Mentoring: NIH and the National Research Mentoring Network (NRMN)

October 29, 2020
5:00 - 5:45 ET

Presenters:
- Alison Gammie, Ph.D. (NIGMS/NIH)
- Christine Pfund, Ph.D. (NRMN)
- Mercedes Rubio, Ph.D. (NCATS/NIH)
- Nicole Redmond, M.D., Ph.D., MPH (NHLBI/NIH)

Moderator:
- Ericka Boone, Ph.D. (OER/NIH)
Presenters & Moderator

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(NHLBI/NIH)

Moderator

Ericka Boone, Ph.D.  
(OER/NIH)
Session Goals:

Mentorship has been shown to be critical for the advancement of biomedical researchers. In this session, you will hear about national efforts to advance the science of mentorship. This session will help mentors and mentees improve their practice and expand their mentoring networks to advance their careers.

Objectives:

Upon completion of this session, participants will be motivated to:

- Identify your mentoring needs and expand your network to meet those needs
- Read about evidence-based approaches to mentoring
- Use the resources at NRMN and other mentoring sites
# Session Plan

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<td>5:00-5:05</td>
<td>Introduction of Panelists</td>
<td>Ericka Boone</td>
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<tr>
<td>5:05-5:10</td>
<td>State of Science of Effective Mentorship</td>
<td>Chris Pfund</td>
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<td>5:10-5:15</td>
<td>Cultivating your Mentoring Network</td>
<td>Nicole Redmond</td>
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<td>5:15-5:20</td>
<td>Creating a Mentoring Culture</td>
<td>Mercedes Rubio</td>
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<td>5:20-5:25</td>
<td>Resources to Support Mentees and Institutions in Enhancing Mentorship</td>
<td>Alison Gammie</td>
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<td>5:25-5:45</td>
<td>Broad Q&amp;A</td>
<td>All Panelists</td>
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The Science of Effective Mentorship in STEMM

#NASEMmentoring
What is Mentorship?

*Mentorship is a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychosocial support.*

Mentorship includes **career support functions** (e.g., career guidance, skill development, sponsorship) and **psychosocial support functions** (e.g., emotional support or role modeling) aimed at mentee talent development.

It complements other developmental processes like teaching or coaching to support mentees in developing knowledge and skills, and is essential to holistic development of STEMM professionals, including STEMM identity development.
What is Mentorship? Elements

**Trust**

Trust develops when mentors and mentees work together to identify and respond to their mutual goals, needs, and priorities. These change over time and thus may require adjustment.

**Self-reflection**

Critical and honest self-reflection occurs at multiple stages of effective mentorship processes.

**Expectations**

Explicit declarations of the expectations of both mentors and mentees at the initiation of mentorship—revisited periodically and possibly recorded in writing—can help create an effective mentoring relationship.

**Education**

Mentorship is a learned skill, and mentorship education influences mentor and mentee attitudes, self-efficacy, and behaviors.
# Attributes for Effective Research Mentoring Relationships

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<tr>
<th>Research Development</th>
<th>Diversity/Cultural</th>
<th>Sponsorship</th>
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<tbody>
<tr>
<td>∙ Teaching disciplinary knowledge</td>
<td>∙ Cultural self-knowledge</td>
<td>∙ Fostering independence</td>
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<td>∙ Providing technical training</td>
<td>∙ Advancing equity and inclusion</td>
<td>∙ Promoting professional development</td>
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<tr>
<td>∙ Accurately assessing understanding of disciplinary knowledge and skills</td>
<td>∙ Being culturally responsive</td>
<td>∙ Expanding mentee networks</td>
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<tr>
<td>∙ Promoting ethical behaviors and responsible conduct of research</td>
<td>∙ Reducing impact of bias</td>
<td>∙ Actively advocating</td>
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<td>∙ Reducing stereotype threat</td>
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<td>∙ Fostering work-life integration</td>
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<tr>
<td><strong>Interpersonal</strong></td>
<td></td>
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<tr>
<td>∙ Active listening/ effective communication</td>
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<tr>
<td>∙ Aligning expectations</td>
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<tr>
<td>∙ Building trusting relationships</td>
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<tr>
<td>∙ Active coaching</td>
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<tr>
<td><strong>Psychosocial</strong></td>
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<tr>
<td>∙ Providing motivation</td>
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<tr>
<td>∙ Developing mentee career self-efficacy</td>
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<tr>
<td>∙ Developing mentee research self-efficacy</td>
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<tr>
<td>∙ Developing science identity</td>
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<tr>
<td>∙ Developing a sense of belonging</td>
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Pfund *et al.*, 2016
Cultivating Mentoring Networks

A range of structures support mentees’ development, including:

- **Dyad**
  - Mentor
  - Mentee

- **Triads**
  - Mentor
  - Mentee
  - Mentor

- **Collective or Group**
  - Mentor
  - Mentee
  - Mentee

- **Network**
  - Mentor
  - Peer Mentor
  - Sponsor
  - Coach
  - Mentee
  - Mentor
Types of Advisors

- **Navigator**--organizational dynamics
- **Sponsor**--resources and opportunities needed for advancement
- **Coach**--skills and methods
- **Confidant**--emotional support
Mentoring Maps

Resourced from Montgomery, B. 2017 Mapping a Mentoring Roadmap and Developing a Supportive Network for Strategic Career Advancement, SAGE Open.
Creating a Culture and Cultivating Effective Mentorship

Support Multiple Mentorship Structures and Opportunities

• **Institutional leadership** should support policies, procedures, and other infrastructure that allow mentees to engage in mentoring relationships with multiple individuals within and outside of their home department, program, or institution, such as professional societies, external conferences, learning communities, and online networks, with the ultimate goal of providing more comprehensive mentorship support.

• **Professional associations** should proactively facilitate the development of mentoring relationships among individuals from different programs or institutions, as needed, who can provide complementary or supplementary mentorship functions.
  
  • Membership Sections
  • Committee on the Status of Groups in the Profession
  • “Minority Action Committees”
Creating a Culture and Cultivating Effective Mentorship (continued)

**Foundations** can and also play a role in facilitating mentoring and networking opportunities.

- Ford Foundation
- Doris Duke Charitable Foundation
- Robert Wood Johnson Foundation
- Alzheimer’s Association (partner with NIA Butler-William Scholars Program)
NRMN Mentor Training Core Phase I: Expanded, Enhanced, and Studied Ways to Optimize Research Mentoring Relationships

• Face-to-face mentor training workshops
• Face-to-face mentee training workshops
• Self-paced online training
• Synchronous online training
• Train-the-trainer workshops
• Implementation workshops
Where can you learn more?

Read the Report
www.nap.edu/MentorshipInSTEMM

Use the Online Guide
www.nationalacademies.org/MentorshipInSTEMM

Learn about the Project
www.nas.edu/mentoring

Join the Conversation
#NASEMmentoring

Ask a Question or Make a Comment
mentoring@nas.edu
Where can you learn more?
Mentoring Tools

DEVELOPING A CULTURE OF MENTORSHIP

One of the most challenging aspects of realizing widespread and lasting improvements in the mentorship at an institution is the need to develop a culture that supports and values mentorship. Indeed, organizational change can be challenging, particularly with units composed of individuals who value their independence and consider themselves experts in many areas of their work. Research on teaching reform, which parallels mentorship reform, has identified a number of barriers to organizational change (Brownell and Tanner, 2012; NASM, 2016, 2018a, 2018b, 2019d).

- Barrier 1: The belief that mentorship is not a problem that needs to be addressed. (read more)
- Barrier 2: A commitment to and comfort with traditional mentorship practices. (read more)
- Barrier 3: The tendency to place the sole responsibility on the mentee for their mentorship experience. (read more)
- Barrier 4: The lack of commitment to support implementation of effective mentorship. (read more)

There are actions that members of the mentorship ecosystem can take to help foster the development of a culture that supports and values effective mentorship. These include:

- Possible Actions for University Leadership
- Possible Actions for Department Chairs
- Possible Actions for Research, Training, and Graduate Program Directors
- Possible Actions for Faculty Mentors
- Possible Actions for Undergraduate and Graduate Students

MENTORING TOOLS

Individual Development Plans (IDPs)

The IDP is a tool for providing structure to mentor and mentees in their work together (Vincent et al., 2015). Developing IDPs requires that mentees think through their short and long-term career plans and formulate a path to enact the plans with support from their mentor. IDPs provide a mechanism for supporting effective mentorship behaviors in a manner tailored and responsive to mentored career plans as well as their unique skills, interests, and values (Hobson et al., 2014). The use of IDPs supports structured bilateral engagement and personalization in the mentorship exchange (Hobson et al., 2014; Vincent et al., 2015). Assessments of IDPs indicate they are useful in facilitating skills identification and developing the abilities needed to support career success (Hobson et al., 2014). Given that the use of IDPs is correlated with greater reports of satisfaction and scientific productivity on the part of postdoctoral scientists (Davis, 2009), their expanded use in training programs is expected to benefit a broad range of student scientists (Fuhrmann, 2016).
Center for the Improvement of Mentored Experiences in Research (CIMER)
Resources to Support Mentees and Institutions in Enhancing Mentorship
RESOURCES AVAILABLE ON NRMN.NET

- NRMN Website
- Community Events & Updates
- NRMN Newsletter
- Career Development Webinars
- NRMN Social Media
- Diversity Funding Opportunities

Email: info@nrmnet.net for additional information

RESOURCES AVAILABLE AFTER BECOMING AN NRMN MEMBER

- Virtual Mentorship - MyMentor
  - Get matched to find your best mentor or mentee or sign up to do both and nurture your community!
- Network with our community of over 14,000 participants nationwide!
- Customize goals for you and your mentor/mentee to work on
- Online Resume Builder
- Virtual Groups
- NRMN Opportunities Group & start networking!
How to Leverage the NRMN Network, Part 1

Attend Webinars:
- 11/5/2020, 12-1:30pm CST: Mentoring Excellence Webinar Series
  - The Trials and Tribulations of Grad School
  - Register in Advance: https://unthsc.zoom.us/webinar/register/WN_YFdB5uW-Qpq1KdZKWrb1iw
- 11/16/2020, 11-11:45am CST: How to Leverage the NRMN Network Webinar
  - Register in Advance: https://unthsc.zoom.us/webinar/register/WN_n1z5j_WDR2q0tvJF7HSv nw

Stay Current:
- Share or review Diversity Funding Opportunities: https://nrmnet.net/diversity-funding-opportunities/
- Sign up for the NRMN Newsletter: NRMNet.net/subscribe
How to Leverage the NRMN Network, Part 2

Join MyNRMN

- Expand your network
  - Connect within or outside your field for future collaborations
- Engage in 2 forms of mentoring:
  - 1-on-1 guided virtual mentoring focused on culturally aware mentorship
  - Self-structured mentoring (available to both mentors & mentees)
- Create a My Group for your organization
  - Make a private My Group for only your members
  - Communicate in a discussion board or through video calls
- Create a My Cohort for your organization to collect aggregate data
  - Email info@nrmnet.net to request information
NRMN Phase I Grantwriting Coaching Programs

<table>
<thead>
<tr>
<th>Model</th>
<th>Target Audience of Investigators</th>
<th>Coaching Duration</th>
<th>Cohort Size</th>
<th>Typical Coach-to-Participant Ratio</th>
<th>Unique Approaches</th>
</tr>
</thead>
</table>
| STAR  | No or minimal grantwriting experience  
Majority from minority serving institutions | 12 months | 10 | 1:2 | In addition to grant writing coaching, cohort engages in professional development sessions on essential skills for research careers in academia. Blend of virtual and in person meetings, ending with a mock study section. |
| CAN   | No or minimal grantwriting experience  
All from institutions in Big Ten Academic Alliance | 6 months | 40 | 1:4 | Launch of coaching groups is preceded by professional development sessions for academic career preparation. After large-group kickoff, coaching groups meet in person on their home campuses. |
| SETH  | No or minimal grantwriting experience  
Majority from RCMts | 6 months | 35 | 1:4 | Coaching groups are augmented by the Health Equity Learning Collaboratory, a structured virtual online community that provides trainees direct access to NIH resources and peer networks. |
| GUMSHOE | Minimal to moderate grant writing experience  
Target population defined for each cohort | 6 months | 25 | 1:1 | Cohorts have a distinct population focus in health disparities research. Extensive engagement with NIH grant program officials. One-on-one coaching occurs after kickoff. Dyads work through all proposal sections, concluding with a mock study section. |
| NU    | Minimal to moderate grant writing experience  
Preferably ready to write NIH K or R proposal (new/revised) | 4-6 months | 25 | 1:4 | Coaches provide real-time iterative feedback to small group of trainees. Strong emphasis on rhetorical patterns common to many NIH-style proposals. Groups work on Aims, Significance, Innovation, and Career Development sections of proposals. |
| P3    | Moderate grant writing experience  
All ready to write NIH K or R proposal (new/revised) | 5 months | 10 | 1:2 | Multiple coaches work with a single cohort of trainees, all developing NIH proposals. Highly structured to enhance accountability and writing progress. Group works through all proposal sections, concluding with a mock study section. |
NRMN Phase 1 Grantwriting Coaching Programs

By the Numbers (Data as of March 31, 2019)

- 6 Grant writing/coaching programs (GCPs)
- 545 Participants in all GCPs from 187 institutions
- 252 NIH submissions
- 93 NIH awards (68% URG, 71% Women)
- 152 Total awards (NIH + non-NIH)
- $65M Total NIH funds across GCPs
<table>
<thead>
<tr>
<th>University of Utah Grant Writing Coaching Group Study</th>
<th>Information can be found at: <a href="https://nrmnet.net/university-of-utah-nrmn-u01/">https://nrmnet.net/university-of-utah-nrmn-u01/</a></th>
</tr>
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<tbody>
<tr>
<td>Morehouse School of Medicine Grant Writing Coaching Group Study</td>
<td>Contact Kimberly Lawson, NRMN SETH Project Manager, at (404)756-5288 or <a href="mailto:NRMN.SETH@gmail.com">NRMN.SETH@gmail.com</a></td>
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</tbody>
</table>
NRMN Grantwriting Coaching Program: Morehouse School of Medicine

- **Study Title:** A Randomized Controlled Study to Test the Effectiveness of Development Network Coaching in the Career Advancement of Diverse Early Stage Investigators (PI: Elizabeth O. Ofili, Morehouse School of Medicine)

- **Program Overview:** Structured grant writing plus developmental network coaching intervention that includes: grant writing coaching, peer-to-peer mentoring, bi-weekly proposal review sessions, access to the Health Equity Learning Collaboratory, and a mock study section with expert review panel.

- **Program Length:** 9 months (Cohort 3: February - October, 2021)

- **Who can apply?** Early stage investigators (faculty, postdocs, and new NIH investigators) who plan on submitting an NIH grant application within 12 months of program completion

- **Application Deadline:** Rolling

- **Questions?** Contact Kimberly Lawson, NRMN SETH Project Manager, at (404)756-5288 or NRMN.SETH@gmail.com
More in-depth info from slide 21 (NRMN Phase II opportunities to enroll in GCP)
Emily Utzerath, 10/21/2020
NRMN Grantwriting Coaching Program: University of Utah

- **Study Title:** Enhanced Grant Writing Coaching Intervention for a Diverse Biomedical Workforce (PI: Kolawole S. Okuyemi, University of Utah)

- **Program Overview:** Grant writing skills training for underrepresented junior investigators to enhance their productivity and independence that includes: 2-day kickoff event, group coaching sessions, and a mock study section.

- **Program Length:** 5 months (Cohort 3: January - May 2021)

- **Who can apply?** Advanced postdoctoral fellows or faculty on a career trajectory to become an NIH-funded independent investigator who are actively developing a new or revised K-, R- or SC-series NIH proposal (or similar national-level proposal) with an intended submission date 6-10 months after the program kickoff.

- **Application Deadline:** Cohort 3 is October 30; Cohorts 4-6 are TBD

- **Questions?** Contact NRMNUtah@utah.edu or visit the study info page on NRMNet: https://nrmnet.net/university-of-utah-nrmn-u01/
More in-depth info from slide 21 (NRMN Phase II opportunities to enroll in GCP)

Emily Utzerath, 10/21/2020
Acknowledgements


● U54GM119023

NRMN Phase II (2019 - 2024):

● U24GM132176 (Coordination Center)
● U24GM132217 (Resource Center)
Extra Slides
NRMN Phase II Centers

1. Coordination Center (PI: Christine Pfund, University of Wisconsin-Madison)

2. Resource Center (PI: Jamboor K. Vishwanatha, University of North Texas Health Science Center)
NRMN Phase II U01s


2. Impact of Culturally Aware Mentoring Interventions on Research Mentors and Graduate Training Programs (PI: Angela Byars-Winston, University of Wisconsin-Madison)

3. Building a Diverse Biomedical Workforce Through Communication Across Difference (PI: Carrie A. Cameron, University of Texas MD Anderson Cancer Center)

4. Studying Inclusive Mentor Networks to Diversify the Biomedical Workforce (PIs: Mica Beth Estrada, University of California, San Francisco; Paul Hernandez, University of Texas A&M; Nichole Broderick, University of Connecticut; Jo Handlesman, University of Wisconsin-Madison)
NRMN Phase II U01s (continued)

5. Peer group mentoring for racially underrepresented early career biomedical researchers: Identifying the unique influence of psychosocial support on personal gains and objective career outcomes (PIs: Susan S. Girdler, University of North Carolina at Chapel Hill; Friederike Jayes, Duke University)


7. A Randomized Controlled Study to Test the Effectiveness of Development Network Coaching in the Career Advancement of Diverse Early Stage Investigators (PI: Elizabeth O. Ofili, Morehouse School of Medicine)

8. Enhanced Grant Writing Coaching Intervention for a Diverse Biomedical Workforce (PI: Kolawole S. Okuyemi, University of Utah)
NRMN Phase II U01s (continued)

9. Career Advancement and Culture Change in Biomedical Research: Group Peer Mentoring Outcomes and Mechanisms (PI: Linda Pololi, Brandeis University)

10. Building Up a Diverse Pipeline for the Biomedical Research Workforce (PIs: Doris M. Rubio and Audrey Murrell, University of Pittsburgh; Natalia Morone, Boston University)

11. Effectiveness of Innovative Research Mentor Interventions among Underrepresented Minority Faculty in the Southwest (PI: Akshay Sood, University of New Mexico Health Sciences Center)