



## Original Article

## Mentoring junior URM scientists to engage in sleep health disparities research: experience of the NYU PRIDE Institute



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## ABSTRACT

**Aim:** The aim of this study was to evaluate the National Institute of Health (NIH)-funded PRIDE Institute in Behavioral Medicine and Sleep Disorders Research at New York University (NYU) Langone Medical Center. The NYU PRIDE Institute provides intensive didactic and mentored research training to junior underrepresented minority (URM) faculty.

**Method:** The Kirkpatrick model, a mixed-methods program evaluation tool, was used to gather data on participant's satisfaction and program outcomes. Quantitative evaluation data were obtained from all 29 mentees using the PRIDE REDcap-based evaluation tool. In addition, in-depth interviews and focus groups were conducted with 17 mentees to learn about their experiences at the institute and their professional development activities. Quantitative data were examined, and emerging themes from in-depth interviews and focus groups were studied for patterns of connection and grouped into broader categories based on grounded theory.

**Results:** Overall, mentees rated all programmatic and mentoring aspects of the NYU PRIDE Institute very highly (80–100%). They identified the following areas as critical to their development: research and professional skills, mentorship, structured support and accountability, peer support, and continuous career development beyond the summer institute. Indicators of academic self-efficacy showed substantial improvement over time. Areas for improvement included tailoring programmatic activities to individual needs, greater assistance with publications, and identifying local mentors when K awards are sought.

**Conclusions:** In order to promote career development, numerous factors that uniquely influence URM investigators' ability to succeed should be addressed. The NYU PRIDE Institute, which provides exposure to a well-resourced academic environment, leadership, didactic skills building, and intensive individualized mentorship proved successful in enabling URM mentees to excel in the academic environment. Overall, the institute accomplished its goals: to build an infrastructure enabling junior URM faculty to network with one another as well as with senior investigators, serving as a role model, in a supportive academic environment.

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## 1. Introduction

Consistent with the goals of Healthy People 2020 is the need for a well-trained and diverse workforce of physicians and scientists [1]. This is essential to foster implementation of innovative health models to address pressing health conditions in the US population. Underdiagnosis and treatment of sleep disorders, particularly

in minority communities [2–7], constitutes one of those health crises, necessitating trained investigators to implement appropriate translational models to tackle them. This was recently recognized by the Institute of Medicine, issuing this widely cited report “Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem” [8]. Evidence strongly suggests that communities in greatest need of sleep health information are in effect the ones exhibiting poorest awareness of sleep deficiencies and related adverse effects on health and quality of life [9–11].

The National Heart, Lung, and Blood Institute (NHLBI) sponsored workshop “Reducing Health Disparities: The Role of Sleep Deficiency and Sleep Disorders” highlighted the need to implement translational models to address sleep-related cardiovascular

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risk in disparity communities [12]. Workshop attendees expressed concern over the limited academic workforce of underrepresented minority (URM) faculty investigating various barriers (eg, financial, geographic, and sociocultural) hindering adoption of healthful sleep practices [4,13,14]. A well-trained workforce of URM faculty is essential in the field of sleep medicine, because members of the URM faculty are more likely to engage in research to reduce health disparities in underserved and/or low-income communities [15,16]. Unfortunately, increasing diversity in the academic workforce has remained a daunting challenge [17]. This is compounded by evidence that so few URM investigators receive K awards, which are fundamental in launching a successful academic career [18]. Moreover, a recent study indicated an alarming racial gap in NIH grant awards, finding that black scientists were 13% less likely to receive NIH funding relative to their white counterparts [19]. Thus, implementing training programs tailored to address specific needs of URM scientists is paramount in empowering them to address sleep-related cardiovascular diseases that disproportionately burden their communities.

The Program to Increase Diversity in Behavioral Medicine and Sleep Disorders Research is a National Institutes of Health (NIH)-funded training institute at New York University (NYU) Langone Medical Center (NYU PRIDE) focusing on one of the seven recommendations highlighted at the workshop: to mentor a new cadre of URM investigators pursuing independent academic careers in sleep research [20]. The NYU PRIDE Institute was founded on the belief that increasing the recruitment and retention of URM faculty is achievable via a sustained effort to maximize exposure to career development opportunities and promote interactions with seasoned mentors in a supportive academic network [18,21–24]. This is crucial in increasing mentees' academic success at all levels of health-related fields [25]. Briefly, NYU PRIDE exposes junior URM mentees to mentored learning opportunities intended to inspire them to conduct research in sleep health disparities using innovative translational behavioral models.

The specific goals of the institute are to: (1) select qualified junior URM faculty with potential to contribute to the current knowledge

of translational models to reduce sleep-related cardiovascular risk; (2) increase mentees' knowledge, skills, and motivation to pursue a career in the implementation of translational behavioral sciences; (3) provide continuous mentorship to mentees and facilitate achievement of career independence; and (4) dispense individualized coaching in acquiring proficiency in grant writing and understanding of the NIH review process. Matriculated URM scholars attend a 2-week didactic program (Summer I) at NYU, followed by ongoing consultation with a mentorship team; a mid-year meeting; monthly webinars, and attend a 1-week NIH proposal-focused program (Summer II). Briefly, during Summer I scholars participate in workshops and seminars on various topics including responsible conduct of research, biostatistics, epidemiology, research methodology, grant writing, and topics on behavioral medicine and sleep disorders and circadian rhythm research. During Summer II, they participate in NIH mock study sections with peer proposal critiques and one-on-one interactions with NIH program staff (Table 1 and Fig. 1).

### 1.1. Theoretical underpinnings and impediments to success

The NYU PRIDE Institute is consistent with the broad, trans-NIH strategy to promote diversity in the academic workforce [18]. The overarching goal of the institute is to implement and evaluate innovative approaches to improve capacity to mentor URM faculty for successful academic careers focusing on sleep-related cardiovascular diseases [20]. In contrast to non-theoretically grounded training programs, the programmatic components of the institute were conceived based on well-established social science models, Ajzen's theory of planned behavior [29] and Bandura's social cognitive theory [30,31]. The training and mentoring curriculum was designed to empower junior URM faculty to develop successful careers through enhanced academic *self-efficacy*, an important motivator of academic success.

The institute, which has been in existence for four years (2010–2014), was developed by a team of established investigators and educators with established track record in training and mentoring

**Table 1**  
Description of the four components of the NYU PRIDE Institute's training/mentoring plan.

| Programmatic Components of the NYU PRIDE Institute                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li> <b>• Summer Sessions:</b> The NYU PRIDE Institute offers an innovative, evidence-based mentored learning experience to promote academic careers of URM faculty [20]. It begins with a 2-week didactic program (Summer I), followed by ongoing consultation with a mentorship team; a mid-year meeting; monthly webinars, and ends with a 1-week NIH proposal-focused program (Summer II).               <ol style="list-style-type: none"> <li>1. Summer I offers workshops/seminars on various topics including responsible conduct of research, biostatistics, epidemiology, research methodology, grant writing, and topics on behavioral medicine and sleep disorders and circadian rhythm research.</li> <li>2. Summer II focuses primarily on participation in NIH mock study sections with peer proposal critiques and interactions with NHLBI program staff (see Fig. 1).</li> </ol> </li> <li> <b>• Mid-Year Meeting:</b> Mentors and mentees attend a mid-year meeting at NHLBI, bringing together mentees from all five NHLBI-funded programs [20].               <ol style="list-style-type: none"> <li>1. Mentees present a progress report on their achievements and the challenges they face, and they discuss the proposal they are developing; feedback on the proposal is provided by PRIDE mentors, PRIDE faculty, and peers with expertise in their specific research area.</li> <li>2. During the actual conference, mentees learn about new findings in their area of interest and innovative approaches to address various health disparities from their peers.</li> <li>3. Mentees are encouraged to meet with PRIDE faculty and peers, particularly those from other institutions. This constitutes an excellent opportunity for mentees to expand their network and enhance their career development skills through peer role modeling.</li> </ol> </li> <li> <b>• Monthly Webinars:</b> PRIDE also offers a webinar series featuring monthly presentations by mentees.               <ol style="list-style-type: none"> <li>1. This allows continuous monitoring and engagement of mentees in developing their proposals throughout the PRIDE academic year, thus building on the momentum created during Summer I.</li> <li>2. PRIDE faculty members with expertise in the specific proposal being discussed provide useful comments to address potential weaknesses they identify.</li> <li>3. Mentees use this forum either to refine their proposal or to seek useful advice on addressing weaknesses articulated in summary statements in case their proposal has already been reviewed.</li> </ol> </li> <li> <b>• Mentorship Plan:</b> The PRIDE leadership team is tasked with selecting qualified URM scientists, conducting didactic workshops and seminars, and assigning mentees to a mentorship team.               <ol style="list-style-type: none"> <li>1. Mentees are matched with mentors with similar academic interests, specialty, and/or personal interests [26–28].</li> <li>2. The team guides URM mentees in developing and refining their individual development plan, detailing necessary steps to develop and submit high-quality manuscripts for peer review and fundable proposals.</li> <li>3. The team imparts necessary leadership and professional skills to become innovative and creative academic leaders.</li> <li>4. The team empowers mentees by dispensing professional and institutional information to ensure academic promotion; support, sponsorship, and stimulation; advice, assistance, and guidance; and feedback and direction towards specific career goals. This is a critical component of the institute, as evidence shows that junior faculty receiving adequate mentorship is more likely to develop professionally and personally over the span of their careers [21].</li> </ol> </li> </ul> |

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