

NIH Diversity Update to the National Cancer Advisory Board

Lawrence A. Tabak, DDS, PhD

Deputy Director, NIH

December 6, 2011



NIH Biomedical Research Workforce Diversity

- Environmental Scan
- Recent Studies on the Diversity of the Workforce
- NIH Action Items



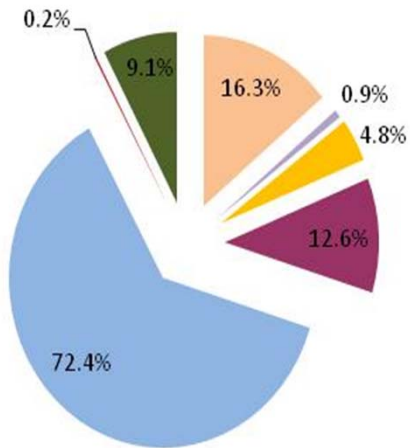
NIH Biomedical Research Workforce Diversity

- **Environmental Scan**
- Recent Studies on the Diversity of the Workforce
- NIH Action Items

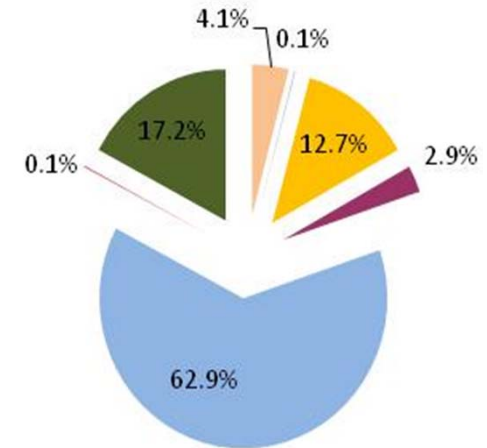


Diversity of the NIH-Funded Workforce

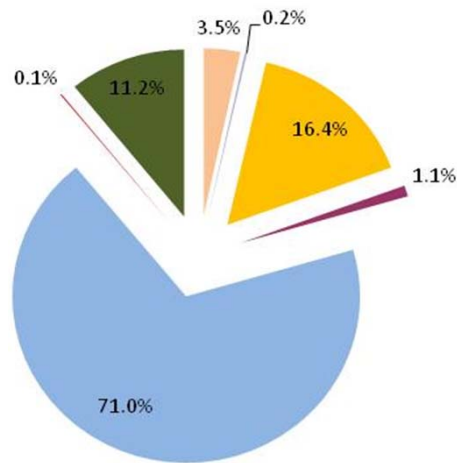
NIH has had a less than impressive impact on the diversity of the NIH-funded scientific workforce over the past 30+ years



2010 US Census Bureau Report



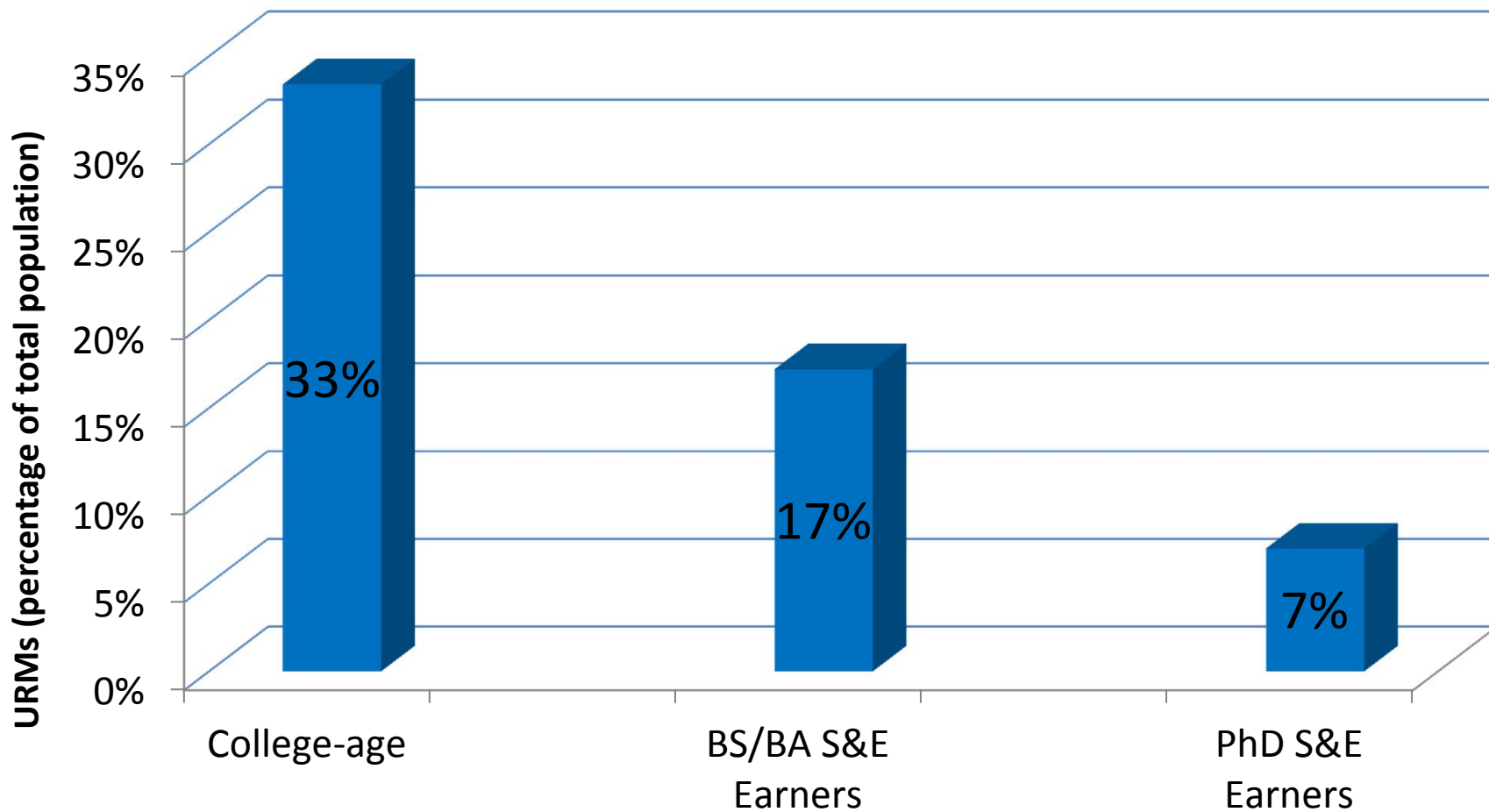
2010 US Full-Time Medical School Faculty



2010 NIH Principal Investigators on RPGs

Sources: US Census Report 2010; IMPACII; AAMC

Demographics for Underrepresented Minorities (URMs) in the Educational Pipeline as of 2008



Sources: NCES Digest of Education Statistics-2010, Tables 20-21; NSF Women, Minorities, and Persons with Disabilities Report 2011, Table 7.4

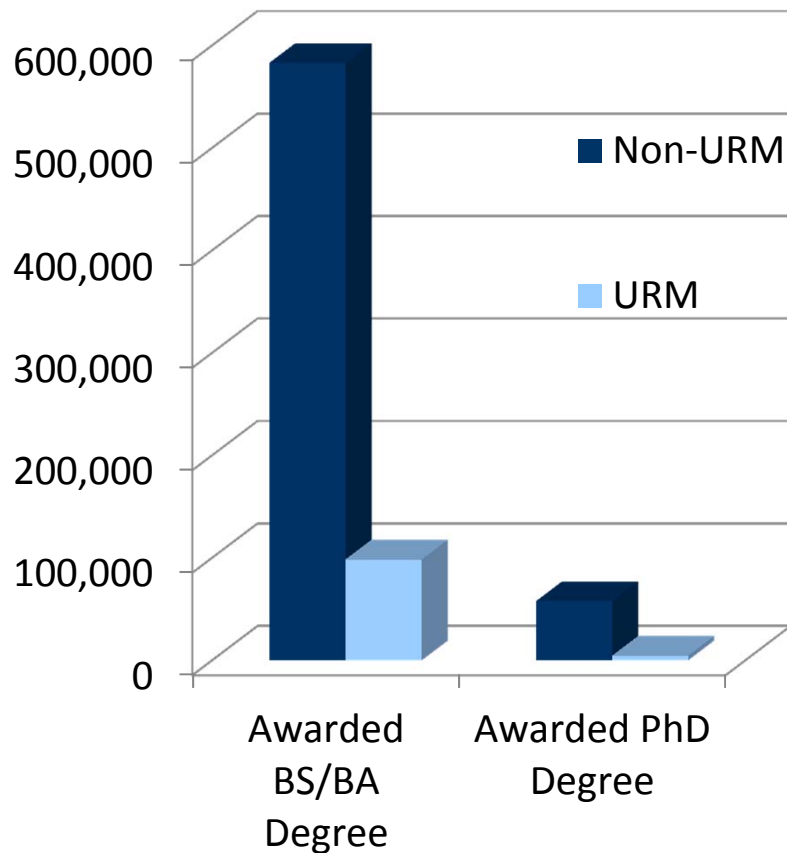
Awarded Degrees in Biological Sciences, Chemistry and Physics to Citizens and Permanent Residents by US Institutions (2000-2008)

	BS/BA Total	BIO (PHD)	CHEM (PHD)	PHYSICS (PHD)	PhD Total	BS/BA to PhD Ratio
Totals	711,062	51,126	20,353	11,225	82,704	0.12
White, Non-Hispanic	489,064	27,518	9,318	4,461	41,297	0.08
Asian or Pacific Islander*	93,899	14,777	1,224	493	16,494	0.18
Black, Non-Hispanic	55,040	1,315	451	146	1,912	0.03
Hispanic	38,679	1,728	535	167	2,430	0.06
American Indian or Alaska Native	4,803	150	53	14	217	0.05
URM BS/BA Total	98522	URM PhD Total			4559	0.05
Average URM BS/BA per Year	10947	Average URM PhD per Year			507	0.05
*Anyone reported as "Asian" or "Asian or Pacific Islander" is reported above in the "Asian or Pacific Islander classification. This changed after 2008, when "Native Hawaiian or Other Pacific Islander" was included as a separate racial classification.						

Source: NSF Women, Minorities, and Persons with Disabilities Report 2011, Tables 5.7 and 7.4

Where are Opportunities for Improvement?

Awarded Degrees in Biological Sciences, Chemistry and Physics to Citizens and Permanent Residents by US Institutions (2000-2008)



BS → PhD

Non-URM: ~10%
URM: ~5%

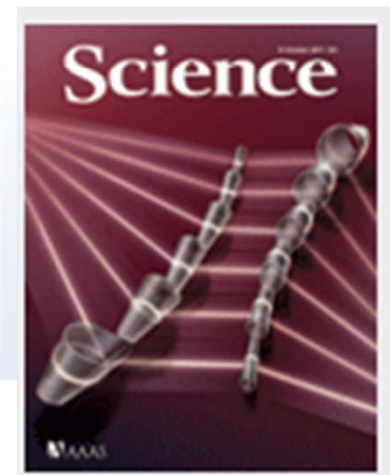
Need to double the number of URM's to maintain proportion of Population

NIH Diversity Programs

- To ensure that we continue to attract the brightest minds to biomedical research, NIH is committed to increase the diversity of its workforce
- For over 30 years NIH has supported programs to achieve these goals
 - Institutional Programs (e.g. Minority-Serving and Hispanic-Serving Institutions)
 - Individual Programs: target individuals from underrepresented groups, including racial or ethnic minorities, persons with disabilities, or individuals from disadvantaged backgrounds

NIH Biomedical Research Workforce Diversity

- Environmental Scan
- Recent Studies on the Diversity of the Workforce
- NIH Action Items



NIH-Sponsored Studies

- As part of the ongoing NIH effort to examine and improve the diversity of the scientific workforce, the Agency has commissioned several recent studies:
 - *Diversity in Academic Biomedicine: An Evaluation of Education and Career Outcomes with Implications for Policy*, Ginther et al., published on-line, Social Science Research Network, (<http://ssrn.com/abstract=1677993>)
 - *Sex Differences in Application, Success, and Funding Rates for NIH Extramural Programs*, Pohlhaus et al., Acad. Med. 86:759-767, 2011
 - ***Race, Ethnicity, and NIH Research Awards*, Ginther et al., Science – published online on August 18, 2011**
(<http://www.sciencemag.org/hottopics/race-nihfunding/>)

Race, Ethnicity, and NIH Research Awards

Donna K. Ginther,^{1*} Walter T. Schaffer,² Joshua Schnell,³ Beth Masimore,³ Faye Liu,³ Laurel L. Haak,³ Raynard Kington^{2†}

Study Question:
NIH R01* funding
for observable

STUDY AT A GLANCE	
83,188	R01 applications from Ph.D.s analyzed
40,069	Unique Ph.D. investigators
1149	R01 applications from black Ph.D.s

first-time
controlling
research

*The R01 is the most prevalent NIH grant award mechanism and is considered to be the “gold standard” by which many research institutions measure the success of faculty.

Race, Ethnicity, and NIH Research Awards

Donna K. Ginther,^{1*} Walter T. Schaffer,² Joshua Schnell,³ Beth Masimore,³ Faye Liu,³ Laurel L. Haak,³ Raynard Kington^{2†}

Study C
NIH R01*
for ok

	Observable Characteristic	Proxy
Resources	Institutional Resources	NIH Funding Rank of Employer/PhD Institution, Carnegie Rank of Employer/PhD Institution
	NIH Resources	Funding FY
Research Accomplishments	Research Experience	NIH Training, Total Prior Publications, Last Author Publications
	Grants Experience	Prior Grants, Review Committee Experience
	Research Impact	Citations, Median Impact Factor, Max Impact Factor
	Research Area	Degree Field, Degree Type, Human Subjects, Funding IC

first-time
controlling
research

Race, Ethnicity, and NIH Research Awards

Donna K. Ginther,^{1*} Walter T. Schaffer,² Joshua Schnell,³ Beth Masimore,³ Faye Liu,³ Laurel L. Haak,³ Raynard Kington^{2†}

STUDY AT A GLANCE

Study Question:
 NIH R01* funding for observational research

83,188

R01 applications from Ph.D.s analyzed

40,069

Unique Ph.D. investigators

1149

R01 applications from black Ph.D.s

337

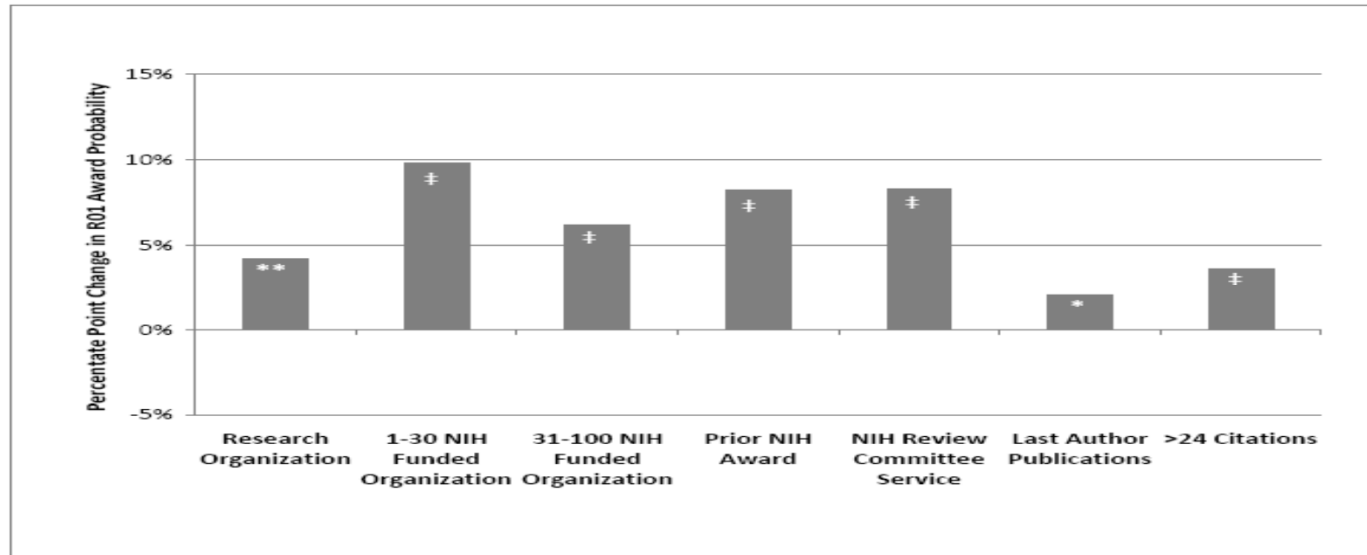
Expected awards to black applicants if same success chance as whites

185

Actual awards to black applicants

first-time controlling search

Main Conclusions of Ginther et al.: Effects of Affiliation and Prior Research on RO1 Award Probability



- Award probabilities are correlated with NIH Funding Rank of applicant's institution.
- In each Rank group, Black applicants have the lowest award probability.
- Only citations and prior review committee experience reduce disparities for Black applicants.

Main Conclusions of Ginther et al. (cont.)

- Black and Hispanic applicants are less likely to resubmit a revised application.
- Participation in NIH supported training or career development programs has a positive effect on R01 award rates. However, this advantage appears to help White applicants more than Black and Asian applicants.

Weaving a Richer Tapestry in Biomedical Science

Lawrence A. Tabak* and Francis S. Collins*

As much as the U.S. scientific community may wish to view itself as a single garment of many diverse and colorful threads, an unflinching consideration of actual data reminds us that our nation's biomedical research workforce remains nowhere near as rich as it could be. An analysis, performed by a team of researchers primarily supported by the National Institutes of Health (NIH) and published in this issue of *Science*, reveals that from 2000 to 2006, black (1) grant applicants were significantly less likely to receive NIH research funding than were white applicants. The gap in success rates amounted to 10 percentage points, even after controlling for education, country of origin, training, employer characteristics, previous research awards, and publication record (2). Their analysis also showed a gap of 4.2 percentage points for Asians; however, the differences between Asian and white



NIH leadership discusses the need for renewed efforts to increase diversity in the U.S. biomedical research workforce.

- NIH's commitment to a diverse biomedical workforce
- Additional analyses that NIH has taken to help describe the problem
- Steps to seek out the causes of the differences in success rate
- Action items for addressing the differences in success rate

NIH Biomedical Research Workforce Diversity

- Environmental Scan
- Recent Studies on the Diversity of the Workforce
- **NIH Action Items**

Action Items

- NIH takes these data with the greatest seriousness, and we are determined to institute vigorous actions to determine the causes of differential success rates, and to institute effective interventions
- NIH is engaged in a vigorous communication outreach to all stakeholders
- As review experience correlates with success, we established an “Early Career Reviewers” program to increase exposure of investigators from diverse institutions to the review process (and to increase diversity of review panels)
 - Self-nominate to serve as Early Career Reviewers:
CSREarlyCareerReviewer@mail.nih.gov

Action Items (cont.)

- We will conduct experiments on the review process to determine if bias exists – for example:
 - Illuminate possible sources of bias and intervention strategies
 - De-identify applications
 - Test reviewer ability to determine applicant race
 - Assess different types & timing of training against bias using well validated programs such as Project Implicit (<https://implicit.harvard.edu/implicit/>)
 - Assess whether proportion of URM reviewers on a peer review panel affects outcome for URM applicants

Action Items (cont.)

- Working with academic institutions, we will encourage the creation and strengthening of pre-application mentoring programs for junior faculty
- We have funded several extramural grants, including the NIH Pathfinder Award, that are designed to study different interventions that should strengthen the pipeline in a manner that will help improve workforce diversity

Action Items (cont.)

- Two high level groups have been formed by the NIH Director to recommend actions that will help the Agency achieve its stated goal of increasing the diversity of its workforce and creating a sustainable environment that supports diversity
 - NIH Diversity Task Force (Part of the NIH Director's Steering Committee): internal group of NIH leaders
 - Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce: provides an external perspective and advice (<http://acd.od.nih.gov/DBR.asp>)

ACD Working Group on Diversity in the Biomedical Research Workforce

- Ann Bonham, Ph.D., CSO, AAMC
- Jordan Cohen, M.D., President Emeritus, AAMC
- Jose Florez, M.D. Ph.D., Asst. Professor, Harvard Medical School
- Gary Gibbons, M.D., Professor, Morehouse School of Medicine
- Renee Jenkins, M.D., Chair Emeritus, Dept of Pediatrics and Child Health, Howard University
- Tuajuanda Jordan, PhD, Dean, Lewis & Clark College
- Wayne Riley, M.D., M.P.H., M.B.A., President & CEO, Meharry Medical College; Chair, NACMHD, NIH; Chairman, Board of Directors, AMHPS
- John Ruffin, Ph.D., Director, NIMHD, NIH – co-chair
- Samuel Silverstein, M.D., Professor, Columbia U Medical Ctr.
- Lawrence Tabak, D.D.S., Ph.D., Principal Deputy Director, NIH – co-chair
- Dana Yasu Takagi, Ph.D., Professor, UC Santa Cruz
- Reed Tuckson, M.D., Exec. VP and Chief of Med. Affairs, United Health Group – co-chair
- Maria Teresa Valez, Ph.D., Ass. Dean of the Graduate College, University of Arizona
- M. Roy Wilson, M.D., M.S., Chair, Bd. Trustees, Charles E. Drew UMS
- Keith Yamamoto, Ph.D., Exec. Vice Dean, School of Medicine, UCSF
- Clyde Yancy, M.D., FACC, GAHA, MACP, Professor, Feinberg School of Medicine

ACD Working Group on Diversity in the Biomedical Research Workforce

- Since August have met four times (three teleconferences and one in-person meeting)
- After interrogating a vast amount of data to better understand the challenges we face, the Working Group
 - Understands that there are issues with the pipeline that are not just for NIH to address, but that they still need to consider
 - Understands that Extramural and Intramural each face unique challenges
 - Appreciates that NIH is serious about this and feel an obligation to offer bold recommendations to the NIH Director
- Briefing to the NIH Advisory Committee to the Director on Thursday, December 8

Questions?