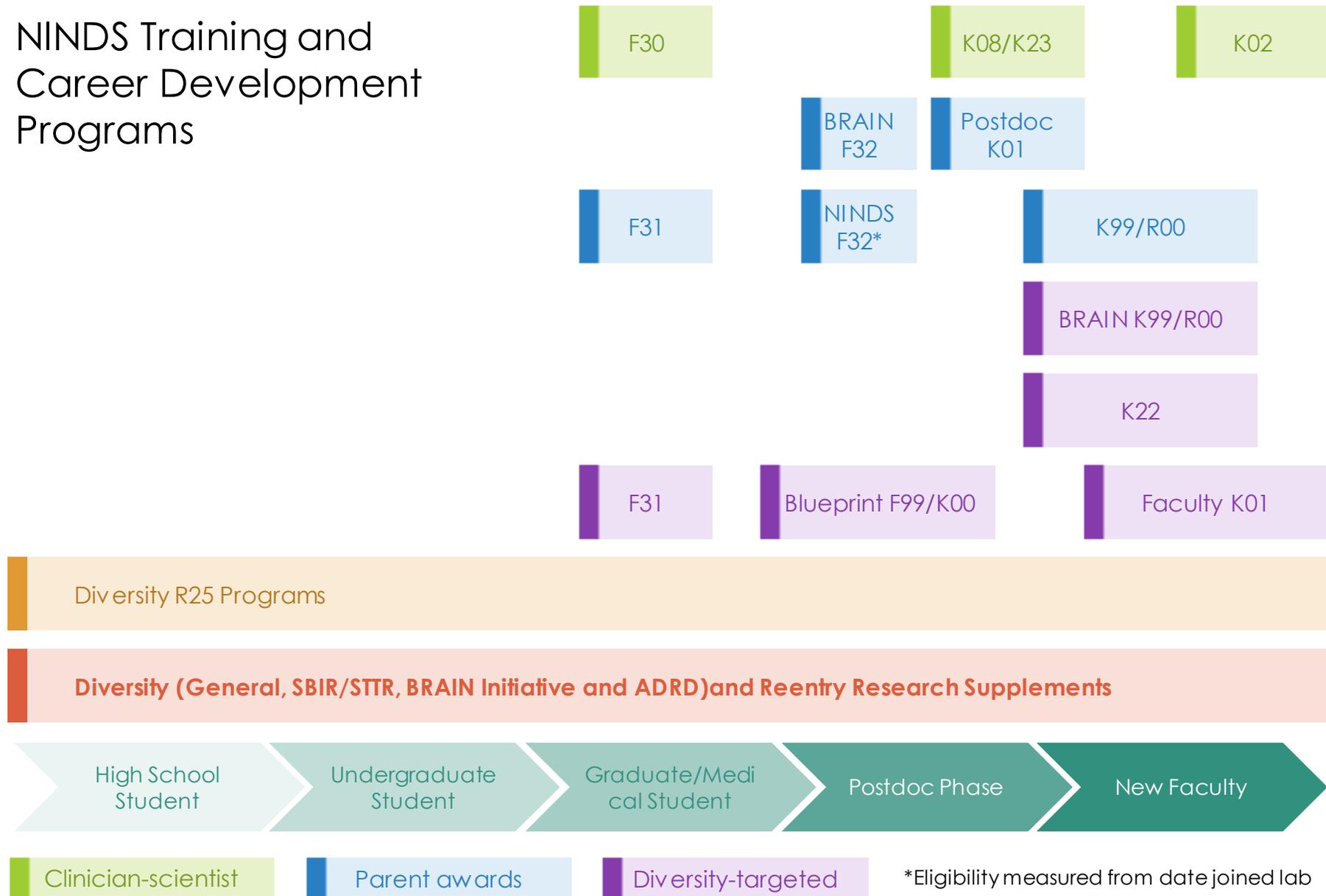
Goal: Create cultures of inclusive excellence at NIH-funded institutions. Neuroscience is one focus area.

1. **Faculty cohort model** for hiring, multi-level mentoring, professional development
2. **Integrated, institution-wide systems** to address bias, faculty equity, mentoring, and work/life issues
3. **Coordination and Evaluation Center (CEC)** to conduct independent program evaluation of impact at the faculty and institutional level; departmental and institutional culture change, and; establish initiative-wide metrics of faculty success, recruitment and professional development at pre-tenure career stages.

A Systemic Approach –NINDS OPEN Pathway Programs



NINDS Training and Career Development Programs



Supplementary Slide

The OPEN Strategy to Enhance Diversity of NINDS Neuroscience Researchers



- I. Identify diverse students along the training pathway to recruit and prepare trainees
- II. Develop meaningful mentorship and connect diverse individuals to supportive scientific and professional development networks
- III. Provide resources for retaining and eliminating barriers for career transition and at the faculty level
- IV. Assess and monitor the NINDS investment



OPEN Resources



<https://www.ninds.nih.gov/Funding/Training-Career-Development>

- Archived webinars:
 - DSPAN F99/K00
 - Diversity F31
 - K22
 - K01
 - BRAIN K99/R00
- Tip sheets:
 - K22
 - K01
 - F99/K00

Find Training Grants by Eligibility



Find Training Grants by Mechanism

Individual Fellowships



Research training opportunities for trainees at the graduate and postdoctoral levels

Career Development Awards



Research training opportunities for scientists and clinical-researchers at the postdoctoral and early career faculty levels

Institutional Grants



Research training opportunities on an institutional level to support multiple scientists and clinician-researchers at all levels of training

Other Training-Related Programs



These programs have unique elements including specific institutional eligibility, or supplementation of an existing NINDS award.

Supplementary Slide



National Institute of
Neurological Disorders
and Stroke

Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN)

Marguerite Matthews, PhD; Lauren Ullrich, PhD; Michelle D. Jones-London, PhD (Chief)
National Institute of Neurological Disorders and Stroke (NINDS)



OPEN Mission

To represent NINDS at all levels of NIH in matters pertaining to NINDS workforce diversity and to develop and implement specific funding opportunities for training and career development programs to facilitate a diverse scientific workforce in neuroscience.

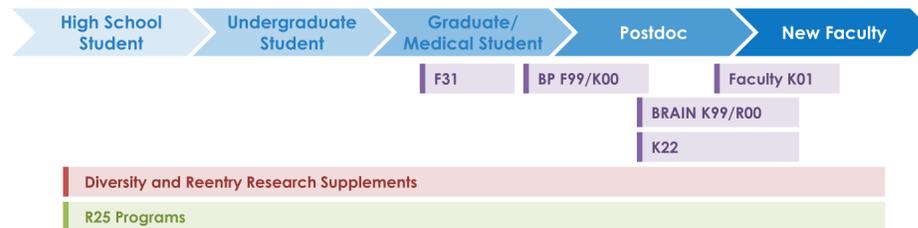
OPEN Populations

Individuals underrepresented in biomedical research:

- From racial and ethnic groups that have been shown by the National Science Foundation to be underrepresented in health-related sciences on a national basis: Blacks or African Americans, Hispanics or Latinos, American Indians or Alaska Natives, Native Hawaiians and other Pacific Islanders.
- With disabilities, as described in the Americans with Disabilities Act of 1990, as amended.
- From disadvantaged backgrounds.

For more detail, see the Updated Notice of NIH's Interest in Diversity (NOT-OD-18-210).

OPEN Program Pathways



Funding Opportunities for Individuals

F31: Individual Predoctoral Fellowship to Promote Diversity	PhD students within 6 years of graduate school. Up to 5 years support.
F99/K00: NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement (D-SPAN) Award	Advanced PhD students, with 1-2 years to degree completion. Up to 6 years of total support (up to 2 years for F99 and up to 4 years for K00).
K22: NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity	Postdocs between 2 to 5 years of postdoctoral experience at time of application. Up to 5 years of total support.
K99/R00: BRAIN Initiative Advanced Postdoctoral Career Transition Award to Promote Diversity	Postdocs with no more than 5 years of postdoctoral experience and require at least 12 months of mentored training. Up to 5 years of total support.
K01: NINDS Faculty Development Award to Promote Diversity	Within 3 years of tenure-track (or equivalent) faculty position. Up to 5 years support.
Diversity or Reentry Supplements: <ul style="list-style-type: none"> General parent awards BRAIN Initiative awards Alzheimer's Disease and Alzheimer's Disease-Related Dementias (AD/ADRD) Initiative awards Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) awards 	Investigators with NINDS-funded grants (R, P, U) looking to support individuals in high school, college, graduate school, postdoctoral training, new faculty position, or with at a 1 to 5 year interruption of research. Up to 3 years support.

Funding Opportunities for Institutions

R25: NIH Blueprint Enhancing Neuroscience Diversity Through Undergraduate Education Experiences (ENDURE)	<ul style="list-style-type: none"> Encourage and prepare undergraduates from underrepresented backgrounds to enter neuroscience PhD programs Partner between research-intensive institutions and institutions with a substantial enrollment of students from diverse groups
R25: NINDS Neuroscience Development for Advancing the Careers of a Diverse Research Workforce	<ul style="list-style-type: none"> Increase the pool of current and future PhD-level researchers underrepresented in biomedical neuroscience Facilitate career advancement of participants
R25: Summer Research Experience for High School and Undergraduate Students	<ul style="list-style-type: none"> Provide research experiences for high school and/or undergraduate students (Programs providing opportunities for diverse students who might not otherwise have access to outstanding laboratory experiences may be given priority)

OPEN Conferences

R13 & U13 Conference Grants support recipient sponsored scientific meetings and conferences that may facilitate advancement of NINDS mission objectives.

- Must demonstrate inclusion of women, underrepresented minorities, and individuals with disabilities.
- Conference grant applications should emphasize the importance of providing networking opportunities and the benefits of engaging scientists and trainees from diverse backgrounds.

OPEN Resources

- NINDS Trainee Success Stories**
www.ninds.nih.gov/ZkN
- NINDS Training & Career Development Website**
www.ninds.nih.gov/Zkc
- NINDS Workforce Diversity**
www.ninds.nih.gov/Zkx
- The NINDS Diversity News to Use listserv**
list.nih.gov/cgi-bin/wa.exe?AO=NINDSDIVERSITYNEWSTOUSE
- NINDS Diversity on LinkedIn**
www.linkedin.com/in/nindsdiversity
- NINDS Diversity on Twitter**
www.linkedin.com/in/nindsdiversity

Supplementary Slide

Research Supplements to Promote Diversity in Health-Related Research (PA-18-586)



- These additional funds, called supplements, are requested by a mentor on behalf of a **diverse** trainee.
 - **high school to faculty level**
- Eligibility – current NIH grant holders (R,P,U, etc.)
- **Supplements provide salary and fringe benefits; funds for supplies and travel**
- Typically 2 years of funding to provide “bridge funds” while the supplementee gains the research experience, preliminary data, and other requirements to develop an application for more traditional NIH funding.
- **NINDS** reviews batches of applications 3x/year
(see NINDS website for receipt dates and specific instructions)

Supplements to Promote Diversity and Re-Entry



Research Supplements to Promote Diversity in Health-Related Research

Supplements to active NIH research grants to support the training of underrepresented individuals and enhance the diversity of the research workforce

- NINDS (PA-18-906)
- BRAIN Initiative (NOT-MH-19-038)
- Alzheimer's Disease and Alzheimer's Disease-Related Dementias (NOT-NS-19-003)

Supplements to Promote Diversity in Research and Development Small Businesses

Supplements to active NIH SBIR/STTR grants to enhance the diversity of the research workforce and increase the participation of women and socially and economically disadvantaged individuals in small businesses (PA-18-837)

Research Supplements to Promote Re-Entry into Research Careers

Administrative supplements to currently active NIH research grants to support individuals with high potential to re-enter an active research career after an interruption (PA-18-592)

Supplementary Slide

New Programs for Life Critical Events



- ESI extension for one year for childbirth
- Also now, K99/R00 one year extension for childbirth (not per child)
- For the purposes of these programs below - childbirth, adoption, and emergent critical health issue for self or primary caregiving responsibilities of an ailing spouse, child, partner, or a member of the immediate family **during the project period** are critical life events that would qualify for consideration. A description of how the critical life event will affect advancement of the award or productivity must be provided.
 - **Administrative Supplements to Promote Research Continuity and Retention of NIH Mentored Career Development (K) Award Recipients**
NOSI: <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-20-054.html>
 - **Administrative Supplement for Continuity of Biomedical and Behavioral Research Among First-Time Recipients of NIH Research Project Grant Awards**
NOSI: <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-20-055.html>

NINDS Diversity Career Development Awards

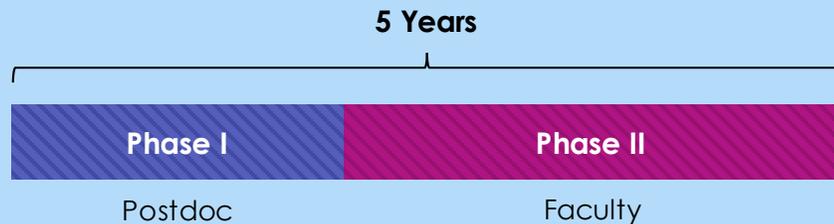
NINDS Diversity K22

PAR-18-469 & PAR-18-468

NINDS Faculty K01

PAR-18-490 & PAR-18-486

FORMAT



ELIGIBILITY



Postdoctoral fellow with <5 years experience



Tenure-track faculty with <3 years experience



U.S. citizen or permanent resident by time of award



U.S. citizen or permanent resident by time of award



- Individual from underrepresented racial or ethnic group (NOT-OD-18-220)
- Individual with disabilities



- Individual from underrepresented racial or ethnic group (NOT-OD-18-220)
- Individual with disabilities

Supplementary Slide



National Institute of
Neurological Disorders
and Stroke



K22 - NINDS **Advanced Postdoctoral** Career Transition Award to Promote Diversity in Neuroscience (PAR-18-469, PAR-18-468 (Clinical Trial Required))

- Between 2 and 5 years of postdoctoral research experience at the time of application
- Two Phase award – transitions from postdoc to 1st faculty position

K01 - NINDS **Faculty** Development Award to Promote Diversity in Neuroscience Research (PAR-18-490, PAR-18-486 (Clinical Trial Required))

- provide junior faculty support and protected time (up to five years)
- Must have a tenure-track or equivalent position by time of award
- **in the first 3 years of a faculty position**

Mechanism	K22 (Advanced Postdoctoral)
Career stage eligibility	2- 5 years of postdoctoral experience
Phase I	A mentored phase (2-3 years) Salary up to \$75,000 Research costs up to \$25,000
Phase II	2-3 years of support and is contingent on obtaining a tenure-track or equivalent position Salary up to \$95,000 Research costs up to \$100,000

**K01
(Junior Faculty)**

Mechanism

**Career stage
eligibility**

≤ 3 years of his/her first faculty position
tenure-track or equivalent

Overview

5 years total time (faculty mentor
component, chance to encourage
collaboration, hone skills, publish,
teaching/other duties buy-out)

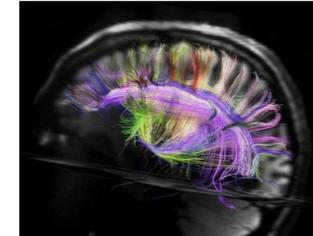
Salary up to \$95,000

Research costs up to \$100,000

Supplementary Slide

Preparing a Diverse & Talented Neuroscience Research Workforce

- **NIH BP ENDURE - Enhancing Neuroscience Diversity** through **U**ndergraduate **R**esearch **E**ducation Experiences
- Goal is matriculation into **neuroscience Ph.D. programs** and increase diversity in the neuroscience workforce
- Currently, **52 out of 86 enrolled in a graduate program**
- Engage undergraduates from underrepresented groups in a two-year neuroscience research program
 - **Academic year: Part-time** in extramurally funded laboratories
 - **Summer: Full-time** in existing neuroscience focused predoctoral T32 programs
 - Every program has an outside Steering Committee, Dissemination Plan and **Evaluation Plan**



Participating NIH Institutes and Centers

- NCCAM
- NEI
- NIA
- NIAAA
- NIBIB
- NICHD
- NIDA
- NIDCD
- NIDCR
- NIEHS
- NIGMS
- NIMH
- NINDS
- NINR
- OBSSR

NINDS Funding Decisions and “Select Pay”



NINDS has the responsibility to optimize the taxpayers investment in neuroscience by ensuring portfolio balance, taking advantage of scientific opportunities, and filling gaps that present barriers in achieving the NINDS mission. In pursuit of this holistic goal we analyze our portfolio and gather input from the community. NINDS is predominantly a “strict payline” Institute believing that peer review is the cornerstone of the American success in science and NINDS needs to remain open for innovative ideas from every angle. In addition, we issue RFAs for specific types of research but even here we generally fund the best scored grants. An example is the basic neuroscience RFA that devotes 5m per year to pay basic neuroscience grants that just miss the payline. This was in response to what we found was a devastating downturn in basic neuroscience applications that threatened the future of our mission. In addition we have utilized a “select pay” policy to fund certain highly meritorious grants usually between 10%-tile points of the payline that propose outstanding science and bring high value to NINDS as a whole. We employ a select pay policy to guide our funding nominations for grants just beyond the published payline. Final award decisions related to select pay will be based on a variety of criteria relevant to scientific merit, program balance, and NINDS strategic priorities including but not limited to:

Scientific innovation, technical merit and rigor of the proposed project as recognized by scientific peer review (high program priority projects(HPP)

- Relevance to unmet strategic research priorities and overall programmatic portfolio balance (HPP)
- Vulnerable scientific programs at risk of losing primary source of funding (for select pay of grant or bridge funding) Bridges and HPP
- Potential for high scientific or public health impact HPP
- Development of a diverse research workforce that includes individuals from different career stages with a broad range of backgrounds and perspectives , Early stage investigators and grants that bring diversity of perspectives to the science.

NINDS Health Equity Strategic Planning



National Institute on Minority Health and Health Disparities Research Framework

A Modified framework for neurological disorders is being developed

		Levels of Influence*			
		Individual	Interpersonal	Community	Societal
Domains of Influence <i>(Over the Lifecourse)</i>	Biological	Biological Vulnerability and Mechanisms	Caregiver–Child Interaction Family Microbiome	Community Illness Exposure Herd Immunity	Sanitation Immunization Pathogen Exposure
	Behavioral	Health Behaviors Coping Strategies	Family Functioning School/Work Functioning	Community Functioning	Policies and Laws
	Physical/Built Environment	Personal Environment	Household Environment School/Work Environment	Community Environment Community Resources	Societal Structure
	Sociocultural Environment	Sociodemographics Limited English Cultural Identity Response to Discrimination	Social Networks Family/Peer Norms Interpersonal Discrimination	Community Norms Local Structural Discrimination	Social Norms Societal Structural Discrimination
	Health Care System	Insurance Coverage Health Literacy Treatment Preferences	Patient–Clinician Relationship Medical Decision-Making	Availability of Services Safety Net Services	Quality of Care Health Care Policies
Health Outcomes		 Individual Health	 Family/ Organizational Health	 Community Health	 Population Health

National Institute on Minority Health and Health Disparities, 2018
*Health Disparity Populations: Race/Ethnicity, Low SES, Rural, Sexual/Gender Minority
Other Fundamental Characteristics: Sex/Gender, Disability, Geographic Region

Stroking Out While Black – The Complex Role of Racism



Levels of Racism and Stroke Disparities

Stroke Disparities: Poorer stroke outcomes for Black Americans compared with their White counterparts have persisted for more than 50 years. For example, Black individuals are twice as likely to die of stroke than White individuals

Structural Racism: Occurs when access to goods, services, and opportunities is influenced by race. Lesser access may be drivers to increased stroke disparities, such as smoking, obesity, and hypertension for Black Americans.

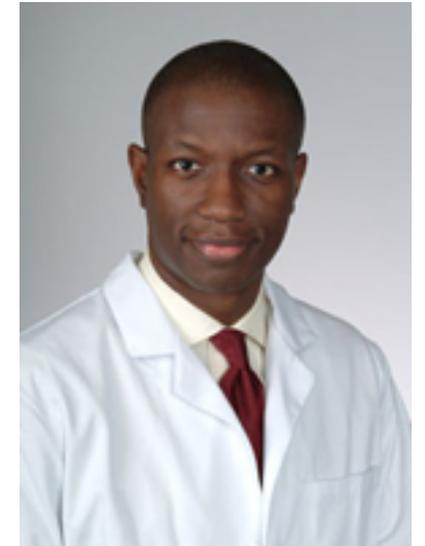
Personally Mediated Racism: Prejudice arising from conditioned assumptions about a person's intentions and abilities, based on race, causing implicit and explicit bias. Captured by validated scales, this highlights how volume of harmful consequences relates to poorer health conditions.

Internalized Racism: Occurs when people accept racist beliefs about their own abilities and human value. This has been linked to nontraditional stroke risk factors. These include depression, anxiety disorders, and several maladaptive behaviors in addition to cardiovascular disease.



Olajide A. Williams, MD

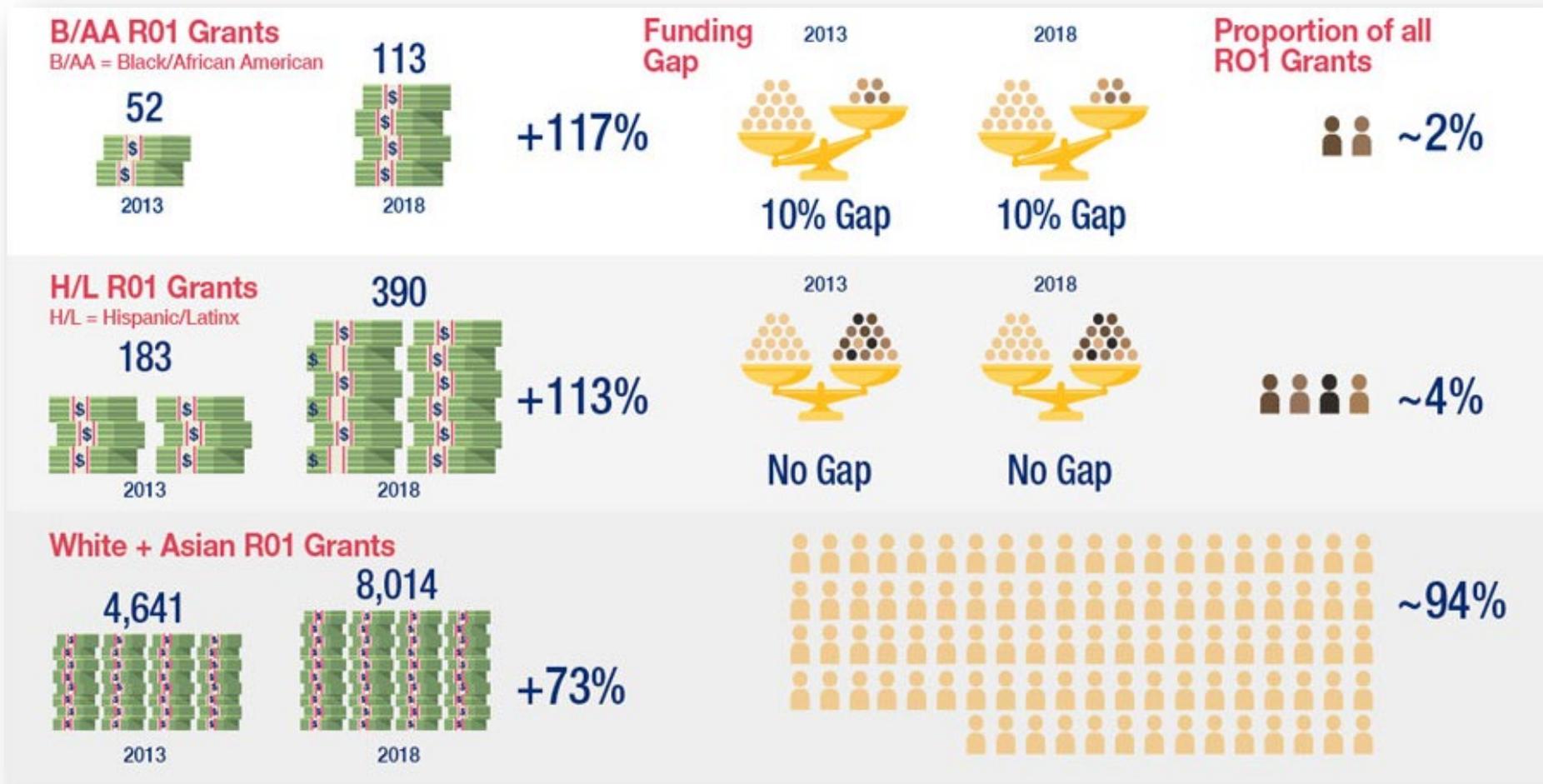
Columbia University



Bruce Obviagele, MD, MAS

UCSF

Scientific Workforce Diversity at NIH – R01 Grants



NINDS Health Equity Strategic Planning



Health Equity Working Group of NANDS

Charge of the Working Group:

Advise the NINDS on our health disparities strategic planning process and provide guidance on focus areas where the NIH/NINDS can make an impact. Consider the types of research that would have meaningful impact in reducing health disparities in neurological disorders. Areas for consideration included:

- Identifying strategies or interventions, known to address biologic and social determinants of health in neurological disease
- Leveraging prior neurological research investments
- Incorporating implementation, dissemination and sustainability strategies through community engagements and strategic partnerships
- Determining appropriate metrics and outcome measures

Working Group Roster:

- Bernadette Boden-Albala, DrPH, MPH
- Binny Chokshi, MD
- Kofi Essel, MD, MPH
- Darrell J. Gaskin, PhD, MS
- Diana Hernández, PhD
- **Karen C Johnston, MD, MSc***
- Jennifer J. Manly, PhD
- Spero M. Manson, PhD
- Wally R. Smith, MD
- Amytis Towfighi, MD
- **Edwin Trevathan, MD, MPH***
- Rachel Anne Whitmer, PhD
- Steven H. Woolf, MD, MPH

*NANDS Council Members