The Challenge of Achieving Diversity in the NIH-Funded Biomedical Workforce

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National Institutes of Health
Demographic Distribution of 18 Year Old Population

Source: Census Bureau
# Race And Ethnicity Representation of Research Grants

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>White</th>
<th>African Amer.</th>
<th>All Hispanic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>86.2%</td>
<td>1.3%</td>
<td>2.9%</td>
<td>11.4%</td>
</tr>
<tr>
<td>2001</td>
<td>85.7%</td>
<td>1.3%</td>
<td>2.9%</td>
<td>12.1%</td>
</tr>
<tr>
<td>2002</td>
<td>85.2%</td>
<td>1.5%</td>
<td>3.1%</td>
<td>12.4%</td>
</tr>
<tr>
<td>2003</td>
<td>84.4%</td>
<td>1.6%</td>
<td>3.3%</td>
<td>13.2%</td>
</tr>
<tr>
<td>2004</td>
<td>83.5%</td>
<td>1.7%</td>
<td>3.3%</td>
<td>14.1%</td>
</tr>
<tr>
<td>2005</td>
<td>82.8%</td>
<td>1.7%</td>
<td>3.5%</td>
<td>14.8%</td>
</tr>
<tr>
<td>2006</td>
<td>82.1%</td>
<td>1.8%</td>
<td>3.5%</td>
<td>15.4%</td>
</tr>
<tr>
<td>2007</td>
<td>81.4%</td>
<td>1.7%</td>
<td>3.5%</td>
<td>16.3%</td>
</tr>
<tr>
<td>2008</td>
<td>80.8%</td>
<td>1.7%</td>
<td>3.5%</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

1Race Data may contain individuals reporting Hispanic Ethnicity, as well as individuals reporting more than one race
2“All Hispanic” includes Hispanic Race, plus individuals reporting Hispanic Ethnicity (for these individuals the data includes individuals who are represented in one or more of the racial groups).
3Includes Asian, Native Hawaiian or Pacific Islander, and American Indian or Alaskan
The Broader Context:
S&E doctorates awarded to U.S. citizens and permanent residents, by field, sex, and race/ethnicity, 1999–2006

## Gender or Race/Ethnicity Representation at Educational Milestones (Biomedical)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51%</td>
<td>47%</td>
<td>56%</td>
<td>56%</td>
<td>61%</td>
</tr>
<tr>
<td>Female</td>
<td>49%</td>
<td>53%</td>
<td>44%</td>
<td>44%</td>
<td>39%</td>
</tr>
<tr>
<td>White</td>
<td>65%</td>
<td>72%</td>
<td>68%</td>
<td>*</td>
<td>75%</td>
</tr>
<tr>
<td>Black</td>
<td>11%</td>
<td>6%</td>
<td>6%</td>
<td>*</td>
<td>5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8%</td>
<td>6%</td>
<td>5%</td>
<td>*</td>
<td>3%</td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
<td>13%</td>
<td>18%</td>
<td>*</td>
<td>16%</td>
</tr>
<tr>
<td>Native American</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>*</td>
<td>1%</td>
</tr>
<tr>
<td>Unknown</td>
<td>11%</td>
<td>2%</td>
<td>2%</td>
<td>*</td>
<td>0%</td>
</tr>
</tbody>
</table>

*data not available

¹ data for gender from AAMC, data for race/ethnicity from SDR
# Differences in Faculty Outcomes

## Biomedical Sciences PhDs

<table>
<thead>
<tr>
<th></th>
<th>Tenure Track Position within 7 years</th>
<th>Tenure within 11 years</th>
<th>NIH Funding within 11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>2%</td>
<td>-7%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Black</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>9%</td>
<td>22%</td>
<td>-1%</td>
</tr>
<tr>
<td><strong>Hispanic</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>10%</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Asian</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-8%</td>
<td>1%</td>
<td>-12%</td>
</tr>
<tr>
<td><strong>Native American</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-11%</td>
<td>-22%</td>
<td>24%</td>
</tr>
</tbody>
</table>

<sup>1</sup> compared to Male  
<sup>2</sup> compared to White

**Data Source:** National Science Foundation  
2006 Survey of Doctoral Recipients

Tenure Track position at U.S. university/college within 7 years of PhD:

- African Americans, Hispanics more likely  
- Asians, Native Americans less likely
Ongoing Analysis of Factors Affecting Success Rates for NIH Grant Applicants

- We see significant differences by race/ethnicity and gender across career paths and funding success:
  - In some cases, there are advantages; in other cases disadvantages
  - But even where there are advantages, the numbers are low.

- To determine appropriate policy actions, we need to know what factors are correlated with these effects. We are currently examining the effect of:
  - Institution
  - Degree type (MD, MD-PhD, PhD)
  - PhD, BS, MS institution
  - Prior NIH support
Acknowledging – and Addressing – the Challenges in the U.S. Scientific Workforce
What is NIH doing?
National Center on Minority Health and Health Disparities (NCMHD)

- **Mission**
  - Promote minority health
  - Lead, coordinate, and assess the NIH effort to reduce and eliminate health disparities

- **Goals and Purposes**
  - Assist in development of integrated national health research agenda, reflecting needs of racial and ethnic minorities and other health disparity groups
  - Promote and facilitate creation of robust minority health research environment aimed at identifying potential risk factors for disparate health outcomes
  - Promote, assist, and support research capacity building activities in the minority and medically underserved communities
NIH Programs and Awards to Enhance Researcher Diversity

- The NIH remains committed to increasing the proportion of racial and ethnic minorities in the biomedical research workforce

- NIH’s Institutes and Centers, individually and collectively, offer an array of programs and awards to enhance researcher diversity
  - Supporting both individuals and institutions
  - Spanning the training and professional spectrum, from community college to senior faculty levels
  - Developing networks to facilitate communication and support across all career stages
A Sampling of NIH Programs & Awards to Enhance Researcher Diversity

- **Community college to senior faculty:** Minority Opportunities in Research (MORE) programs
  - Minority Access to Research Careers (MARC)
  - Minority Biomedical Research Support (MBRS)
  - Special Initiatives (SI)

- **Undergraduate research training:** Career Opportunities in Research (COR) grants

- **Predoctoral fellowships:** Ruth L. Kirschstein National Research Service Awards to Promote Diversity

- **Transition to research:** Loan Repayment Programs
  - For clinical researchers from disadvantaged backgrounds; for health disparities researchers

- **Junior and senior faculty:** Network of Minority Research Investigators
NIH Loan Repayment Programs

 NIH Loan Repayment Programs: NIH repays half of qualified educational debt (up to $70,000 in 2 years)
  - Requirements: U.S. citizenship (or national or permanent resident status); doctoral-level degree; educational debt equal to at least 20% of base salary
  - Commitment: Conduct research at qualified institution* for 2 years

 NIH-NCMHD Loan Repayment Programs: have funded over 1200 doctorate-level health professionals
  - Clinical Research Loan Repayment Program for Individuals from Disadvantaged Backgrounds
  - Health Disparities Research Loan Repayment Program (50% to individuals from health disparities populations)

*An average of at least 20 hours per week during each quarterly service period; conducted at a nonprofit institution, funded by a domestic nonprofit or US government entity
NIH Minority Opportunities in Research (MORE) Programs

MORE: An NIH Division in the National Institute of General Medical Sciences (NIGMS)

- Administers research; research training programs to increase the number of minority biomedical and behavioral scientists

- Supports
  - Both individuals and institutions
  - Community college students, senior faculty members, and all stages between

- 3 branches of support:
  - **MARC**: Minority Access to Research Careers
  - **MBRS**: Minority Biomedical Research Support
  - **SI**: Special Initiatives
MORE Support: Examples

- **MARC**: to increase number, competitiveness of underrepresented minorities in biomedical research
  - U-STAR: Undergraduate Student Training in Academic Research Awards
  - Individual fellowships:
    - MARC Predoctoral, for outstanding graduates of U-STAR
    - Faculty Predoctoral, for faculty at colleges/universities with significant minority enrollments to obtain research doctorate

- **MBRS**: to improve training capacity of minority-serving institutions
  - RISE: Research Initiative for Scientific Enhancement
  - ISMD: Initiative for Maximizing Student Development
  - SCORE: Support of Competitive Research

- **SI**: to enhance research; training capabilities of institutions with substantial enrollments from underrepresented groups
  - Bridges to the Baccalaureate; Doctorate (NCMHD, participating)
  - MORE Faculty Development Awards
Example from an NIH Institute*: Network of Minority Research Investigators

- National communication network of minority investigators: junior faculty; senior investigators; NIDDK staff
  - Senior investigators serve as role models and mentors to junior investigators
  - Annual National Workshop organized by NIDDK staff
  - Regional workshops being established

- Objective: encourage and facilitate members of underrepresented racial and ethnic minority groups to conduct research on diabetes, endocrinology, digestive diseases, nutrition, kidney, urologic and hematologic diseases

*National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK)
NIH
Transforming medicine and health through discovery