NIH Transformative Approach for Scientific Workforce Diversity

Hannah A. Valantine, MD, MRCP
Chief Officer for Scientific Workforce Diversity
National Institutes Health

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NIH Transformative Diversity Initiatives

Presentation Outline

• Why diversity is essential
• Nature of the problem
• ACD Working Group recommendations: Infrastructure, Coordination, Evaluation, Leadership
  – Chief Officer for Scientific Workforce Diversity
  – Enhancing Diversity in Intramural Research program
  – Enhancing Diversity of NIH-Funded Workforce: launched
  – Fairness in peer review
• National Strategy for biomedical research workforce
Diversity is essential for good science

- Excellence, Creativity & Innovation*
- Broadening scope of inquiry - solutions to complex problems of health and disease
- Narrowing the health gap
- Ensuring fairness
  - Changing demographics
  - Leveraging the US intellectual capital

* Scott E. Page - 2007: How the power of diversity creates better groups, firms & societies
What Harms are We Perpetuating by the Current Lack of Diversity in the US Scientific Workforce?

• Scientific innovation
• Global competitiveness
• Quality of training
• Quality of researchers (limited US source)
• Prioritization of research
• Research on health disparities
• Recruitment and retention of clinical subjects
• Public trust

*Impact of Scientific Workforce Diversity on the Scientific Enterprise and the Public Good Literature Review/empirical evidence: Optimal Solutions Group, LLC; 2011*
The Nature of the Problem: The Pipeline Is Really a Funnel

College Age 33%

BS/BS S&E Earners 18%

PhD S&E Earners 7%

Post Docs 10%

Faculty 6%

NSF Women, Minorities and Persons with Disabilities in Science and Engineering 2013: Data Update
Shining a Light on the Problem: Racial Disparity in NIH R01s

Race, Ethnicity, and NIH Research Awards

Donna K. Ginther, Walter T. Schaffer, Joshua Schnell, Beth Masimore, Faye Liu, Laurel L. Haak, Raynard Kington

The initial surprise was that R01 proposals from black Ph.D. scientists (including 45% non-U.S. citizens) were extremely rare. They totaled only 1.4% of all applications, compared with 3.2% for Hispanics and 16% for Asian scientists. (By contrast, African Americans make up about 13% of the U.S. population.) About 60% of all proposals...
Diversity of the NIH-Funded Research Workforce

Sources: US Census Report 2010; IMPACII; AAMC
 Implementation of a Major ACD WG Recommendation:  
NIH Transformative Diversity Initiative  
Interrelated approaches

• Chief Officer for Scientific Workforce Diversity (COSWD)  
  - Enhancing the Diversity in the NIH-IRP  
  - Coordination; Evaluation; Accountability

• Enhancing the Diversity of the NIH-Funded Workforce  
  - Building Infrastructure Leading to Diversity (BUILD)  
  - National Research Mentoring Network (NRMN)  
  - Coordination and Evaluation Center (CEC)

• Ensuring Fairness in Peer Review
ACD WG Recommendation:
Chief Officer for Scientific Workforce Diversity
Accountability, Evaluation, Coordination

• Recruit an active biomedical researcher with commitment to diversity, and strong credibility in the academic community
• Charge is to coordinate diversity programs across NIH
• Intramural research program can be a critical “laboratory” for experiments in recruiting/retention
• All programs must be subject to rigorous evaluation
The Office of the Chief Officer for Scientific Workforce Diversity (COSWD)

**MISSION:**
Build a diverse trans-NIH scientific workforce that is a model for capturing the most talented into biomedical research

- **Intramural Program**
- **Extramural Program**
BUILD NRMN CEC

TURNING DISCOVERY INTO HEALTH

BUILD
INTRA MURAL RESEARCH PROGRAM
NATIONAL HUBS INNOVATION

NIH...
NIH Intramural Research Program as laboratory for testing interventions to diversify the biomedical workforce

Creating an “Innovation Hub” for scientific workforce diversity
## NIH Intramural Tenure Track Investigators

### GENDER

<table>
<thead>
<tr>
<th>Gender</th>
<th>October 1, 2014</th>
</tr>
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<tbody>
<tr>
<td>Females</td>
<td>82 (38%)</td>
</tr>
<tr>
<td>Males</td>
<td>133 (62%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>215</td>
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### RACE/ETHNICITY

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>October 1, 2014</th>
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</thead>
<tbody>
<tr>
<td>African American</td>
<td>3 (1.4%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10 (4.7%)</td>
</tr>
<tr>
<td>Native American</td>
<td>1 (0.5%)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>69 (32.1%)</td>
</tr>
<tr>
<td>White</td>
<td>132 (61.4%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>215</td>
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</tbody>
</table>
COSWD Strategy to Expand Diversity in the IRP

Approach:

*Tenure, tenure track, staff clinicians; staff scientists; post-docs*

- Cluster hires & targeted recruitments
- Enhance diversity in Stadtman, Lasker & targeted searches
  - Tools to identify candidates
  - Outreach process - systematic
- Resources for hiring most talented
- Program to create climate of belonging
  - Intervention for unconscious bias*
  - Professional development
  - Mentoring; sponsorship
Expand Diversity in the IRP

ACTION AREAS

• Recruitment and retention
  — Targeted searches for identifying candidates

• Leadership and professional development for postdocs and early tenure track PIs
  — Pilot new diversity in trainee programs

• Enhance the NIH climate of inclusion and belonging
  — Intervention for unconscious bias

• Building partnerships with diverse institutions

• Leveraging new disciplines (e.g., data science) as opportunities to attract next generation researchers
Current NIH – OITE Program to Increase Diversity

Gaps: Postdoctoral to Early Career Investigators
Diversifying and Accelerating Research Excellence (DARE)

Modeled after the successful Stanford’s DARE Program & UC Presidential Fellows

• Develop skills for career advancement
• Forum for developing lab management skills
• Build skills for those aspiring to non-bench careers
  - Intern with an expert at NIH (or externally)
• Training on strategies to support one another
  - Peer-mentoring; peer-coaching; small group mentoring
• Design and implement evaluative component to track and measure outcomes over time
Expand Diversity in the IRP

ACTION AREAS

• Recruitment and retention
  — Targeted searches for identifying candidates
• Leadership and professional development for postdocs and early tenure track PIs
  — Pilot programs
  — Diversity in trainee programs
• Enhance the NIH climate of inclusion and belonging
  — Intervention for unconscious bias
• Building partnerships with diverse institutions
• Leveraging new disciplines (e.g., data science) as opportunities to attract next generation researchers
Who is a “Scientist”?

Draw-A-Scientist Test: Percent of Students Who Drew a Male Scientist
(N=1504)

- K-2nd grade (n=235): 58%
- 3-5th grade (n=649): 73%
- 6-8th grade (n=620): 75%

Implicit Attitudes can be Modulated by Raising Awareness
Gender & Leadership

Pre and Post Scores on the Implicit Association Test (IAT) Among

Significant effect of gender: **p=0.00; Significant effect of the intervention:* p=.02
Enhancing the Diversity of the NIH-Funded Workforce

Awards made October 2014

The Office of the Chief Officer for Scientific Workforce Diversity (COSWD)

**MISSION:**

Build a diverse trans-NIH scientific workforce that is a model for capturing the most talented into biomedical research

**Intramural Program**

**Extramural Program**

BUILD/NRMN/CEC

**POLICY:** Diversity in funding announcements
Enhancing the Diversity of the NIH-Funded Workforce – Collective Vision & Goal

**Vision:** Transform the way all biomedical researchers are trained.

**Mission:** Use social science research to enhance biomedical research training.

**Goal:** Develop and test new approaches to training and mentoring on a large scale.

- Effective approaches disseminated to transform research training and mentoring on a nationwide level.
- Students from underrepresented backgrounds will be primary beneficiaries.
- All students benefit ultimately, resulting in a stronger biomedical research enterprise.
Program Initiatives

• **Building Infrastructure Leading to Diversity (BUILD):**
  - Experimental training awards: how to attract & retain students from diverse backgrounds into biomedical research workforce

• **National Research Mentoring Network (NRMN):**
  - Nationwide network of mentors from variety of disciplines:
    - Define best practices for mentoring at all career stages
    - Training for mentors
    - Networking & professional development for mentees

• **Coordination and Evaluation Center (CEC):**
  - Rigorously evaluate BUILD and NRMN programs to determine WHAT WORKS AND FOR WHOM
  - Dissemination of successful training and mentoring strategies

Awardees work together as a consortium in partnership with the NIH
"How is this different from other NIH-funded diversity programs?"

Critical Features of the Consortium

• **Consortium-wide “hallmarks of success”**
  - Intermediate measures of successful progression toward a biomedical research career
  - Academic and **psychosocial (stereotype threat; belonging; unconscious bias; science identity)**
  - Adjust specific plans to work toward consortium
  - New ways of training and mentoring

• **Evaluation**
  - Evaluation in real time; multiple metrics to assess impact
  - CEC works with sites to develop tailored assessment plans

• **Dissemination**
  - Lessons learned will be broadly shared
**NIH Transformative Diversity Initiative**

*Enhancing Diversity in the NIH-funded Workforce*

Awards made October 2014

- **BUILD**: 10 sites
- **NRMN**
- **CEC**

Total funding: $31.3 M/yr (5 yrs)

**BUILD**
- California State University Long Beach
- California State University Northridge
- Morgan State University
- Portland State University
- San Francisco State University
- University of Alaska Fairbanks
- University of Detroit Mercy
- University of Maryland Baltimore County
- University of Texas El Paso
- Xavier University of Louisiana

**NRMN**
- Boston College
  - Morehouse SM; U. Min.; U. North Texas; U. Wisconsin

**CEC**
- University of California Los Angeles
Diversity Initiatives and Big Data to Knowledge (BD2K)

- 14 BD2K centers are at BUILD partner institutions
- UCLA is the primary CEC awardee and the BD2K Concept Network
- NIH Big Data to Knowledge (BD2K) Enhancing Diversity in Biomedical Data Science (R25)
Primary Purpose: To provide resources for eligible institutions to implement innovative approaches to research education for faculty and diverse students in Big Data science, including students from underrepresented backgrounds in biomedical research.

- Applicant institutions will partner with newly established BD2K Centers
- Novel approaches of data science education will emphasize
  - Research experiences
  - Curriculum development
Developing a National Strategy to Enhance Scientific Workforce Diversity

Coordinated Approach to Intervening on Barriers to Transition Across the Biomedical Career Path
NIH Program Catalyzing Innovation

Minimizing Barriers to Career Advancement

Training

Scientific Career Progression

Undergraduate
Graduate Student
Postdoctoral/Clinical Fellow
Tenure Track Scientist
Tenured Scientist
Leadership Position

BUILD
NRMN
CEC
Evaluation

NIH Program Sparking Innovation in Diversity Research
NIH Program Catalyzing Innovation in Scientific Workforce Diversity

NIH leading and catalyzing scientific workforce diversity through data-driven innovations to recruit and retain the most talented scientists

National Comprehensive Plan – Hubs of Innovation

• **Vision**: Innovation in scientific workforce diversity innovation is an essential part of the research culture

• **Mission**: To achieve **sustainable transformation** in scientific workforce diversity by creating seamless transitions across biomedical research career paths

• **Overarching Goal**: To eliminate transition barriers
NIH Program Catalyzing Innovation in Scientific Workforce Diversity

National Comprehensive Plan – Hubs of Innovation

**Strategy:** Create networks & strong infrastructure that support career development pathways enabling scientist, including those from underrepresented groups, to transition seamlessly across research career paths

**Essential Components:**
- Strategic Partnerships: with Research Intensive Institutions, with Organizations (focused on education/training)
- Intervention Discovery Science of Diversity
- Implementation and Scaling
- Tracking and Evaluation
- Organizational Commitment
NIH National Hubs of Innovation in Scientific Workforce Diversity

- Mentoring
- Training

- Partnerships
- Research
- Evaluation
- Communicate/Disseminate

- Academia
- Industry/Business
- Community

Implement

Interdisciplinary
Program Deliverables

• *National network* to support career transitions
• Evidence-based literature to *eliminate/reduce barriers* at key career transition points
• *Individual access to the network* in support of career development success
• *Organizational infrastructure* to support career development and transitions
• *Tools and resources* to catalyze and sustain career transition success
NIH “Hubs” of Innovation & Research in Scientific Workforce Diversity

Training:
- Undergraduate
- Graduate Student
- Postdoctoral/Clinical Fellow

Scientific Career Progression:
- Tenure Track
- Tenured PI

Leadership Position:
- NIH IRP
- Branch Chief
- Laboratory Chief
- Center Director
- Clinical Director
- Deputy Scientific Director
- Scientific Director

Academia
- Department Chair
- Dean
- Provost
- Chancellor

BUILD

NRMN

CEC

CEC II

COSWD
NIH Center of Innovation and Diversity Research

Mission: To achieve sustainable institutional transformation

Major Career Decision/Transition Point
Feedback from Academic Community
Webinars Nov. 12 and 18, 2014
Drs. Collins, Tabak, Valantine

• Partnerships – strategy
• Mentoring – scope; content; methods
• Current Programs as Models
• Promote Participation: diversity at all career levels
• Resources: Existing and new tools
• Diversity of Partners