NIH SCIENTIFIC WORKFORCE DIVERSITY
STRATEGIC PLAN 2016-2020
WELCOME
FROM THE CHIEF OFFICER FOR SCIENTIFIC WORKFORCE DIVERSITY

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I am extremely privileged to serve as the first NIH Chief Officer for Scientific Workforce Diversity, a role designed to both coordinate and lead diversity efforts NIH-wide. My life experiences—moving as a young girl from West Africa to the United Kingdom, through my time in London at university and medical school as an academic cardiologist, to Stanford School of Medicine, where I rose to professor and senior associate dean of diversity—have indelibly shaped my views on the broad value of diversity. My career has given me a unique perspective to viewing scientific workforce diversity as an incredible opportunity, not an intractable problem. Put quite simply, diversity enables innovation. At its center is difference, not sameness, which encourages a broad array of solutions to solve complex health challenges. I envision this five-year strategic plan for scientific workforce diversity at NIH as a forward-thinking, science-driven compass that will guide us to new levels of inquiry made possible with diversity of thought and action. Each of five goals is described briefly below, and I encourage you to read through the entire plan to learn more details about our approaches for recruiting, retaining, and advancing a more diverse biomedical workforce:

Expand scientific workforce diversity as a field of inquiry. To demonstrate the benefits of workforce diversity in scientific pursuits, our research agenda must work toward a better understanding of how diversity of thought and experience affects the production and uptake of new knowledge in biomedicine, both positively and negatively.

Build and implement evidence related to diversity outcomes. NIH’s long-standing investment in enhancing biomedical workforce diversity has succeeded in raising representation in research. Our task now is to identify and quantify efficacy of specific programs and approaches in the diverse contexts in which they exist across America.

Understand the role of sociocultural factors in biomedical recruitment and retention. Science is a human endeavor and is thus subject to behavioral influences. Both explicit and implicit behaviors like bias and stereotype threat have consequences on career choice, satisfaction, and productivity. These issues deserve further study as they can be mitigated for improved diversity outcomes.

Sustain nationwide workforce diversity with seamless career transitions. NIH’s diversity investment has been successful in filling a pipeline of diverse future talent. Our pressing task is to ensure the continuity and sustainability of this investment at key transitions, such as from training to career independence, as well as into leadership positions.

Promote the value of scientific workforce diversity. I invite you to join me on this journey to establish NIH as the national scientific workforce diversity leader. Let’s encourage innovative, science-driven thinking to spark new levels of inquiry from a diverse community of thinkers.

The outcomes we can achieve are limitless if we use hitherto untapped opportunities of diversity to uncover solutions for human health.

Yours sincerely,

Hannah A. Valantine, M.D.
OVERVIEW OF SWD STRATEGIC GOALS AND OBJECTIVES

Goal 1: Expand Scientific Workforce Diversity as a Field of Inquiry

- Objective 1-1. Advance scholarship of scientific workforce diversity
- Objective 1-2. Launch scientific studies on new ideas for promoting diversity inclusion practices

Goal 2: Build and Implement Evidence Related to Diversity Outcomes

- Objective 2-1. Support evidence-based approaches to training and persistence in biomedical research
- Objective 2-2. Coordinate evaluation of NIH-wide diversity programs and interventions

Goal 3: Understand the Role of Sociocultural Factors in Biomedical Recruitment and Retention

- Objective 3-1. Document and mitigate sociocultural barriers at individual and institutional levels
- Objective 3-2. Provide funding, coordination, and oversight of innovative initiatives to address faculty recruitment and retention

Goal 4: Sustain Nationwide Workforce Diversity with Seamless Career Transitions

- Objective 4-1. Incorporate inclusion and consideration of diversity in all institutional processes
- Objective 4-2. Create a national network of partnered institutions, “hubs of innovation,” to assess diversity interventions and develop best practices
- Objective 4-3. Promote the value of effective mentoring in sustaining careers

Goal 5: Promote the Value of Scientific Workforce Diversity

- Objective 5-1. Establish and promote NIH as a nationwide diversity leader
- Objective 5-2. Serve as the NIH focal point for scientific workforce diversity-related information

NIH’s Commitment to Diversity: NIH strives for scientific workforce diversity for a range of reasons:

- Diversity increases creativity and performance, and it is a key component of achievement in the workforce, particularly when innovation is a critical goal.
- When diverse teams address complex problems, such as those that characterize biomedical and behavioral research, technology, and health, they broaden the scope of inquiry.
- A diverse scientific and health care workforce that address the needs of underrepresented racial and ethnic minorities is essential for understanding and reducing health disparities.
- Finally, as a steward of public funds, and as a matter of basic fairness, NIH should ensure that access to careers in biomedical investigation is equally open to all Americans.
Many offices across NIH focus on some aspect of the scientific workforce diversity issues described in this strategic plan. Below is an overview of those offices and a summary of their role as it relates to scientific workforce diversity.

**Scientific Workforce Diversity (SWD)**  
*NIH Office of the Director*  
Under the leadership of the Chief Officer of Scientific Workforce Diversity (COSWD), SWD leads NIH’s effort to diversify the national scientific workforce and expand recruitment and retention. COSWD aims to be a model for capturing the diverse talent into biomedical research across our nation through research innovations and data-driven interventions in diversity inclusion policies, processes, and programs.

**Office of Extramural Research (OER)**  
*NIH Office of the Director*  
OER supports extramural research (approximately 83 percent of NIH’s $30 billion budget) at the 24 NIH Institutes and Centers that award grants. OER’s Division of Biomedical Research Workforce and its Office of Extramural Programs develops biomedical workforce and training policy and analyses, including research and career development programming, workforce diversity, and biomedical labor economics.

**Office of Intramural Research (OIR)**  
*NIH Office of the Director*  
Approximately 10 percent of the NIH budget supports NIH intramural investigators, NIH staff who conduct research. The program supports approximately 1,000 principal investigators and 7,000 trainees and other scientific staff. OIR’s Office of Intramural Training and Education (OITE) strives to enhance training experiences for students and fellows at NIH. OITE works closely with NIH Institute- and Center-based training offices to help trainees develop scientific and professional skills that will enable them to become leaders in the biomedical research community.

**Office of Equity, Diversity, and Inclusion (EDI)**  
*NIH Office of the Director*  
Formerly the Office of Equal Opportunity and Diversity Management (OEODM), EDI administers and ensures compliance with laws, regulations, policies, and guidance that prohibit discrimination in the federal workplace for NIH employees and applicants. EDI is the NIH focal point for NIH-wide policy, formulation, implementation, coordination, and management of the civil rights, equal opportunity, affirmative employment, and diversity programs of NIH.

**Office of Research on Women’s Health (ORWH)**  
*Division of Program Coordination, Planning, and Strategic Initiatives, NIH Office of the Director*  
ORWH works in partnership with the 27 NIH Institutes and Centers to ensure that women’s health research is part of the scientific framework at the NIH and throughout the scientific community. ORWH promotes biomedical and behavioral research that studies the role of sex and gender in health and disease, and the office also develops opportunities for and supports recruitment, retention, reentry, and advancement of women in biomedical careers.

**National Institute on Minority Health and Health Disparities (NIMHD)**  
*NIH*  
NIMHD plans, coordinates, reviews, and evaluates and supports research on NIH minority health and health disparities. To achieve its mission, NIMHD promotes and supports training of a diverse research workforce; translates and disseminates research information about minority health and health disparities; as well as fosters innovative collaborations and partnerships.
GOAL 1: EXPAND SCIENTIFIC WORKFORCE DIVERSITY AS A FIELD OF INQUIRY

Enhancing and sustaining diversity in the national biomedical research workforce requires a reasoned, evidence-based approach rooted in the scientific method. A substantial body of evidence already exists, demonstrating that diverse teams who work together and capitalize on innovative ideas and distinct perspectives outperform homogenous teams. This research base has been built by scholars of diversity in a wide range of fields such as economics, education, sociology, psychology, team science, leadership, career development, and others. However, more research is still needed to support or refute evidence that diversity among biomedical scientists enhances quality and outputs of biomedical research itself.

Objective 1-1. Advance scholarship of scientific workforce diversity

NIH will establish a centralized repository of information related to scientific workforce diversity to facilitate NIH communication, training, evaluation, and research efforts.

Implementation Strategies

- Identify knowledge gap areas related to the effect of diversity in scientific settings
- Fund extramural research on the science of diversity
- Build and implement the evidence base for scientific workforce diversity programs, policies, and interventions
- Communicate evidence-based findings on the science of diversity throughout the NIH-funded community

Objective 1-2. Launch scientific studies on new ideas for promoting diversity inclusion practices

NIH will pursue an experimental, pilot-driven approach in concert with NIH Institutes/Centers (ICs) for deriving diversity practices that promote climates of inclusion.

Implementation Strategies

- Assemble and lead “Diversity Catalyst” (DC) teams with IC representatives, to provide rapid and effective input at early stages of strategy development; tailor initiatives to specific IC cultures; and facilitate implementation and evaluation of strategies within and across ICs
• Employ DCs to test pilots related to recruitment/retention of postdocs, staff scientists, and tenure-track scientists; partnerships; climates of inclusion; career transitions; and evaluation strategies

**Underrepresented Populations in the U.S. Biomedical, Clinical, Behavioral and Social Sciences Research Enterprise:** Despite tremendous advancements in scientific research, information, educational and research opportunities are not equally available to all. NIH encourages institutions to diversify their student and faculty populations to enhance the participation of individuals from groups identified as underrepresented in the biomedical, clinical, behavioral and social sciences, such as:

- Individuals from **racial and ethnic groups** that have been shown to be underrepresented in health-related sciences on a national basis.
- Individuals with **disabilities**, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities.
- Individuals from **disadvantaged backgrounds**:
  - Individuals who come from a family with an annual income below established low-income thresholds.
  - Individuals who come from an educational environment that directly inhibited the individual from participating in a research career.
- **Women** that have been shown to be underrepresented in doctorate-granting research institutions at senior faculty levels in most biomedical-relevant disciplines.
GOAL 2: BUILD AND IMPLEMENT EVIDENCE RELATED TO DIVERSITY OUTCOMES

The NIH Chief Officer for Scientific Workforce Diversity is a dedicated agency role that enables coordination, oversight, and leadership of diversity inclusion across NIH intramural and extramural programs. Key foci include developing diversity training programs for investigators, developing centralized recruitment and retention resources, and continuing to promote evidence-based approaches linked to evaluation components. NIH’s long-standing investment in enhancing biomedical workforce diversity has succeeded in raising representation in research. Our task now is to identify and quantify efficacy of specific programs and approaches in the diverse contexts in which they exist across America.

Objective 2-1. Support evidence-based approaches to training and persistence in biomedical research

NIH will partner with the scientific community to understand how to contextualize recruitment and retention strategies across career-transition points, such that diversity expands beyond the undergraduate and graduate levels to faculty and academic leadership levels.

Implementation Strategies

- Provide leadership for the NIH Common Fund Diversity Program Consortium that consists of BUILDing Infrastructure Leading to Diversity (BUILD), the National Research Mentoring Network (NRMN), and the Coordination and Evaluation Center (CEC)
- Create programming to fill gaps in scientific workforce diversity in the NIH IRP
- Address racial funding disparities that negatively affect biomedical career advancement

Implementation Update: As of Spring 2017, more than 2,400 students have participated in BUILD-related activities. The DPC developed the Hallmarks of Success for use as a framework in measuring progress toward specific goals that are believed to positively influence an individual’s persistence in the biomedical research workforce. Outcomes from DPC program participants are compared with internal comparator groups, and external, matched institutions that have not received BUILD funding.

Implementation Update: In 2015, SWD teamed with the NIH Office of Intramural Training and Education to launch the High School Scientific Training and Enrichment Program (HiSTEP) summer program for local high-school students from the District of Columbia/Maryland/Virginia metro area interested in STEM fields.
Implementation Update: SWD co-led the African-American/Black (AA/B) R01 Funding Disparity Working Group, consisting of several NIH IC directors and other NIH leaders, which sought to understand the underlying causes of the previously identified AA/B R01 funding gap (Ginther et al., 2011). This more recent analyses of NIH award data from FY2010-15 reveal that the AA/B R01 funding disparity reported in 2011 (for awards made in FY2000-06) persists. The AA/B Funding Disparity Working Group gathered new data to further characterize the factors associated with the funding gap and identified a multifactorial and cumulative basis for the disparity manifest at each stage from submission to funding. Overall, AA/B scientists are funded at half the rate as WH scientists, taking into account lower AA/B submission rates. No disparity was identified for other ethnic/racial groups. As a result of this study, which has been submitted for publication, NIH is pursuing several interventions aiming to close the funding gap: i) a randomized controlled trial to assess the effect of mentoring/coaching on R01 resubmissions and award rates; ii) an information-outreach trial to assess resubmission behavior among early-career investigators, and iii) an anonymized study of bias in peer review. All interventions will be evaluated rigorously to monitor impact.
**Objective 2-2. Coordinate evaluation of NIH diversity programs and interventions**

SWD will lead trans-NIH efforts, in collaboration with relevant NIH components involved in workforce diversity, to standardize and implement data collection and evaluation for NIH diversity programs and practices.

**Implementation Strategies**

- Establish forward-looking data-capture plans to monitor efficacy of NIH-funded diversity programs and approaches
- Examine current policies and practices across NIH to determine if there are system-imposed barriers to achieving a diverse scientific workforce
- Include goals and metrics for scientific workforce diversity in IRP leadership performance plans
- Require NIH grant applicants to submit their institutions’ plans to enhance scientific workforce diversity, along with demographic data (e.g., gender, race/ethnicity, disability) and success metrics to be evaluated over time

**Implementation Update:** SWD has worked closely with NIH leadership to evaluate diversity within the NIH IRP. The main effort has been establishment of the Addressing NIH Gender Inequality Action Task Force. The convening of this group, which met six times in person over a period of four months in late 2016 to early 2017, led to issuance of a report and recommendations, which are currently being implemented in part through the NIH Equity Committee. Its goal is to provide feedback and recommendations to the Scientific Directors of each IC’s intramural program in response to detailed reports from them about IC demographics, activities to improve the research environment for principal investigators who are women and other scientists underrepresented in the NIH intramural workforce, gender/race/ethnicity gaps, and other steps that have been taken to assure fairness in distribution of resources, salary and evaluations, in recommendations for advancement, awards and invitations for seminars, and in mentorship, advocacy, and leadership opportunities.
GOAL 3: UNDERSTAND THE ROLE OF SOCIOCULTURAL FACTORS IN BIOMEDICAL RECRUITMENT AND RETENTION

Defining the drivers of effective research experiences and quality mentoring is a central question in the NIH’s scientific approach to understanding and enhancing workforce diversity. Integral to this pursuit is understanding through rigorous scientific approaches the many persistent barriers that limit recruitment and retention, especially for individuals from underrepresented groups. We are looking more deeply into sociocultural factors that have significant impacts at the individual and institutional levels of biomedicine. Collectively, these efforts are contributing to a significant evidence base on interventions.

Objective 3-1. Document and mitigate sociocultural barriers at individual and institutional levels

NIH will support investigations of the impact of cultural, social, and psychological factors — both individual and institutional — on the pursuit of science careers as they relate to workforce diversity in the intramural and extramural communities.

Implementation Strategies

• Develop and disseminate evidence-based interventions that address sociocultural factors such as implicit bias, stereotype threat, and belonging
• Fund extramural research to elucidate the role of sociocultural factors on scientific workforce-related issues including recruitment, retention, and advancement
• Promote interdisciplinary research approaches to advance knowledge in scientific workforce diversity

Objective 3-2. Provide funding, coordination, and oversight of innovative initiatives to address faculty scientific workforce diversity

NIH will develop and provide vehicles (funding and other) for advancing development, implementation, and dissemination of programs aiming to enhance scientific workforce diversity

Implementation Strategies

• Conduct implicit bias studies and interventions with scientifically developed educational modules on bias, microaggressions, and belonging/inclusion

Implementation Update: Behavioral scientists in the SWD office have developed unique modules that offer evidence-based strategies to reduce influence of implicit bias. These interactive, face-to-face educational sessions are based on solid social-science research, and to date, SWD senior behavioral scientists have presented hundreds of sessions search committees, NIH leadership, and NIH staff. SWD is actively evaluating the impact of these approaches. The most important data is yet to come: behavioral outcomes. These include sustained enhanced diversity of applicant pools, short lists, and hires to NIH scientific positions; and improvement in implicit-attitude test scores for a range of comparators including gender, race/ethnicity, science, and leadership.
• Collaborate with NIH ICs and Offices to invest in and evaluate scientific workforce diversity initiatives in intramural settings

**Implementation Update:** SWD has implemented a trans-NIH strategy for proactive outreach to enhance diversity in applicant pools for tenure-track positions in the IRP. The Future Research Leaders Conference (FRLC) is a trans-NIH outreach model for recruitment of early-stage scientists to the NIH IRP that promotes knowledge and awareness of NIH IRP scientific positions among underrepresented groups. It also provides an opportunity for IRP leadership to identify diverse emerging talent. The program has been operational for three years, in 2016 and 2017 adding two new elements: cultivation of a professional network among early-stage investigators and career development related to grant preparation and funding opportunities. In FY 2018, SWD is evaluating outcomes from this project.
GOAL 4: SUSTAIN NATIONWIDE WORKFORCE DIVERSITY WITH SEAMLESS CAREER TRANSITIONS

Many factors have been shown to contribute to a lack of diversity in science, technology, engineering, and mathematics careers in general, and in biomedical research in particular. NIH has invested significantly over the past 25 years in training programs to enhance diversity at the undergraduate, graduate, and fellowship stages of biomedical research, and representation has increased. However, individuals from underrepresented groups remain sparse in faculty ranks and most notably within scientific leadership positions. Accomplishing NIH’s far-reaching diversity inclusion goals in a sustainable manner requires full participation by the agency’s many stakeholder communities in the public and private sectors. A key goal is to promote advancement of our diverse talent pool into career independence.

Objective 4-1. Incorporate inclusion and consideration of diversity in all institutional processes

SWD will collaborate extensively with NIH components involved in current and future diversity inclusion efforts, striving for consistency in programs, procedures, and policies across NIH. Data gathered from the Diversity Program Consortium will be a central source of evidence to guide strategy.

Implementation Strategies

- Employ centralized methods including cluster hiring, targeted recruitment, and other strategies toward creating and maintaining inclusive work climates
- Establish standards for new scientist recruitment
- Develop and employ outreach and recruitment tools for identifying and attracting diverse talent
- Develop effective approaches for organizational change to create cultures that embody scientific workforce diversity, explicitly reflected in institutional policies and reward systems
- Collaborate with the NIH Office of Human Resources to strengthen employee performance evaluations to include scoring elements for diversity and inclusion
- Collaborate with the NIH Center for Scientific Review to incorporate scientific workforce diversity into the review process

Implementation Update: The NIH Scientific Workforce Diversity office developed an integrative strategy for enhancing scientific workforce diversity. NIH stakeholders can learn about this strategy using a free, downloadable interactive toolkit. The toolkit guides users through evidence-based interrelated activities that SWD is currently using to enhance diversity in the NIH intramural research program. These include expanding diversity of the candidate pool, proactive outreach to diverse talent, mitigating bias in search processes, and developing/sustaining mentoring relationships.

Objective 4-2. Create a national network of partnered institutions, “hubs of innovation,” to assess diversity interventions and develop best practices
In consultation with NIH’s public and private stakeholders, NIH will develop plans to embed scientific workforce diversity hubs nationwide that will promote interdisciplinary environments for scientific diversity study and practice within regional settings.

**Implementation Strategies**
- Create and maintain institutional partnerships — “hubs” — that include, but are not limited to, academic institutions, industry, community groups, other government agencies, and associations to study workforce diversity and apply interventions contextually
- Enable connections among hubs and monitor hub outputs
- Fund and disseminate scientific workforce diversity standards that include best practices and models for recruitment and retention, mentoring, and effective infrastructure support systems
- Define a new career path for “translational behavioral scientists” who conduct large-scale field experiments firmly anchored in social psychological frameworks

**Objective 4-3. Promote the value of effective mentoring in sustaining careers**

NIH will create and coordinate programming to define the ingredients of effective research and mentoring experiences that promote retention across the biomedical career span.

**Implementation Strategies**
- Enhance mentoring within the NIH intramural program through the development of standardized mentoring criteria and centralized resources for investigators
- Develop and promote leadership training for intramural scientists
- Develop trans-NIH mentoring programs
- Offer mentoring coaching for NIH intramural scientific leadership

**Implementation Update:** In 2017, NIH recruited, and hired, a Central Mentoring Coordinator to oversee mentoring practices and standards of early-career investigators in the IRP.
GOAL 5: PROMOTE THE VALUE OF SCIENTIFIC WORKFORCE DIVERSITY

Scientific workforce diversity has long been seen as a problem to be remedied rather than as an opportunity to be embraced. By its very nature, diversity promotes innovation as it invites new ways of thinking and doing by including more voices. NIH is at a critical juncture: at the intersection of tremendous biological and technological opportunities amid a rapidly changing national demographic constituency. Add to that the serious burden incurred by health disparities most prominent in groups underrepresented in biomedical research, and the call for scientific workforce diversity acquires an unprecedented timeliness. There is great need for increasing awareness about the benefits of diversity across multiple NIH stakeholder communities.

Objective 5-1. Establish and promote NIH as a nationwide diversity leader

Using a centralized voice and nimble communications vehicles, SWD will foster an open dialogue with NIH and the broader scientific community about evolving scientific trends, gaps, and opportunities in the field of scientific workforce diversity.

Implementation Strategies

- Encourage a culture of innovation by recognizing and promoting innovative ideas and initiatives
- Serve as the NIH voice for all scientific workforce diversity issues
- Collaborate with NIH leadership and NIH IC leadership to ensure coordination of diversity messaging and standards
- Collaborate to raise awareness about the NIH intramural research program experience, targeted to underrepresented groups
- Employ an integrated communications strategy about the role of diversity in scientific excellence

Objective 5-2. Serve as the NIH focal point for scientific workforce diversity-related information

SWD will assemble a centralized repository for information about NIH-wide activities and processes that address training and education of a diverse scientific workforce.

Implementation Strategies

- Set and disseminate trans-agency standards for NIH diversity programs
- Develop tools, including enhanced use of social media, to assist search committees in identifying diverse pools of scientific candidates
- Identify and leverage partnerships with external stakeholders (e.g., professional societies, advocacy groups, etc.) and private industry to identify and promote best practices in workforce diversity