



Building Up a Diverse Workforce for Biomedical Research

Leveraging the CTSA Network to Conduct
Impactful Research: Colleagues are Vital

Doris M Rubio, PhD


Natalia Morone, MD MS

Jennifer V. Phillips, RN, CCRC

Christopher Russell, MD MS

Sana Syed, MD MS

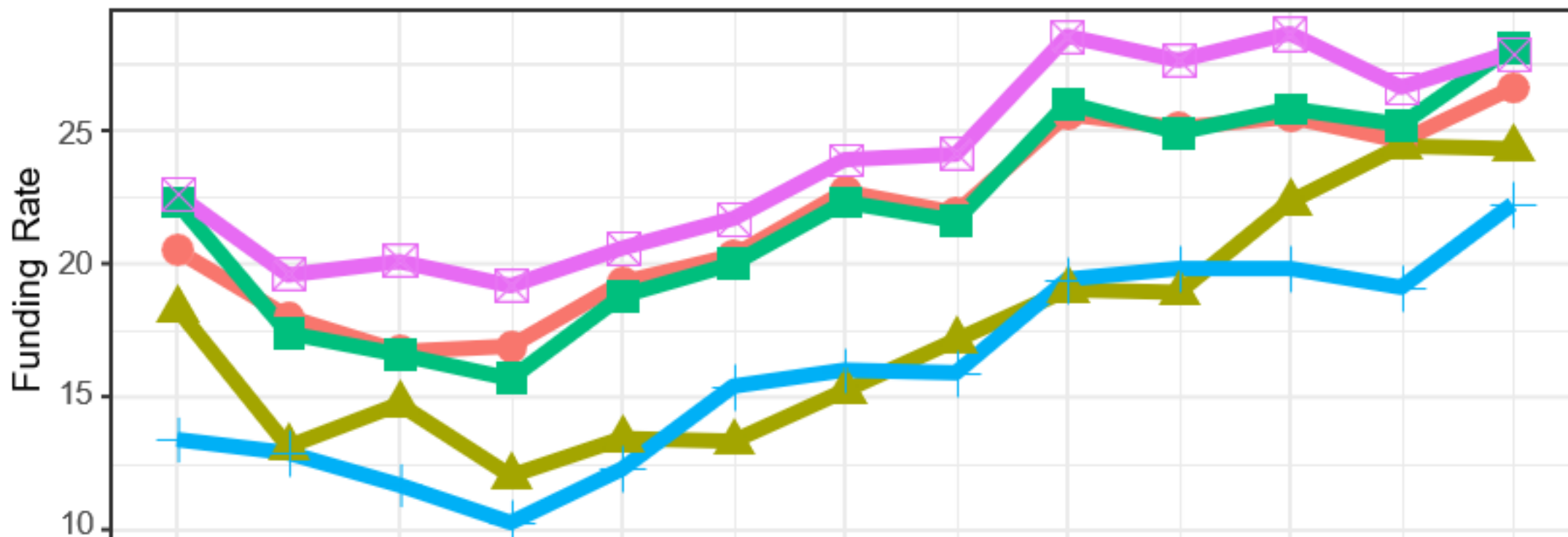
Gretchen White, PhD MPH



Why Do We Need Building Up?

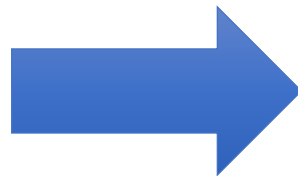
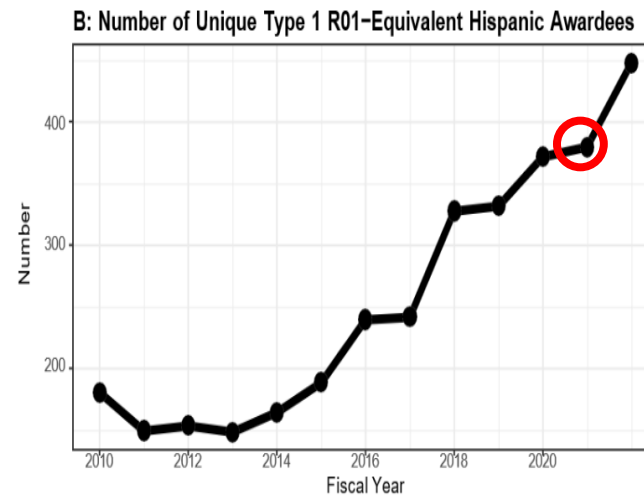
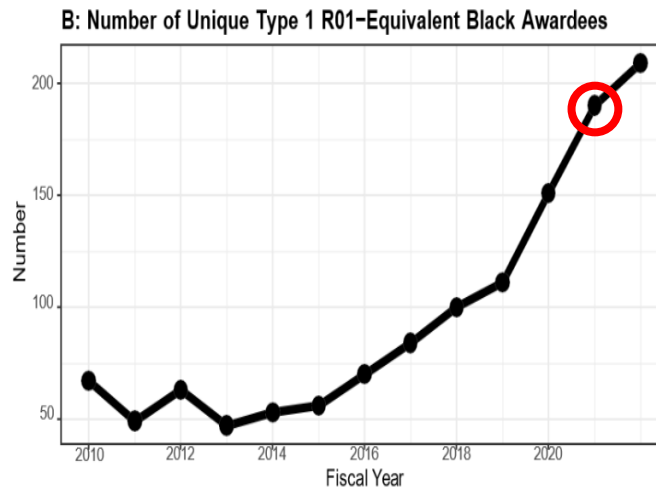
B: Funding Rates Type 1 R01-Equivalent Applicants

Asian Black Hispanic Unknown White



Racial and ethnic disparities in NIH funding are improving (for some)

However, absolute numbers are striking



Over 5000 R01s funded in 2021

Further gender, ethnic and racial disparities exist in those with 3+ NIH RPGs

Figure 2. Gender, Ethnic, and Racial Diversity Among SPIs



JAMA Network | **Open**

Original Investigation | Equity, Diversity, and Inclusion

Gender, Racial, and Ethnic Inequities in Receipt of Multiple National Institutes of Health Research Project Grants

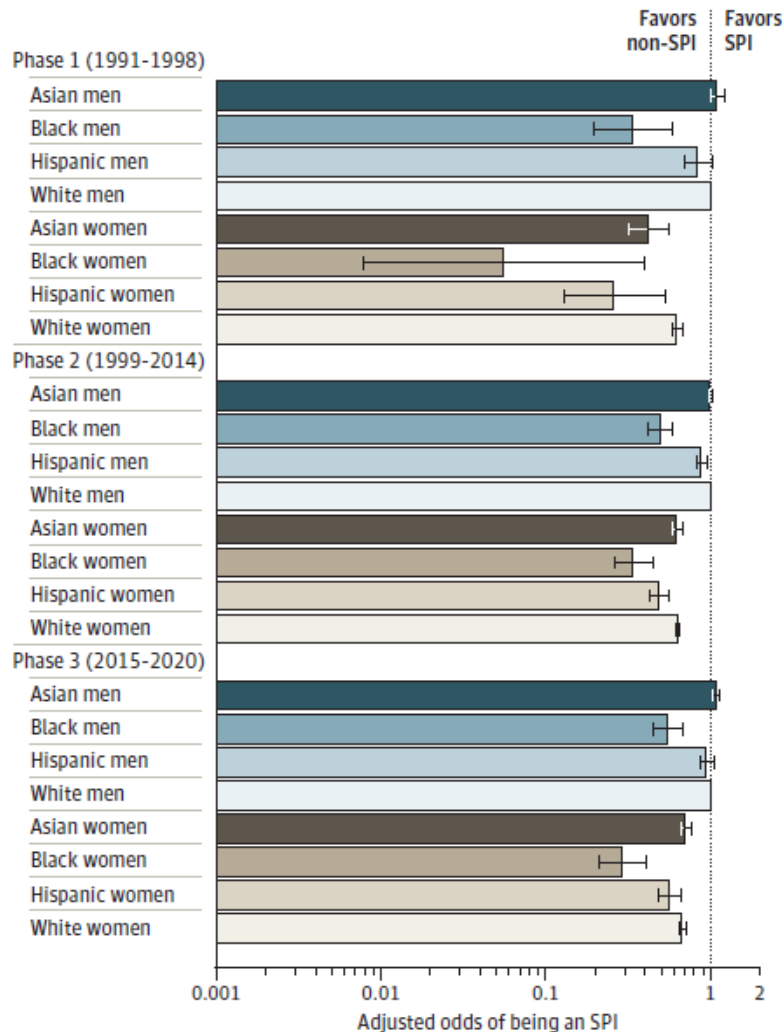
Mytien Nguyen, MS; Sarwat I. Chaudhry, MD; Mayur M. Desai, PhD, MPH; Kafui Dzirasa, MD, PhD; Jose E. Cavazos, MD, PhD; Dowin Boatright, MD, MBA, MHS
JAMA Network Open. 2023;6(2):e230855

Persistent disparities for women and Black applicants, after adjusting for career stage and degree

Error bars indicate 95% CIs. In panel B, odds ratios adjusted for career stage (early, middle, and late) and degree; in panel D, odds adjusted for career stage and degree.

Gender, ethnic, and racial disparities exist in those with 3+ NIH RPGs

A SPI status by gender, race, and ethnicity vs White men



Original Investigation | Equity, Diversity, and Inclusion

Gender, Racial, and Ethnic Inequities in Receipt of Multiple National Institutes of Health Research Project Grants

Mytien Nguyen, MS; Sarwat I. Chaudhry, MD; Mayur M. Desai, PhD, MPH; Kafui Dzirasa, MD, PhD; Jose E. Cavazos, MD, PhD; Dowin Boatright, MD, MBA, MHS

JAMA Network Open. 2023;6(2):e230855

Persistent disparities for women and Black applicants, after adjusting for career stage and degree

Intersectionality: Black women PIs least likely to be represented (aOR= 0.29 vs White men)



Underrepresented Faculty:

- Less likely to have their research ideas heard and validated
- Disproportionately leave the workforce
 - The average cost of losing a faculty member in a department of medicine exceeds \$400,000
- Expected to do diversity-related work because of their race

Valantine HA, Lund PK, Gammie AE. From the NIH: A Systems Approach to Increasing the Diversity of the Biomedical Research Workforce. *CBE Life Sci Educ.* Fall 2016;15(3)doi:10.1187/ cbe.16-03-0138

Blackstock U. Why Black doctors like me are leaving faculty positions in academic medical centers. *First Opinion. STAT;* 2020. January 16, sed April 22, 2021.



Building Up Study

Our Team



Doris Rubio, MPI



Audrey Murrell, MPI



Natalia Morone, MPI



Gretchen White, Co-I



Andrew Althouse, Co-I



Chelsea Proulx, MPH
University of Pittsburgh



Maya Thakar, GSR
University of Pittsburgh



Ginger White
University of Pittsburgh



Jamie Doyle
NIH Project Scientist



Chantele Mitchell-Miland
University of Pittsburgh



Taylor Mathis
University of Pittsburgh

Retaining Underrepresented Faculty in Research:

- Increases faculty **productivity**
- Improves faculty **retention**
- Fosters a more **diverse** environment

Abebe KZ, Morone NE, Mayowski CA, Rubio DM, Kapoor WK. Sowing the “CEED”s of a more diverse biomedical workforce: The Career Education and Enhancement for Health Care Research Diversity (CEED) program at the University of Pittsburgh. *Journal of Clinical and Translational Science*. 2019;3(1):21-26. doi:10.1017/cts.2019.364

Building Up - Aims



Conduct a Cluster Randomized Controlled Trial to test two different models of intervention



Study what factors impact the participants



Disseminate the Building Up Intervention to other institutions

Hypotheses

1. UR participants randomized to the CEED intervention will have **greater research success**, as measured by the **number of publications (primary)**, number of presentations, the number of grant proposals submitted, and securing a faculty position, than their colleagues in the control group.
2. UR participants randomized to the CEED intervention will have **improved Psychological Capital** after participating in CEED.
3. UR participants randomized to the CEED intervention will achieve **higher Psychological Capital (mediator), which will then result in greater research success as measured by number of publications (primary)**, number of presentations, and the number of grant proposals submitted, than their colleagues randomized to the waitlist control group.

Intervention A	Intervention B
Monthly Sessions & Webinars	Monthly Webinars
Courses in Grant Writing & Medical Writing	Courses as needed
Mentoring provided by intervention	Mentoring provided by institution
Networking provided by intervention	Networking provided by institution

Participants followed for two years post intervention




Approach: Intervention A/B

- Intervention ~8 junior investigators led by a near-peer mentor
- Both arms - 12-month webinar series on Leadership
- Control arm receive Intervention after study



Intervention Arm Monthly Meetings

- Monthly 1.5 hour meetings
- Scholars present their research once
- Speakers are leaders such as Department Chairs and NIH POs
 - Giving Effective Presentation
 - Curriculum Vitae
 - Negotiation
 - Difficult conversations
 - Writing Productivity
 - NIH K and R grants
 - Letters of Recommendation



Intervention Arm Coursework

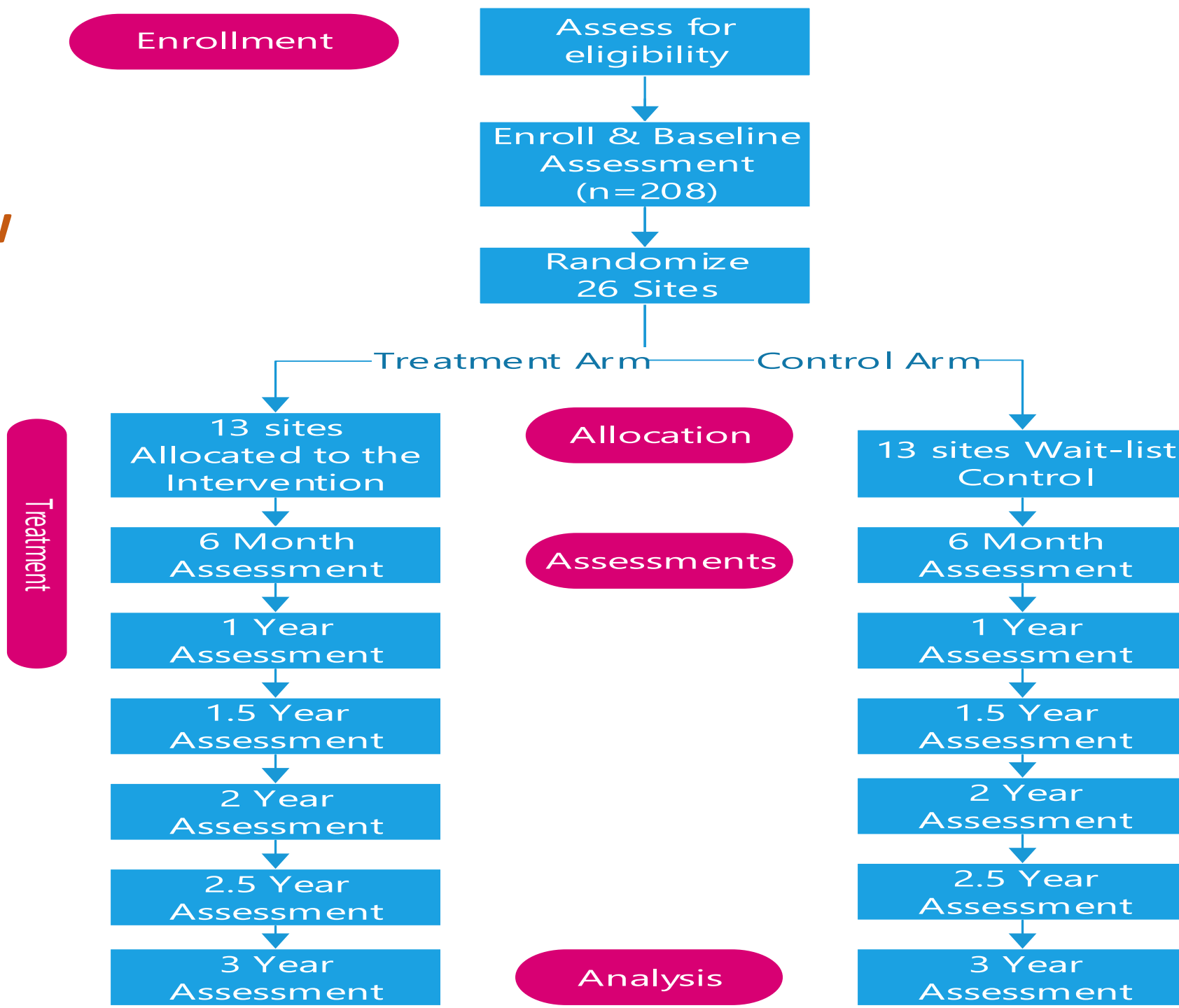
Two courses:

1. Grant Writing
2. Scientific Writing



signature

Study Flow



Leveraging CTSA Network

Contact Colleagues

- KL2/TL1/Workforce leads

SIRB

Operations Manual

Training

- Implementation
- Office Hours

Participating Institutions

Albert Einstein College of Medicine/Montefiore

Children's National /George Washington University

Loyola University Medical Center

Massachusetts General Hospital

Mayo Clinic Rochester

Medical University of South Carolina

Northwestern University

Oregon Health and Science University

Penn State Health

Rush University Medical Center

Texas A&M University

Tufts University Health Sciences

University of Buffalo

University of California, Davis

University of Chicago

University of Colorado Denver Anschutz Campus

University of Michigan

University of Minnesota

University of Pennsylvania

University of Southern California

University of Texas Health Science Center at San Antonio/ University of Texas at Austin

University of Virginia

University of Wisconsin, Madison

Vanderbilt University Medical Center

Washington University School of Medicine

Participants

- Goal– 208 post-doctoral fellows or early career faculty (26 institutions)
- Enrolled 225!

Participant Characteristics	
Age	Median = 36
Female	80%
Race/ethnicity	
Hispanic/Latinx	34%
Non-Hispanic/Latinx	66%
White	13%
Black	33%
Other	13%
Multi-race	6%
Career status	
Post-doc	47%
Faculty	53%

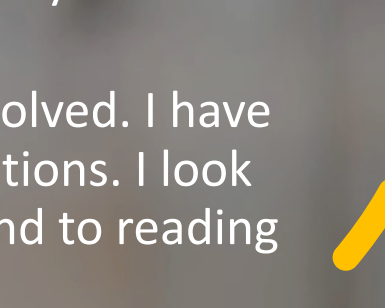
Opportunity

"Thank you so much for giving me the opportunity to be part of Building Up"

"I feel this is a much-needed opportunity for underrepresented biomedical researchers. Looking forward to participating in the intervention"

"This is an amazing opportunity, and I am extremely grateful for being selected to participate. I look forward to a fruitful learning experience"

Impact

- “my experience was great. It was really good to connect and find resources, networking, and build my confidence”
 - “I honestly can confidently say that being part of the Building Up study was the best thing that happened to me last year. You helped me grow, educate me, support me, write a K award and encouraged me to continue pursuing a career in academic medicine (despite many of my peers giving up). I am so grateful for everything.”
 - “Thank you so much for developing this amazing program and for allowing us to be a part of it. While it was a lot of work, the rewards of diversifying our research workforce is so worth it.”
 - “It was an honor to be part of the Building Up study. I have put into practice so many of the things I learned throughout the course of the study. I can’t wait to see the published results of your research.”
 - “Thank you, Dr. Rubio, for the opportunity to be involved. I have thoroughly enjoyed and learned from the presentations. I look forward to re-viewing some of the presentations and to reading your research once published.”
- 

Building Up: The Near- Peer Mentor Perspective

Christopher J. Russell, MD, MS

Children's Hospital Los Angeles

Keck School of Medicine, University of Southern California

April 18, 2023



Building Up a Diverse
Workforce for
Biomedical Research

Benefits as a near-peer mentor:

Connections

- Exposure to senior leadership at CHLA and USC: Deans, vice-deans, center leaders, chairs outside home department
- Connections with UIM peers across the country



Professional Development Sessions

Topic	Speaker	Title
Equity and Inclusion at KSOM	Joyce Richey	Associate Dean, Diversity and Inclusion, KSOM
Getting Ready for the Academic Year	Donna Elliott	Vice Dean, Medical Education, KSOM
Letters of Recommendation	Cecilia Patino-Sutton	Director, Workforce Development, SC-CTSI Co-Director, KL2 Program
NIH Biosketches & CVs	Tamara Simon	Faculty Lead, CHLA TECPAD
Promoting Yourself via Social Media	Margaret Trost	Assoc. Chief, Professional Development, CHLA Div. of Hospital Medicine
Time Management	Jehni Robinson	Chair, Dept of Family Medicine, KSOM
Giving Effective Presentations	John Carpten	Chair, Translational Genomics, KSOM
Difficult Conversations	Michael Bryant	Vice Chair, Diversity, Equity, and Inclusion; Chief, CHLA Division of Hospital Medicine
Negotiating in Academic Medicine	Christopher Russell	Research Director, CHLA Division of Hospital Medicine
Mindfulness & Wellness	Grant Christman	Director of Education, CHLA Division of Hospital Medicine
Writing Productivity	Ricky Bluthenthal	Professor of Population and Public Health Sciences Associate Dean for Social Justice, KSOM

Benefits as a near-peer mentor:

Connections

- Exposure to senior leadership at CHLA and USC: Deans, vice-deans, center leaders, chairs outside home department
- Connections with UiM peers across the country

Site PI for a NIH grant

- Provided demonstration in multicenter collaborations

Positively affected my mentoring effectiveness

- Personal mentoring relationships
- Understanding of the post-doctoral scholar position and challenges

Supported larger mentoring leadership roles

- In local CTSA
- Nationally

Scholar impact



Exposure to distinguished leaders

Cross-campus connections

Several NIH awards submitted/awarded (Diversity supplements, RPG-level grants)

Several post-docs transitioned to faculty positions and other leadership positions

Building community early in the COVID pandemic

Summary and Lessons Learned

1

Building Up provided benefits for both the research participants and the near-peer mentor

2

Our program's success was predicated on strong administrative support to assist with logistics

3

Flexibility is key: we had to pivot several times without much notice

From Building UP to iDRIV

Sana Syed, MD, MSCR, MSDS
University of Virginia
School of Medicine, Department of
Pediatrics
Near Peer-Mentor



Jennifer Phillips, RN,
CCRC
University of Virginia
School of Medicine,
iTHRIV
Program Manager



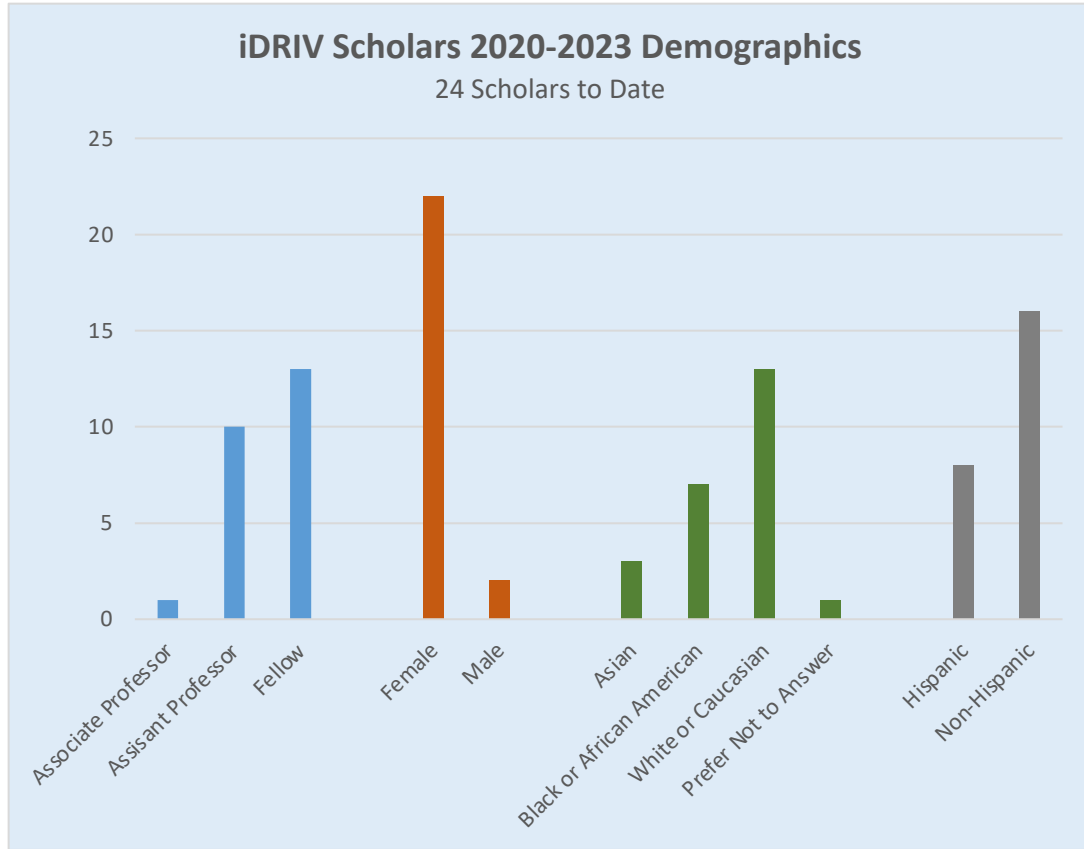


PURPOSE: *iDRIV has a foundational commitment to supporting the success of brilliant quality investigators AND also sees the crucial value of creating a network of diverse researchers in order to enhance our mission to improve human health.*

To Be Successful:

- **Institutional Buy-in**
 - Leadership support by serving as speakers and attending the Networking session
- **Infrastructure support-CTSA**
 - iTHRIV provides support with a Program Manager
 - Miscellaneous Administrative
- **Departmental support \$\$\$**
 - Near-Peer Mentor Effort
 - Outside Speaker Honoraria
 - Food for In-person Event

Scholars



*NIH Definition for Underrepresented in Biomedical Sciences



Metrics and Early Successes

- **Program & Scholar Accomplishments**

- KL2 Scholars Pathway Program
- Involvement at the institutional level
- Grants awarded
- Networking Opportunities

- **Next Steps**

- Initiate iDRIV at Partner Sites
- Possible R25 submission

Scholar Year	Scholar Accomplishments
2020-2021	Team Science Award Recipient as part of the Covid Core Team
2020-2021	Fellow of the Year Award Recipient
2020-2021	Accepted into Master of Clinical Research Program
2020-2021	Accepted into the iTHRIV Scholars program and KL2 Scholar
2020-2021	K43 Grant Awarded
2021-2022	Accepted into the iTHRIV Scholars program
2021-2022	Accepted as Trainee Member of The Academy for Excellence in Education
2021-2022	Accepted as Member of The Academy for Excellence in Education
2022-2023	DOD R01 Equivalent Awarded

Future Dissemination Plans

Dissemination

- Intervention B sites (control)
- Intervention A near peer facilitators

Implementation Materials

- Website with resources
- Video with testimonials
- Show intervention's value

Thank you!

Questions?



Building Up a Diverse
Workforce for
Biomedical Research

