

BUILDING THE NETWORK OF MINORITY HEALTH RESEARCH INVESTIGATORS: A NOVEL PROGRAM TO ENHANCE LEADERSHIP AND SUCCESS OF UNDERREPRESENTED MINORITIES IN BIOMEDICAL RESEARCH

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Background: To address the myriad of health problems and disparities that affect the United States (US) population, the mix of health care professionals and researchers must reflect the full diversity of the nation. There continues to be discrepancy between the number of trained scientists and biomedical researchers from underrepresented populations relative to the overall population. A scarcity of formal and informal networking opportunities for minority researchers and health care providers contribute to this lack of diversity.

Objective: The purpose of this article is to report the outcomes of an established junior minority faculty mentoring program. The Network of Minority Health Research Investigators (NMRI) was established by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) in 2002. We present outcome data from 2008 to the present.

Methods: The Oversight and Planning Committees of the NMRI developed an 18-question survey. The NMRI program analyst conducted a pilot test of the survey and made modifications to ensure readability and understanding. From 2008 – 2018, we administered the survey in both paper and electronic versions to junior and senior members of NMRI. Descriptive results identified the participants. We used open coding to extrapolate recurring statements, words, and themes that were organized into four final categories: reasons for attending NMRI; mentoring; career development; and social support.

Results: Participants were primarily post-doctoral researchers or assistant professors seeking promotion to instructor or associate professor with tenure (64%). Consistent reasons for participating in the Network included: career development; emotional

PURPOSE AND BACKGROUND

The purpose of this article is to describe the structure and mission of the Network of Minority Health Research Investigators (NMRI), discuss consequences of the lack of diversity in biomedical research, and propose a possible solution using the NMRI model.

In a recent perspectives article, the chief officer for Scientific Workforce Diversity and the director of the National Institutes of Health (NIH) acknowledged that the current population of researchers does not reflect the communities served,¹ citing a disparity of underrepresented minorities

in health equity research. Mentors and strategic partnerships are needed to develop future researchers. According to the 2010 United States Census data,² the United States (US) population breakdown was 72.4% Whites; 12.6% African Americans; 16.3% Hispanics; 4.8% Asian Americans, .2% Pacific Islanders, and .9% Native Americans (American Indians and Alaska Natives). Though the census data show the full tapestry of the US population, the same level of diversity is not found among individuals receiving doctoral degrees in the biological sciences. Of the 8,207 doctorates awarded in the biological sciences in 2014, 271 (3.3%) were earned by African Americans, 379 (4.6%) by

support; mentorship for research; developing or refining skills for grant writing; lab management; poster presentations; and applying for tenure. Areas of research interest included diabetes, kidney diseases, nutrition, obesity, and bioinformatics.

Conclusions: While the number of responses to the survey varied annually, the qualitative results suggest that career development and social support provided through the Network were the largest motivators for participation. *Ethn Dis.* 2019;29(Suppl 1):119-122; doi:10.18865/ed.29.S1.119.

Keywords: Network of Minority Health Research Investigators; Mentorship; Career Advancement; Underrepresented Minorities

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Hispanics, and 16 (.19%) to Native Americans.³ The lack of diversity continues throughout the different career stages following graduate school. Ginther and colleagues reported that, of the 600,000 full-time faculty in academic institutions, <5% were African American, 3% were Hispanic, and 1% were Native American.⁴

Another concern in health care research is the disproportionate intramural and extramural funding awarded to underrepresented minorities (URMs).⁴ Applications from African American, Asian American, Hispanic, and Native American investigators comprised 21% of the total applications submitted to the NIH between fiscal year 2000 to 2006. Specifically, Asian Americans contributed 16.2%, African Americans 1.4%, Hispanics, 3.2%, Native Americans .05%, and Other 9.2% compared with 69.9% from Whites.⁴ After controlling for education, country of origin, previous research experience and awards, evidence of publications, and employer attributes, African American applicants were 10 percentage points less likely than Whites to be awarded NIH research funding.⁴ Also, African American and Asian American investigators were less likely to be awarded R01 grants on the first or second re-submission.⁴ Blacks and Hispanics were less likely to revise and re-submit their applications, and Blacks resubmitted grant applications more times than other groups.⁴

The lack of diversity and representation can lead to interventions that do not address primary health problems or adverse health outcomes. A lack of diverse health care providers can exacerbate already existing

health disparities on a national level.⁵⁻⁸

Academic centers typically serve neighboring communities; as communities become more diverse, the need for underrepresented faculty, health care providers and researchers increases. Underrepresentation may reduce resources, opportunities, quality and evidenced based care.⁵ It is desirable for academic institutions to ensure that the practitioners and researchers reflect the communities in which they reside and serve.^{5,6} Increasing the number of URM investigators may facilitate inclusion of more racial and ethnic minorities in clinical trials, ultimately leading to more generalizability of research outcomes and reduction of health disparities.⁶⁻⁸

Research has shown significant differences in the experiences of principal investigators according to racial and ethnic group identification. On average, White investigators have participated in 20 clinical trials compared with 11 for URM investigators. More specifically, both Asian Americans and Whites reported participating in clinical trials at the same rate (22 trials), while Hispanic investigators and Blacks participated in fewer clinical trials, nine and six, respectively.⁶

Obstacles to taking a leadership role in conducting research include: over commitment and lack of time; focus on primary care of underserved minority communities; academic isolation; lack of sustained role models; mentorship; infrastructure (institutional support); opportunity for collaboration; lack of respect; and work and family life imbalance.^{9,10} URMs have difficulty in becoming independent researchers due to institutional requirements for clinical service, com-

mittee work, and ineffective time management.¹⁰ When URMs are funded, they may encounter other difficulties, including lack of the necessary skills to successfully recruit grant coordinators, negotiate dedicated time and space, manage a clinical trial, oversee a budget and payment, direct a team, and recruit and sustain appropriate sample size and statistical adequacy.¹⁰⁻¹²

THE NETWORK OF MINORITY HEALTH RESEARCH INVESTIGATORS

In 1999, NIDDK, together with other NIH Institutes and Centers, recognized the need to increase the number of minority investigators in the NIH biomedical research enterprise to reduce and ultimately eliminate minority health disparities. The Office of Minority Health Research Coordination (OMHRC) of the NIDDK was subsequently established and tasked to coordinate the development of the Institute's Strategic Plan to reduce minority health disparities.¹¹ In 2002, as part of the health disparities strategic plan and based on recommendations of the biomedical research community, OMHRC launched the NMRI, with a mission to establish a network of minority health investigators in fields of interest to the NIDDK, including diabetes, endocrinology, metabolism, digestive diseases, nutrition, kidney, urologic, and hematologic diseases. The network included biomedical research investigators and technical personnel in minority health research from traditionally under-served communities: African

Americans, Hispanic Americans, American Indians, Alaskan Natives, Native Hawaiians, and other Pacific Islanders, to address the need to increase underrepresented minorities in the biomedical research enterprise.

NMRI Structure

A hallmark of the network is ensuring clear communication between network members and the NIDDK. Through NMRI, the NIDDK elicits recommendations for strategies to enhance opportunities for, and support of, URM in biomedical research to address health disparities.

The working model of NMRI is a network that is “owned” by its members and supported by the NIDDK. There are two primary committees, the planning committee organizes the annual conference and the oversight committee monitors program assessment and coordination of the mentorship program.

Membership includes both junior and senior biomedical research investigators who rotate between the committees and leadership positions. The participation of active members and the recruitment of new members are a primary reason for the Network’s continued growth and success.

Senior investigators (associate and full professors) are accomplished (minority and non-minority) researchers who are willing to participate in the Network and serve as mentors. The URM junior investigators include post-doctoral researchers, instructors and assistant professors with an interest in conducting research in the NIDDK mission areas.

Academicians and biomedical researchers that meet the require-

ments of NMRI are invited to become members, attend the annual conference, and submit abstracts for peer-reviewed posters, podium, and roundtable discussions. A letter is sent to the dean or department chair for senior members to support national service, scholarship, and promotion.

METHODS

The oversight and planning committees developed an annual program evaluation survey of 18 questions. The program analysts conducted a pilot test of the survey and made modifications to ensure readability and understanding. Participants completing the pilot survey were excluded from the final survey to avoid bias. The research design used an exploratory sequential mixed method; the qualitative phase explored the views of participants followed by quantitative descriptive statistics (frequency counts) describing the participants.¹³

Participants of the NMRI meetings completed the survey at the close of each annual conference from 2008-2018. We used

open coding to extrapolate recurring statements, words, and themes from the open-ended responses.

RESULTS

Since its launch in 2002, more than 1000 researchers have participated in NMRI workshops and annual meetings; the Network has more than 100 active members. Table 1 shows the overall participation at the annual meetings; junior researchers (66%) attended at a 2:1 ratio vs senior researchers (34%). This ratio allows for opportunities for networking, and the development of both formal and informal mentoring.

Table 2 summarizes the themes extrapolated from open-coding of responses across the past 10 years of survey results. Four final categories emerged as reasons for attending NMRI, including mentoring, career development, academic networking, and social support. Responses were coded for the number of times they were present across the different years; only those found in most of the responses across all the years are reported.

Table 1. Participation in NMRI annual meeting, 2008 to 2018

Year	Total	Senior, n (%)	Junior/other, n (%)
2008	97	32 (33%)	65 (67%)
2009	80	26 (33%)	54(68%)
2010	107	35 (33%)	72 (67%)
2011	82	33 (40%)	49 (60%)
2012	99	39 (39%)	60 (61%)
2013	82	25 (30%)	57 (69%)
2014	97	41 (42%)	56 (58%)
2015	105	41 (39%)	64 (61%)
2016	98	30 (33%)	68 (69%)
2017	119	41 (34%)	78 (66%)
2018	103	25 (24%)	78 (76%)
Total	1069	368	701
Average attendance	97	33 (34%)	64 (66%)

Table 2. The most frequently occurring themes related to annual attendance, career development, and topics selected by the planning committee, 2008 to 2017

What motivates you to attend the NMRI annual conference?	
Career development	Social support
Grant writing	Emotional support
Time management	Increase confidence
Networking	Reduce isolation
Research opportunities	Learning coping strategies
Opportunities to present research	Positive environment
Develop management skills	"Not Alone"
Learning – "when to say no"	Moral support
Tenure process	Professional identity
	Rekindle motivation
	Mentorship
How has NMRI helped with your career development?	
Mentorship	Grant writing
Mock study section	Grant application
R and K awards	Diversity supplement
Promotion and tenure	Development management skills
Collaboration	Manuscript publication
How has NMRI assisted with Mentorship?	
Collaboration	Networking
Health disparities research	Grant writing
Prerequisites for promotion and tenure	Bioinformatics
Publications	

CONCLUSIONS

Lack of diversity in the biomedical research workforce compromises participation of URM in clinical research. NMRI was launched to address this lack of diversity. Over the past 10 years, preliminary results suggest an increase in grant funding and academic promotion through participation in the network. Culturally diverse, interprofessional, and an inclusive community allows for both junior and senior members to develop professional identity, rekindle motivation, and obtain and provide emotional support.

From this preliminary evidence, NMRI is now embarking on a formalized study to determine if the annual feedback from participants can be correlated with increase in career advancement, number of grant applications, and funding.

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CONFLICT OF INTEREST

No conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Research concept and design: Blanchard, Agodoa; Acquisition of data: Blanchard; Data analysis and interpretation: Blanchard, Martinez, Agodoa; Manuscript draft: Blanchard, Rivers, Martinez, Agodoa; Statistical expertise: Blanchard; Administrative: Rivers, Martinez, Agodoa; Supervision: Agodoa

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