



*University of Kansas Medical Center*

## **Recent Research on the Biomedical Workforce:**

# **Implications for Designing Graduate Programs.**

**Council of Graduate Schools Meeting, Dec 6, 2012**

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## *The Background*

Why We Need to Address  
the  
Future  
Differently

# NIH Biomedical Research Workforce Working Group Draft Report

**Submitted July 14, 2012**

## Charge to the Group

1. Develop a model for a sustainable and diverse U.S. biomedical research workforce that can inform decisions about training the optimal number of people for the appropriate types of positions that will advance science and promote health.
2. Make recommendations which will ensure future US competitiveness and innovation in biomedical research by creating pathways through undergraduate, graduate and postdoctoral training that provide excellent preparation in a timely fashion to attract and retain the best and most diverse STEM researchers from around the world and prepare biomedical PhD students and postdoctoral researchers to participate in a broad-based and evolving economy.
3. Recommend a strategy to attract the best and most diverse scientists and engineers from around the world and increase the number of domestic students from diverse backgrounds who excel in science and become part of the STEM workforce.
4. Recommend a strategy to prepare PhD Students and Postdocs to participate in a broad-based and evolving economy.

# NIH Biomedical Research Workforce Working Group Draft Report

## Summary of Findings

1. The number of fellowships and traineeships has remained relatively constant over time, but the number of students supported on research grants has grown substantially without any mechanism in place to review quality of training students are receiving.
2. The proportion of PhDs that move into tenured or tenure track faculty positions has declined from ~34% in 1993 to ~26% today.
3. The proportion of non-tenured faculty has stayed relatively constant during the same period, while increasing in absolute number.
4. The categories that have seen growth in employment are science related occupations that do not involve the conduct of research and occupations that do not require graduate training in science.

# *NIH Biomedical Research Workforce Working Group Draft Report*

## Summary of Findings

5. Because most current PhD graduate training focuses on preparing people for academic positions, the committee believes that graduate programs must accommodate a greater range of anticipated careers for students.
6. In many cases, graduate programs should , but do not openly communicate the career outcomes of their graduates to potential students.

# *NIH Biomedical Research Workforce Working Group Draft Report*

## Summary of Recommendations

1. The NIH should create a program to supplement training grants through competitive review to allow institutions to provide additional training and career development to equip students for various career options and test ways to shorten the PhD training period. The additional training should include the project management and business entrepreneurial skills required in the pharmaceutical and other related industries.
2. The NIH and universities should involve relevant employers in designing training paths for those students who seek employment in biotech and pharmaceutical research and non-research positions.
3. Institutions should be encouraged to develop other degree programs such as master's degrees designed for specific science-oriented career outcomes such as industry or public policy. These should be seen as a legitimate career branch point for students who do not wish to continue in a research track. They caution that we will have to re-examine our definition of success in training programs.

# NIH Biomedical Research Workforce Working Group Draft Report

## Summary of Recommendations

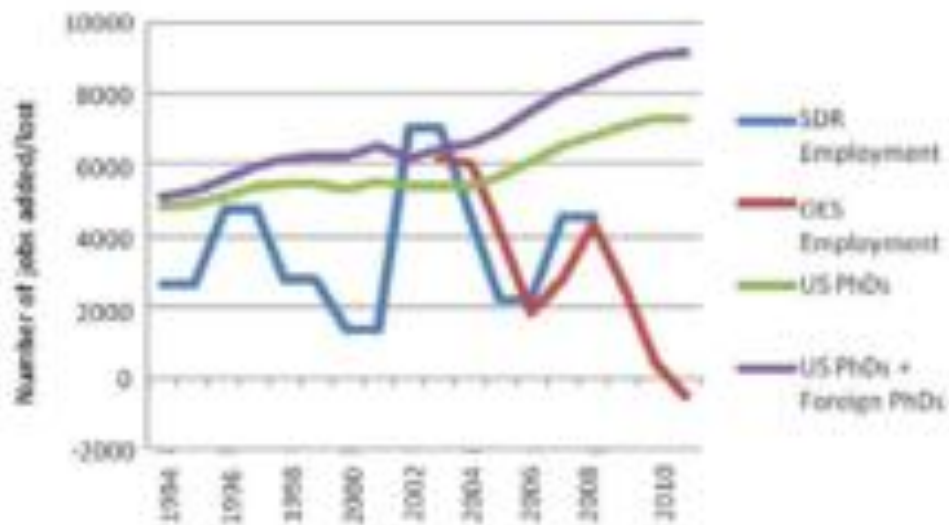
4. Institutions should be aware that the NIH has seen growth in jobs that are science related occupations that do not involve the conduct of research and occupations that do not necessarily require graduate training in science.
5. The NIH should cap the number of years a graduate student can be supported by NIH funds for an average of 5 years and no more than 6 years, to encourage timely degree completion.
6. In order to assure quality, the NIH should increase the proportion of graduate students supported by training grants and fellowships as compared to those on research project grants, without increasing the overall number of graduate student positions.
7. NIH should revise the peer review criteria for training grants to include consideration of outcomes of all students in PhD programs at those institutions, not just those supported by training grants.

**NIH Biomedical Research Workforce Working Group Draft Report**  
**Summary of Recommendations**

8. NIH Institutes and Centers differ in their requirements and policies with regard to training grants, etc. and they should offer comparable training programs and fellowship and their requirements should be harmonized.



## Change in Biomedical Employment Levels Compared to Doctorates Awarded 1993 - 2011



Source: NIH Center of Biomedical Workforce (CBW) Foreign PhD Employment (2011)

Source: NIH Biomedical Research Workforce Working Group Draft Report , June 2012

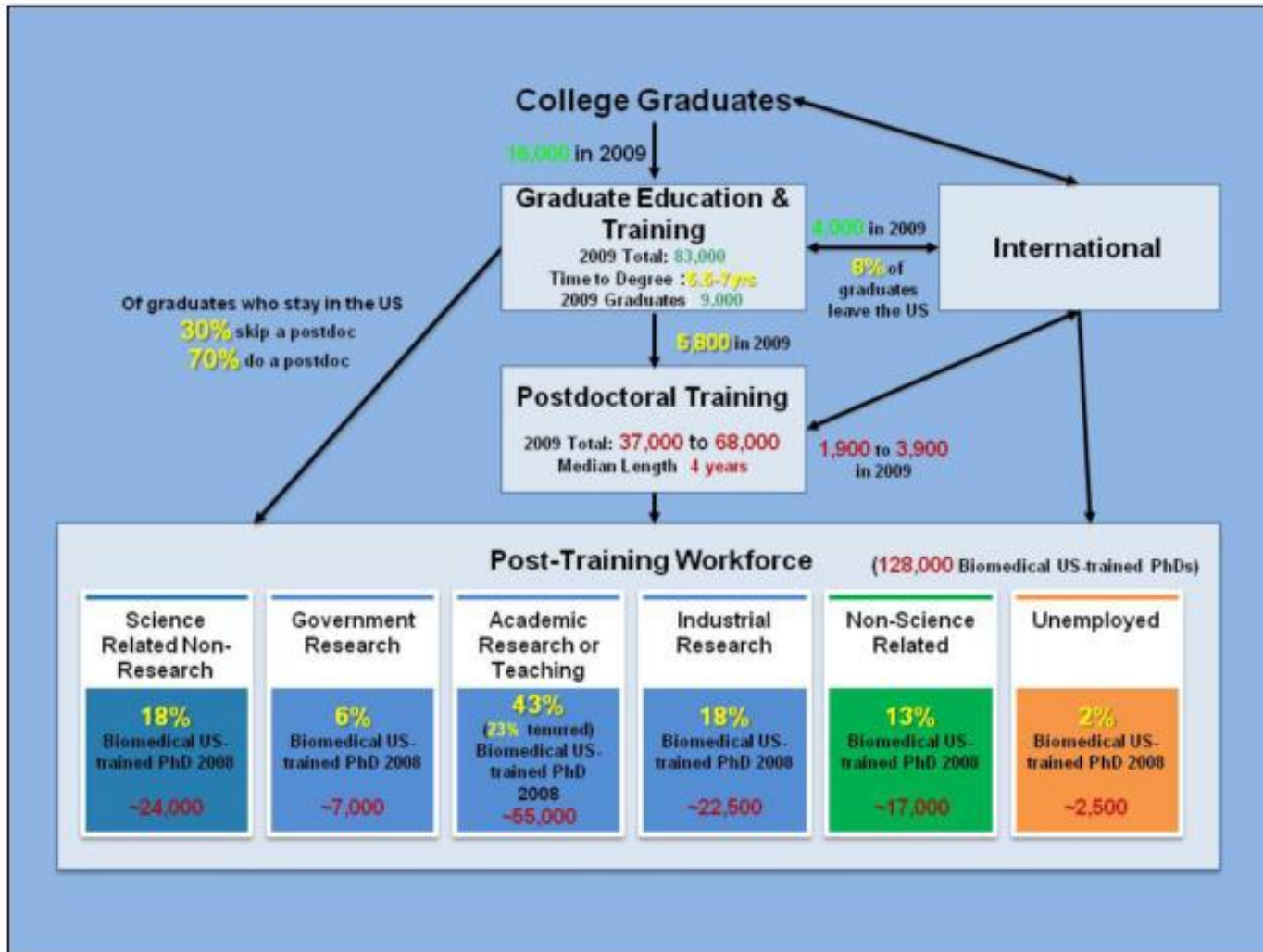


Figure 19: Conceptual Framework of the PhD Biomedical Research Workforce<sup>39</sup>

*Source: NIH Biomedical Research Workforce Working Group Draft Report, June 2012*

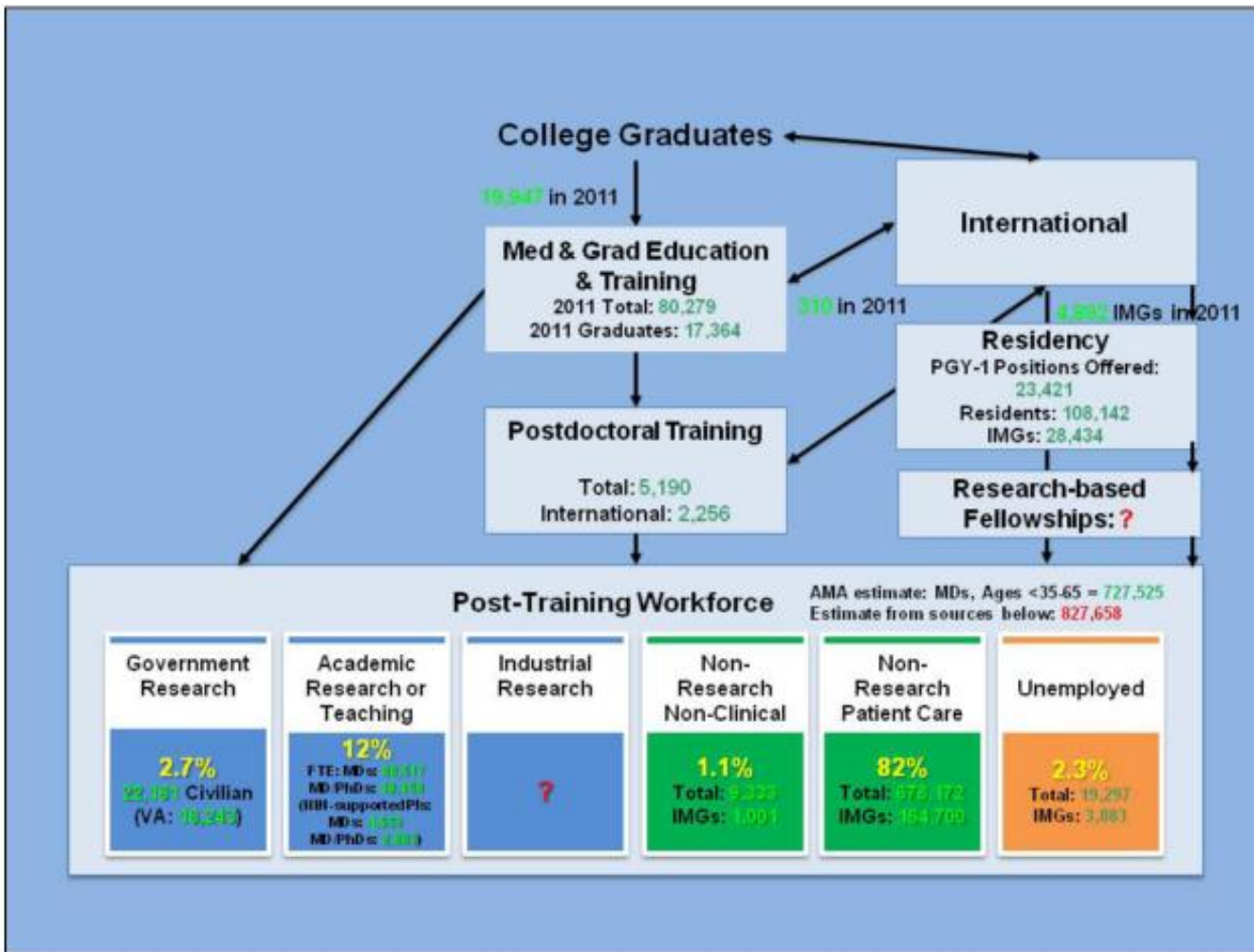


Figure 20: Conceptual Framework of the MD and MD-PhD Workforce<sup>40</sup>

Source: NIH Biomedical Research Workforce Working Group Draft Report, June 2012

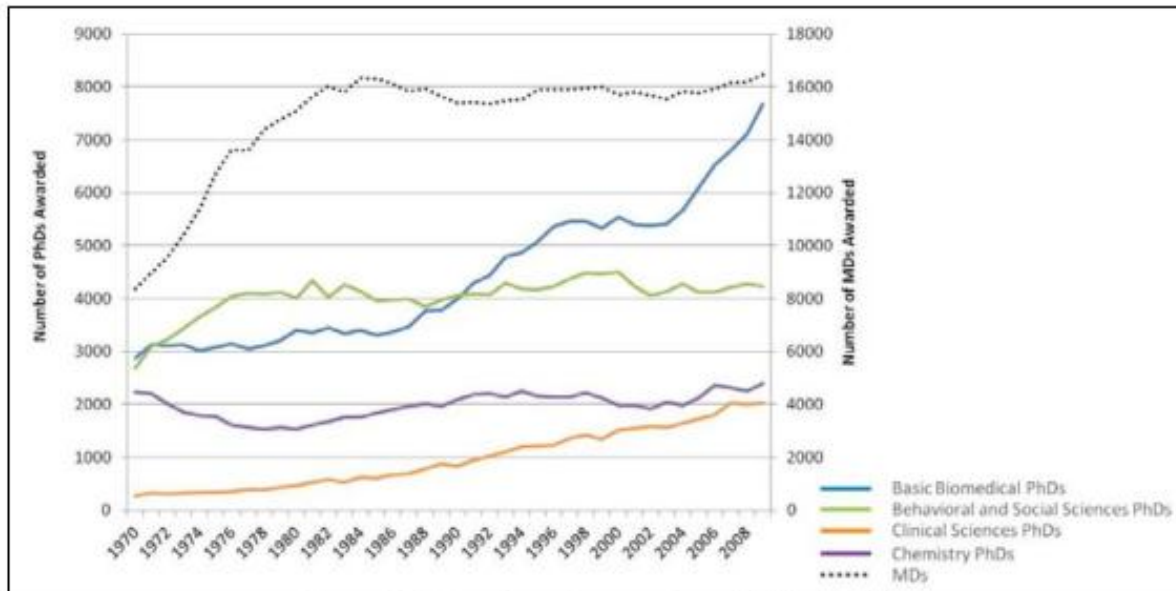


Figure 1: US Graduate Degrees Awarded, by Field<sup>12</sup>

Source: NIH Biomedical Research Workforce Working Group Draft Report, June 2012

So How Is Your Institution Planning

For

The New Reality



When you are deep in trouble,  
say nothing and try to look  
inconspicuous!

**Recent Research on the Biomedical Workforce – Implications for Designing Graduate Programs**  
**Council of Graduate Schools Annual Meeting – December 6, 2012**

**References and Links**

***NIH Panel Urges Steps to Control Growth in Biomedical Research Trainees***

<http://news.sciencemag.org/scienceinsider/2012/06/nih-panel-urges-steps-to-control.html?rss=1>

***Applications to U.S. Graduate Schools Increase, but New Enrollments Drop***

<http://chronicle.com/article/Applications-to-US-Graduate/134746/>

***Declining Grad-Student Enrollment Could Hurt Colleges' Credit, Moody's Says***

<http://chronicle.com/blogs/ticker/declining-graduate-student-enrollment-could-hurt-colleges-credit-moodys-says/50140>

***Strengthening Pathways through Graduate School and into Careers***

<http://www.cgsnet.org/strengthening-pathways-through-graduate-school-and-careers>

***BIOMEDICAL RESEARCH WORKFORCE WORKING GROUP REPORT***

***A Working Group of the Advisory Committee to the Director***

<http://acd.od.nih.gov/bwf.htm>

***BIOMEDICAL RESEARCH WORKFORCE WORKING GROUP REPORT Executive Summary***

[http://acd.od.nih.gov/Biomedical\\_research\\_wgreport.pdf](http://acd.od.nih.gov/Biomedical_research_wgreport.pdf)

***NIH Biomedical Research WG Report Data Slides***

[http://report.nih.gov/investigators\\_and\\_trainees/ACD\\_BWF/index.aspx](http://report.nih.gov/investigators_and_trainees/ACD_BWF/index.aspx)

***Improving Graduate Education to Support a Branching Career Pipeline: Recommendations Based on a Survey of Doctoral Students in the Basic Biomedical Sciences***

<http://www.lifescied.org/content/10/3/239.short>

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