Presentation to HRA
Next Generation Report
Paula Stephan
Atlanta, March 28th, 2019
THE NEXT GENERATION OF BIOMEDICAL AND BEHAVIORAL SCIENCES RESEARCHERS

www.nas.edu/NextGen
Outline of Talk

• Background and findings
• Key recommendations
• Recommendations that I see as key, given 20-plus years of participation in Academies’ committees
• Focus on what members of HRA can do to advance the next generation
Background and Key Findings
Legislation

• **The Consolidated Appropriations Act, 2016**
  – Public Law No. 114-113. (H.R.2029)
  – S.Rpt. 114-74, pg 105

• **21st Century Cures Act (H.R.34)**
  – Subtitle C—Supporting Young Emerging Scientists
  – “SEC. 404M. NEXT GENERATION OF RESEARCHERS.”
BALDWIN AND COLLINS INTRODUCE BIPARTISAN LEGISLATION TO STRENGTHEN AMERICA’S COMMITMENT TO THE NEXT GENERATION OF RESEARCHERS

Bipartisan Next Generation Researchers Act Focuses on Building Opportunities for New Researchers

WASHINGTON, D.C. — At a time when America’s young researchers are facing the worst funding in 50 years, U.S. Senators Tammy Baldwin (D-WI) and Susan Collins (R-ME) today introduced legislation to invest in the future of research, science, and innovation. The bipartisan Next Generation (NextGen) Researchers Act would create the “Next Generation Researchers Initiative” within the National Institutes of Health (NIH) Office of the Director to coordinate all current and new NIH policies aimed at promoting opportunities for new researchers and earlier research independence. In addition, the legislation directs the National Academy of Sciences (NAS) to conduct a comprehensive study and report on fostering the next generation of researchers. Senator Baldwin originally introduced the legislation in the 113th Congress and today, Wisconsin Congressman Mark Pocan will introduce companion legislation in the House of Representatives.

"In order for America to out-innovate the rest of the world and create an economy built to last, we must protect and strengthen our investments in research, science, and innovation," said Senator Baldwin. "We can’t accomplish this without supporting and investing in the next generation of researchers. This bipartisan legislation demonstrates a commitment to our future scientists and builds off Wisconsin’s proud tradition of being a leader in this industry."

Project Scope:

To examine the policy and programmatic steps that the nation can undertake to ensure the successful launch and sustainment of careers among the next generation of researchers in the biomedical and behavioral sciences, including the full range of health sciences supported by the NIH.
Committee Membership

Chair, Ronald J. Daniels, JD, LLM
President Johns Hopkins University

Nancy Andrews, MD, PhD
Dean and Vice Chancellor Emerita, Duke University

Travis Berggren, PhD
Core Facility Director, Scripps Institute

Sue Biggins, PhD
Assoc. Director, Fred Hutchison Cancer Center and HHMI

John Boothroyd, PhD
Assoc. Vice Provost, Stanford University

David R. Burgess, PhD
Professor of Biology, Boston College

Kafui Dzirasa, MD, PhD
Asst. Professor of Psychiatry, Duke University

Giovanna Guerrero-Medina, PhD
Exec Director, Ciencia Puerto Rico, Yale University

Judith Kimble, PhD
Vilas Professor, Biochemistry, UW-Madison and HHMI

Story Landis, PhD
Director emerita NINDS, NIH

Kenneth Maynard, PhD
Sr. Director, Takeda Pharmaceuticals International Co.

Gary S. McDowell, PhD
Executive Director, The Future of Research, Inc.

Jessica Polka, PhD
Visiting Scholar, Whitehead Institute

Joan Reede, MD, MPH, MS, MBA
Dean for Diversity and Professor, Harvard Medical School

Lana Skirboll, PhD
Vice President, Science Policy, Sanofi

Paula Stephan, PhD
Professor of Economics, Georgia State University

Maria Elena Zavala, PhD
Professor of Biology, California State Univ., Northridge
Novel Approaches to the Study

Responses to recommendations from prior reports

Data requests to NIH

International contributions
  - Canada, China, European Union, Singapore, and the United Kingdom

Dear Colleague Letter
Key Finding - Later Independence

The average age of first receipt of a NIH grant, the R01, has risen from 36 years old in 1980 to 43 years old in 2016.
Key Finding - Fewer Young Investigators

The share of biomedical PhD recipients able to secure a tenure-track academic research position within 6 years has fallen from 55 percent in 1973 to 18 percent in 2009.

The proportion of NIH research project grant dollars awarded to investigators under age 50 has declined from 54 percent in 1998 to 39 percent in 2014.
Key Finding: Increase in Non-research Non-academic Jobs; Decline in Tenure-track Jobs
Key Finding - An Absence of Shared Responsibility

Institutions tend to look to NIH to solve problems across the entire system; but the committee’s research reveals that NIH has been responsive to prior recommendations regarding the biomedical workforce. Yet there is no mechanism for collaboration among the many entities that must act to solve these systemic problems.
Recommendations
Recommendations for Congress

1. Establish a Biomedical Research Enterprise Council (BREC) to address ongoing challenges confronting the next generation of biomedical researchers and exercise ongoing collective guardianship of the biomedical enterprise.
Recommendations for Congress

2. Consider increasing the NIH budget specifically to support implementation of the recommendations in this report and to provide sustained support for NIH’s recently announced Next Generation Researchers Initiative.
Recommendations for Congress

3. Promote innovative pilot projects on the part of research institutions and other stakeholders that seek to improve and accelerate transitions into independent careers. A Next Generation Researcher Innovation Fund should be created to support these experimental projects.
4. Extend or establish an employment tax credit to R&D firms for hiring recently minted Ph.D.’s, M.D.’s, and M.D.-Ph.D.’s and make the credit higher for small- to medium-sized R&D firms and firms that recruit into R&D activity for the first time.
5. **Expand the SBIR/STTR program** to enable NIH to create a novel ecosystem that fosters entrepreneurship for next generation biomedical scientists, facilitates women and minority-owned entrepreneurship, and supports fulfillment of NIH’s mission across the private sector.
Recommendations for NIH

• Data Collection, Training, and Diversity and Inclusion
  – Phase-in policies requiring the collection and publication of outcomes and demographics data
  – Require: (1) a training and mentoring plan, and (2) a diversity and inclusion plan at the institutional and PI level as part of grant applications
Recommendations for NIH

• Innovation and Experimentation
  – Promote innovative pilot projects that seek to improve and accelerate transitions into independent careers
  – Phase in, expand awards, or create new support structures and competitive awards to promote postdoctoral researchers’ advancement toward an independent research career
Recommendations For NIH

• Increase the Ruth L. Kirschstein National Research Service Award (NRSA) starting salary for new postdoctoral researchers to $52,700, with annual increases for inflation and cost of living

• Place a cap (3 years suggested) on salary support for all postdoctoral researchers funded by NIH research grants and multi-project grants
Recommendations for Research Institutions

• Collect, analyze, and disseminate comprehensive data on outcomes, demographics, and career aspirations of biomedical pre- and postdoctoral researchers

• Provide support and evidence of effective training, mentoring, and professional development programs for postdoctoral researchers
Coalition for Next Generation of Life Scientists

- Formed while committee was meeting
- Brings together 37 institutions with a commitment to make career data available
- **Coalition**
- Data already available for some institutions **UCSF**
Recommendations for Research Institutions

• Adjust the base postdoctoral salary annually to match the NRSA rate

• Levy a fee of at least $1,000 per year for each postdoctoral fellow supported on all biomedical research grants

• Develop mechanisms to increase the number of individuals in staff scientists positions
Key Recommendations from a Veteran’s Perspective
Data Collection

• Lack of data has negative effect in two ways
  – Tempers the kinds of recommendations that committees can make
  – Can adversely affect career choices of young persons
Increase Salary of Postdoctoral Researchers

• Two reasons:
  – Equity
    • Postdoctoral researcher is earning approximately what someone who graduated seven years earlier and did not have any graduate training is earning
  – Incentives
    • Underpricing postdoctoral researchers discourages creation of staff scientist positions; encourages overuse of postdoctoral researchers
Concept of Shared Responsibility

- Focus on multiple players, not just NIH
- Establishment of Biomedical Research Enterprise Council
- Efforts to stimulate employment of researchers in the private sector
- Focus on institutional change
Some Takeaways for HRA Members
Needs/Gaps

• Funding for postdoctoral researchers for independent research
• Require that PIs pay postdoctoral researchers the NRSA rate at minimum
• Monitor the length of time a postdoctoral researcher is supported by researcher funding
Needs/Gaps

• Creation of staff scientist positions
• Collection of data on applicants and awardees: outcome data are needed
• Create grants that foster public-private partnerships involving young researchers
For follow up questions about this study, contact the study director, Lida Beninson, PhD

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