

**Presentation to HRA**  
***Next Generation Report***  
**Paula Stephan**  
**Atlanta, March 28<sup>th</sup>, 2019**

# THE NEXT GENERATION OF BIOMEDICAL AND BEHAVIORAL SCIENCES RESEARCHERS

[www.nas.edu/NextGen](http://www.nas.edu/NextGen)

April 11,  
2018



# 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
- *21<sup>st</sup> Century Cures Act (H.R.34)*
  - Subtitle C—Supporting Young Emerging Scientists
  - “SEC. 404M. NEXT GENERATION OF RESEARCHERS.

# 2015

Google Amazon Madison weather Delta Google Maps WormBase WormBase - Home Page Google Scholar My UW UW-Madison ... Department



**TAMMY BALDWIN**  
United States Senator for WISCONSIN

NEWS ABOUT TAMMY FEEDBACK



HOW CAN I **HELP YOU?**

09.09.15

## 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 113<sup>th</sup> 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."

<https://www.baldwin.senate.gov/press-releases/baldwin-and-collins-introduce-bipartisan-legislation-to-strengthen-americas-commitment-to-the-next-generation-of-researchers>

# 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, LL.M.**

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

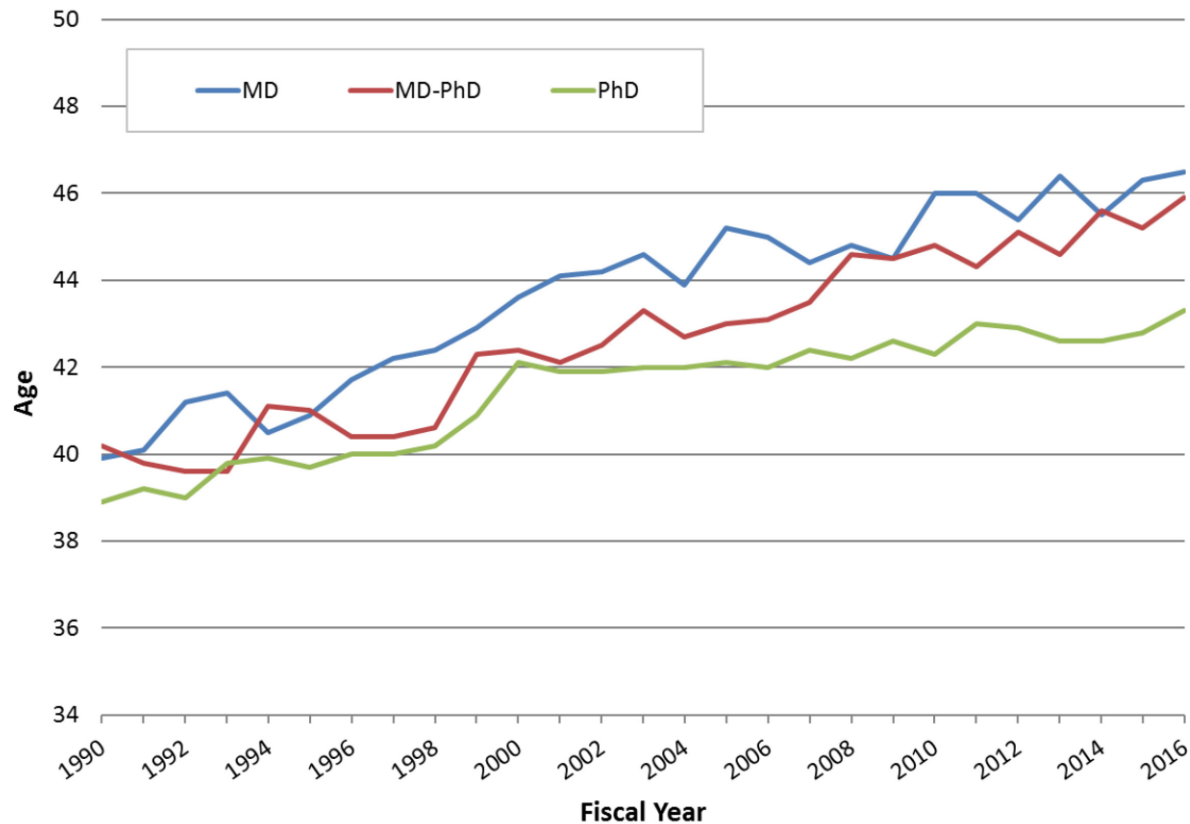
International contributions

- *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

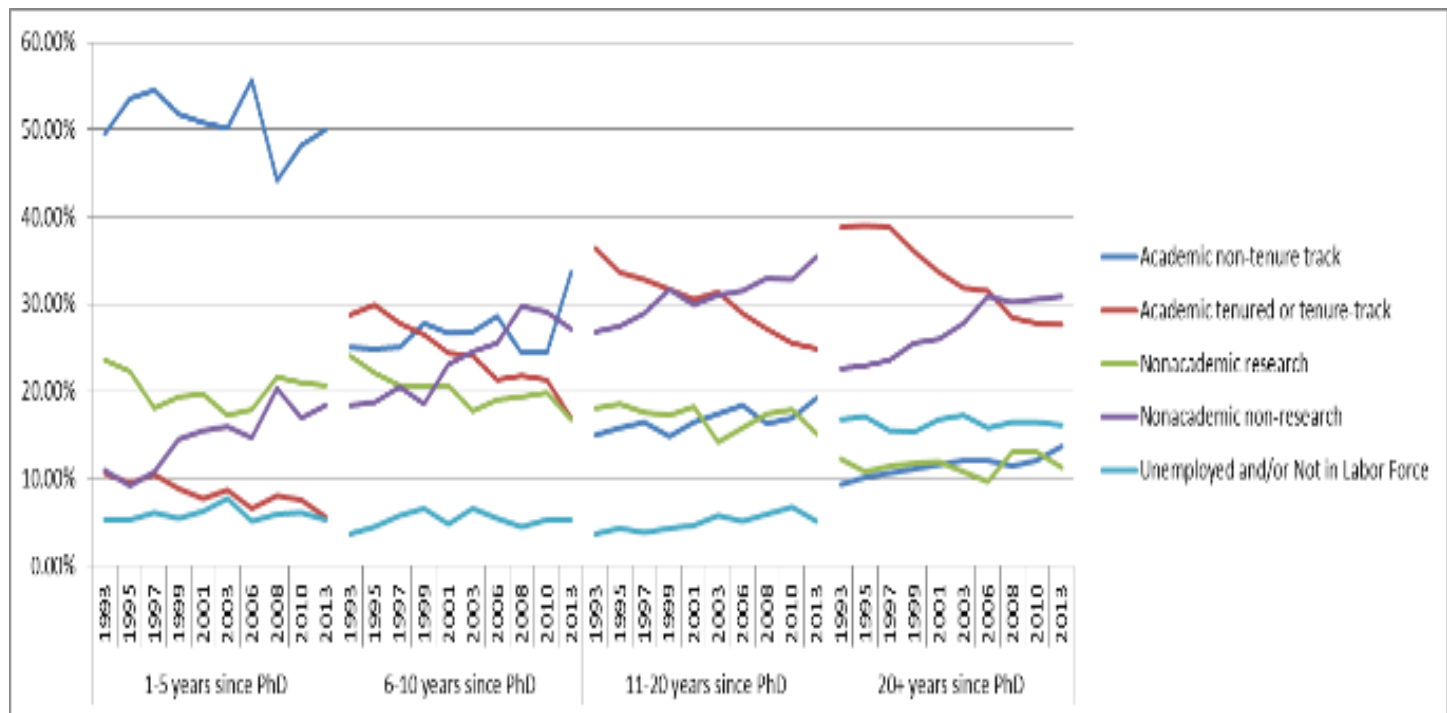


# Key Finding - Fewer Young Investigators

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.

# Recommendations for Congress

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.

# Recommendations for Congress

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

[lbeninson@nas.edu](mailto:lbeninson@nas.edu)

