An Initiative to Increase the Diversity of the NIH-funded Workforce

Lawrence A. Tabak, DDS, PhD

Deputy Director, NIH

Agenda

- Setting the Stage

- NIH Consideration of Recommendations

- Strategy for Implementation

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Setting the Stage

Greater Diversity in Research Workforce is Needed

Race, Ethnicity, and NIH Research Awards

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Greater Diversity in Research Workforce is Needed

SOCIOLOGY

Weaving a Richer Tapestry in Biomedical Science

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

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

Greater Diversity in Research Workforce is Needed

NIH's Plan for Action:

- Evaluate current training programs

- Phase out unsuccessful programs, expand successful ones

- Increase number of early career reviewers, including those from underrepresented populations

- Examine grant review process for bias and develop interventions

- Improve support for grant applicants

- Gather expert advice on additional action steps

Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce

- **Reed Tuckson, M.D.,** co-chair
UnitedHealth Group

- **John Ruffin, Ph.D.,** co-chair
NIH

- **Lawrence Tabak, D.D.S., Ph.D.,** co-chair
NIH

- **Ann Bonham, Ph.D.**
AAMC

- **Jordan Cohen, M.D.**
AAMC

- **José Florez, M.D., Ph.D.**
Harvard Medical School

- **Gary Gibbons, M.D.**
NIH

- **Renee Jenkins, M.D.**
Howard University

- **Tuajuanda Jordan, Ph.D.**
Lewis and Clark College

- **Wayne Riley, M.D., M.P.H., M.B.A., MACP**
Meharry Medical College

- **Samuel Silverstein, M.D.**
Columbia University Medical Center

- **Dana Yasu Takagi, Ph.D.**
University of California, Santa Cruz

- **Maria Teresa Velez, Ph.D.**
University of Arizona

- **M. Roy Wilson, M.D., M.S.**
NIH

- **Keith Yamamoto, Ph.D.**
University of California, San Francisco

- **Clyde Yancy, M.D., M.Sc., FACC, FAHA, MACP**
Northwestern University

Charge to the Working Group

- Examine the Ginther, et al. report and other available data on the success rates of NIH extramural applicants, as well as intramural investigators

- Explore potential causes for the differential funding success rates observed between ethnic/racial groups

- Recommend immediate and long-term strategies for intramural and extramural programs that address barriers across 5 key transition points :

  - entry into graduate/professional degree programs

  - transition from graduate student to postdoctoral research

  - transition from a postdoctoral position to the first employment/identification as an independent scientist

  - award of the first independent research grant from NIH or equivalent in a non-academic setting

  - establishment of an independent research program and emergence as a nationally recognized senior investigator in a researcher's chosen field

Working Group Recommendations:
A Comprehensive Strategy

- Pipeline

- Mentoring

- Infrastructure

- Peer Review
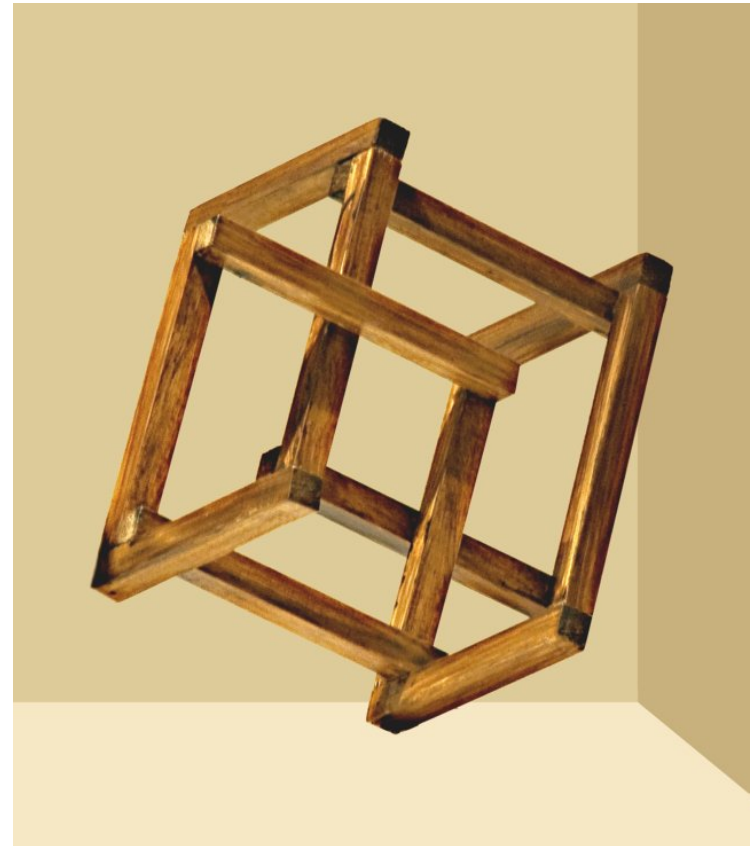
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NIH Consideration of ACD WG Recommendations

- A Pre-Implementation Team developed draft strategies for implementation for every recommendation

- IC Directors engaged in vigorous discussion of the implementation strategies at the NIH Leadership Forum

- Based on the Leadership Forum feedback, an Implementation Team refined the implementation strategies; these were presented to NIH Leadership last week

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Goals

The two main goals of this initiative are:

1. to increase the diversity of the NIH-funded workforce because we have compelling evidence that this will help us accomplish our mission

2. to ensure that all applicants are treated fairly in the peer review system

The Challenges We Must Solve

- No one set of initiatives will diversify the NIH-funded workforce overnight – this will take time

- There is tremendous mistrust in many of the communities that we must engage with and we must work hard to gain their trust

- Any effort will require the collaboration and cooperation of extramural partners

- Diversifying the NIH-funded workforce and ensuring the fairness of the peer review system are collective responsibilities across the NIH because we will all benefit

Form ACD Working Group on Diversity

- Standing working group of the Advisory Committee to the Director

  - Charge: providing regular advice to the ACD and NIH Director on effective strategies to increase the representation of individuals from diverse backgrounds underrepresented nationally in biomedical research and to reduce disparities in research awards from applicants from backgrounds underrepresented nationally in biomedical research

Implementation Strategies

Four interrelated approaches will be implemented:

- The NIH <u>Bu</u>ilding <u>I</u>nfrastructure <u>L</u>eading to <u>D</u>iversity (BUILD) Program

- The National Research Mentoring Network (NRMN)

- Ensuring Fairness in Peer Review
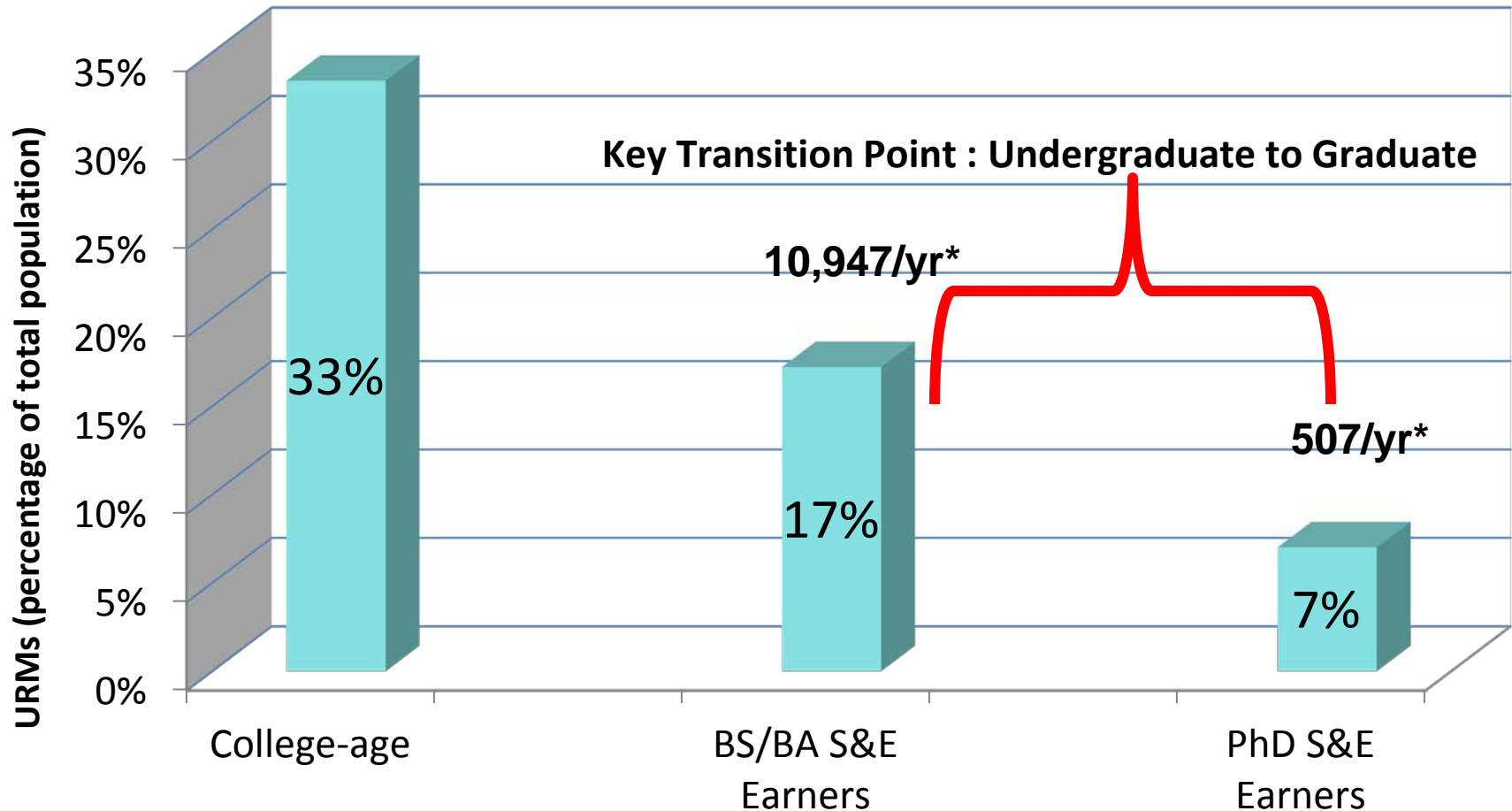
- Increased Engagement by all NIH Leadership

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Demographics for Underrepresented Minorities in the Educational Pipeline

(2008)

Key Transition Point : Undergraduate to Graduate

10,947/yr*

507/yr*

33%

17%

7%

URMs (percentage of total population)

College-age

BS/BA S&E Earners

PhD S&E Earners

*Degree in Biology, Chemistry, and Physics to URMs

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

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Building Infrastructure Leading to Diversity (BUILD) Program

- Student Support:

  - Rigorous mentored research experience for 2 summers (in college) and up to 2 years (post-graduation)

  - Tuition scholarships for up to 2 years as undergraduate

  - Possibility of loan repayment in graduate school

- ~150 new students per year/~600 students in the program per year

- Based, in part, on the success of the NIH IRP Undergraduate Scholarship Program and, in part, on the "Race to the Biomedical Top" program suggested by Dr. Wilson of the White House Initiative on HBCUs

BUILD Program (cont.)

- Faculty Support:

  - Salary offset and infrastructure support for key faculty responsible for undergraduate research training

  - Resources for highly effective mentors to train new mentors

  - Support for "Innovation Space" to enable organizations to develop novel approaches to increase diversity of the student pool that enters the PhD training pathway

BUILD Program (cont.)

- Primary Site Eligibility:

  - <$7.5M of NIH research project grant funding (RPG) annually and,

  - at least 25% of undergraduate students receiving Pell Grants.

- Consortium:

  - Primary site encouraged to partner with pipeline-partner institutions and research-partner institutions (including NIH intramural program) to complement strengths and participate in Nation-wide BUILD consortium

  - Primary site may also partner with a "Co-Primary" Institution that does not have an undergraduate program and,

    - meets the RPG inclusion criteria for undergraduate schools and,

    - have an award-eligible pool of doctoral-level applicants, 25% of whom are former Pell recipients.

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National Research Mentoring Network

- Grantee will engage and assemble multiple people and/or organizations into a single, Nation-wide consortium

- Goals

  - Connect students, postdoctoral fellows, and faculty to experienced mentors both in person and virtual

  - Develop standards for good mentorship

  - Provide training to individuals interested in learning how to become better mentors

# National Research Mentoring Network

- Goals (cont.)

  - Provide or arrange for relevant workshops and training opportunities in grantsmanship (grant writing; mock study sections; feedback on grant applications) and career "survival" strategies

  - Link with BUILD consortium primary institutions and all student participants

  - Network students, postdoctoral fellows, and faculty to the larger biomedical research community

BUILD and NRMN Coordinating and Evaluation Center

- Will create and maintain a database that that can be fully interrogated of all mentors (i.e. those from BUILD institutions as well as those participating in the NRMN) and mentees that will include:

    - personal and organizational demographics

    - productivity measures

    - outcome measures for individuals and institutions

- Will have connections with the BMW tracking

- Will perform analyses requested by NIH and Consortium members in priority order as determined by an independent Data Access Committee

- Will be responsible for integrating and coordinating all trans-consortium activities

- Will conduct an annual meeting of the Consortium as a means to facilitate the sharing of science and best practices with all participants

Why a National Consortium is Important
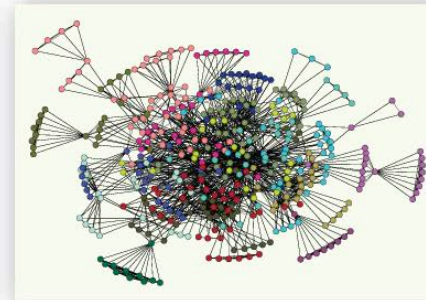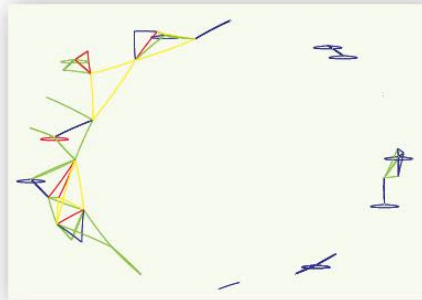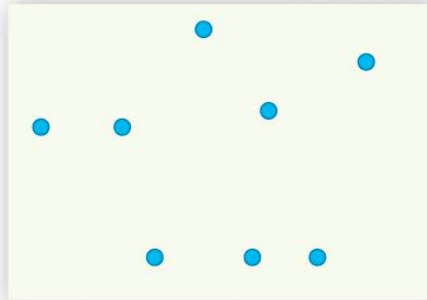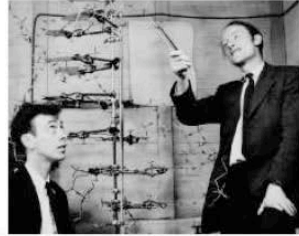
- Networking has become an increasingly important element to the conduct of modern science

- Additional analysis of Biosketch data by Dr. Ginther and her colleagues has shown that Black applicants have significantly fewer publications, citations and co-authors

- Linking trainees and investigators from groups that have been underrepresented in science to majority investigators should be facilitated by the BUILD/NRMN Consortium

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Modified from Barabási, Science 308:639, 2005

Anticipated Support for BUILD/NRMN Consortium – A Common Fund Program

- We plan to issue planning grants in FY2013 and conduct regional technical workshops to aid applicant organizations that may wish to apply for these programs

- Subject to fund availability and a sufficient number of highly meritorious applications we plan to support ~10 primary site institutions with an ultimate steady state of ~600 UGS in all program phases; 1 NRMN; and, 1 coordinating and evaluation center

- We estimate the <u>average yearly support</u> over the initial life of the program to be ~ $50M/year

- We would welcome partnerships with other funding sources to expand the program

Plans for Success

- Training and fellowship history may matter

  - Those with no prior training grant or fellowship experience have only a 56% funding rate

  - The greater success cannot be directly attributed to T/F since those selected for these awards may be of "higher caliber"
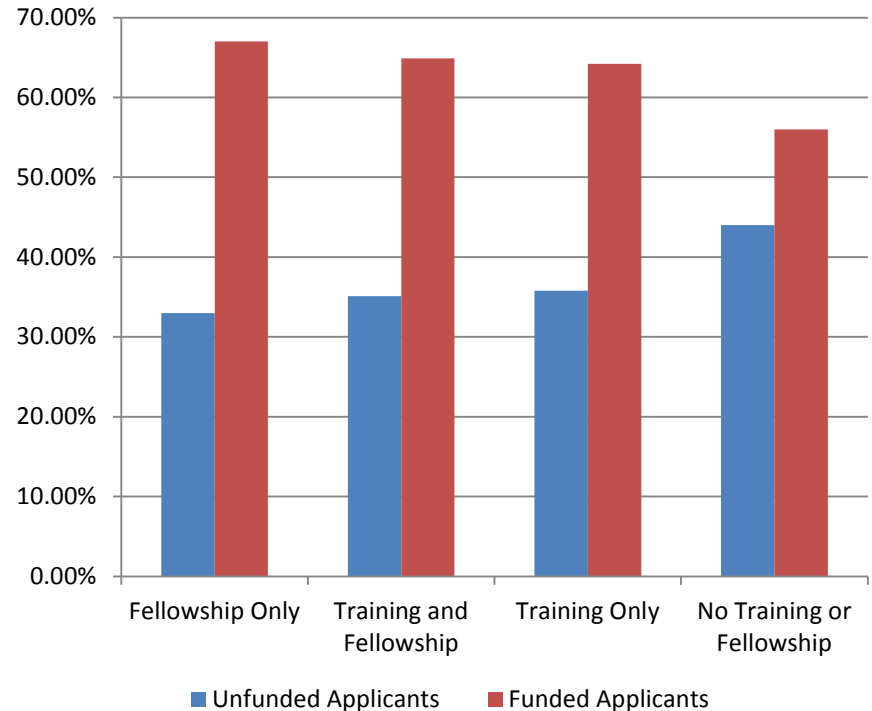
NIH is committed to supporting the Fellowship and Training slots needed to accommodate BUILD scholars

OER generated report from IMPAC II data for FY 2011

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Ensuring Fairness in Peer Review

- NIH has a core responsibility to ensure that all applicants are treated fairly in the peer review system.

  - Form expert, ad-hoc, subcommittee of ACD Working Group on Diversity to examine multiple hypotheses, including the role of unconscious bias, related to disparities in research awards

  - Implement implicit bias and diversity awareness training for both SROs and members of review panels

  - Pilot anonymizing of applications by removing identification of applicant and/or the applicant organization

Ensuring Fairness in Peer Review (cont.)

- NIH has a core responsibility to ensure that all applicants are treated fairly in the peer review system.

  - Enhance feedback to applicants that have Not Discussed applications

    - develop better SRO practices for highly discrepant reviews

    - provide more guidance to reviewers on using the additional comments section of the critique template

    - provide Next Step information on every summary statement.

  - Continue the Early Career Reviewer Program Pilot

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Increased Engagement by all NIH Leadership

- Create an NIH Steering Committee Working Group on Diversity, thus making diversity a core consideration of NIH governance

- Recruit a Chief Diversity Officer, who will

  - coordinate NIH initiatives designed to enhance diversity of NIH-funded research workforce

  - oversee a rigorous prospective evaluation of existing NIH programs designed to enhance diversity of the NIH-funded extramural and intramural research workforce

  - be a practicing scientist that will work collaboratively across the NIH to increase the diversity of Intramural Investigators

Discussion