

Addressing the Physician / Clinical-Scientist Challenge: An Update for the NIH Advisory Committee to the Director

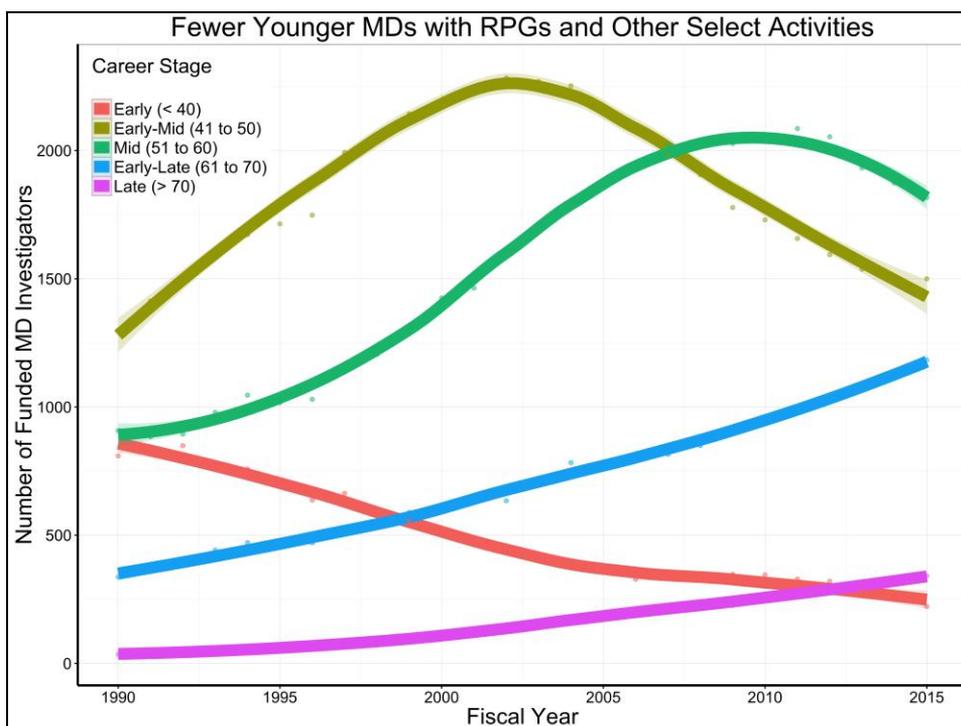
Michael Lauer (OER) for Sherry Mills (OER), Kay Lund(OER), Alison Hall (NIGMS), Gary Gibbons (NHLBI), Steve Katz (NIAMS), Jon Lorsch (NIGMS), Doug Lowy (NCI), JJ McGowan (NIAID), and Larry Tabak (NIH OD)

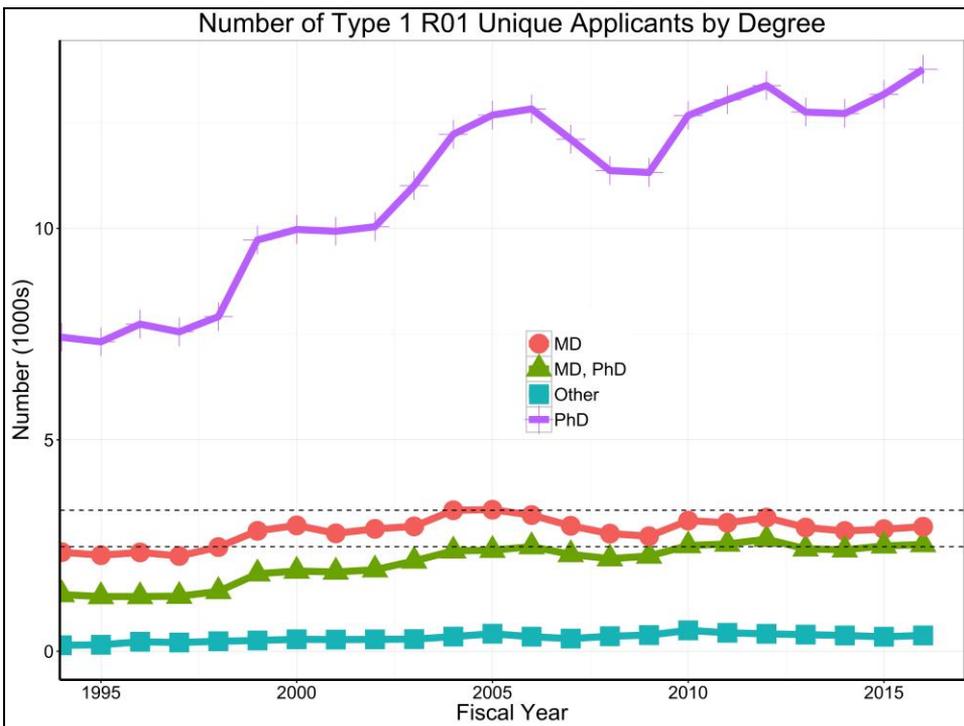
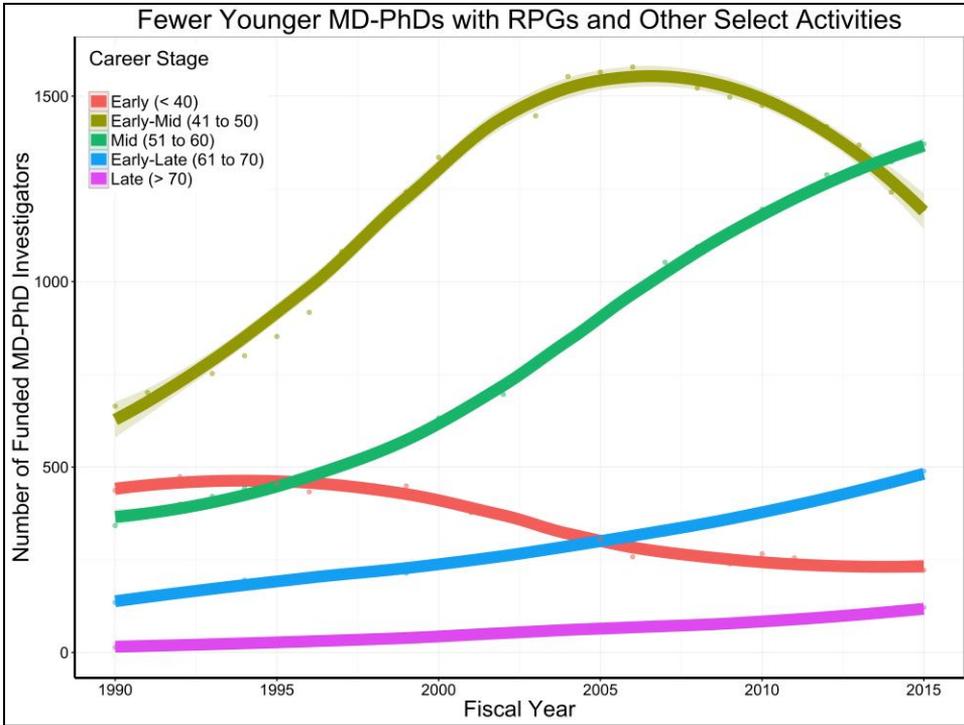
113th Meeting of the NIH ACD, December 8, 2016
Building 31C6, Room 6, NIH Campus, Bethesda, MD

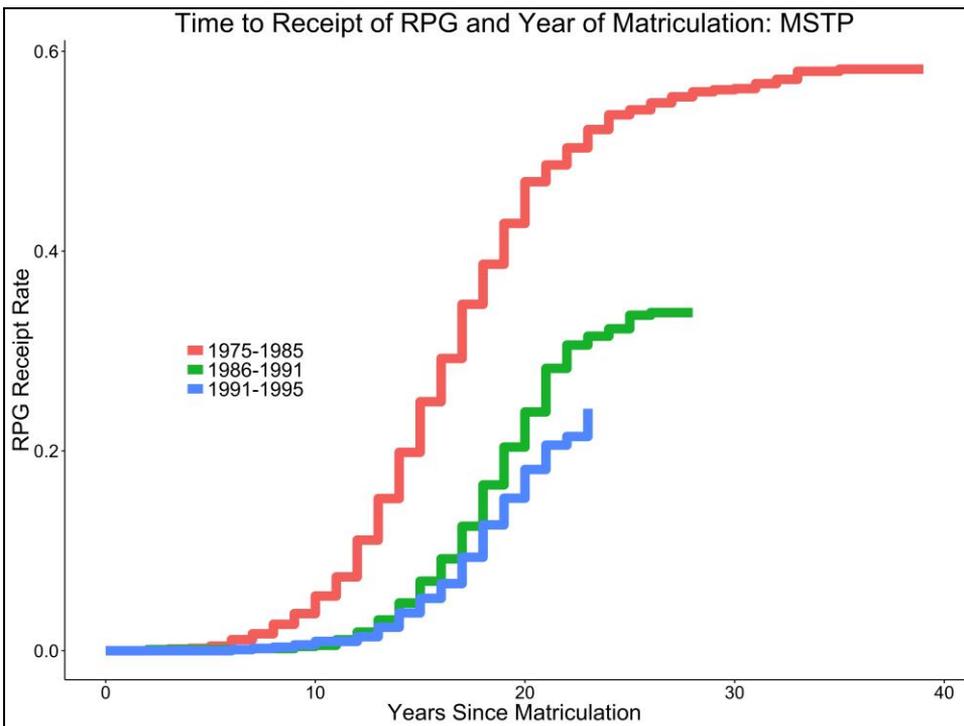
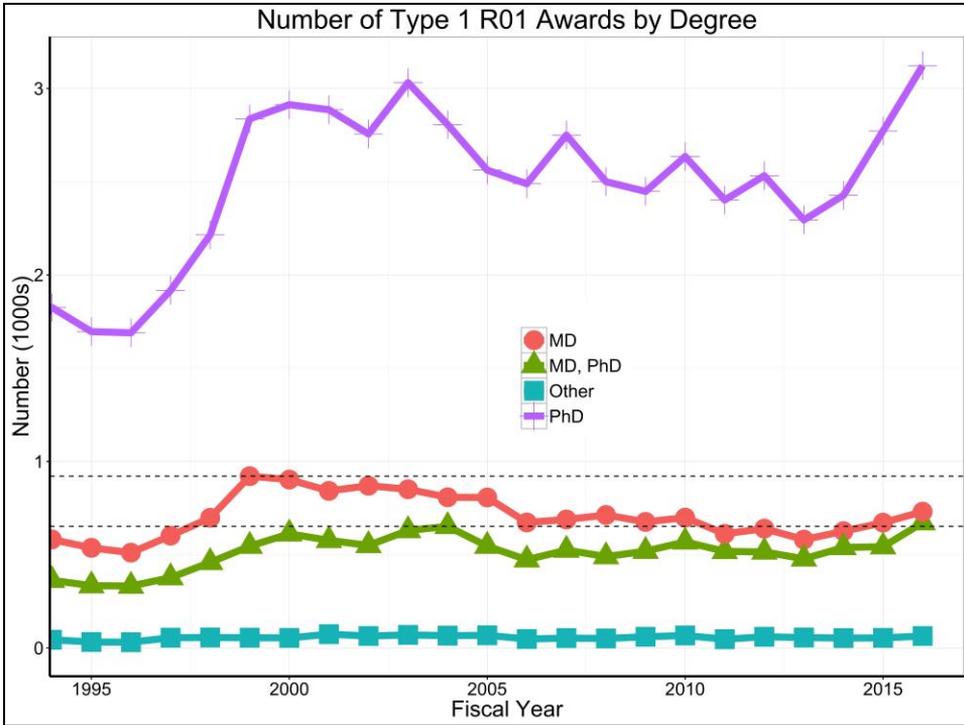
Brief Timeline

- June 2014: ACD PSW WG Report
 - 9 Recommendations: LRP, Pilot Programs
- 2015-2016: Implementation WG
- Workshops 2016: Pilots, GME
- July, 2016: ICD Discussion
- Throughout: Not only MDs – also dentists, veterinarians, RN-PhDs, others

- Within NIH control
 - Fewer younger physicians receive RPGs
 - Fewer applications/awards
 - Timing of research training
- External challenges
 - Shifting business models
 - Dramatic increases in tuition costs







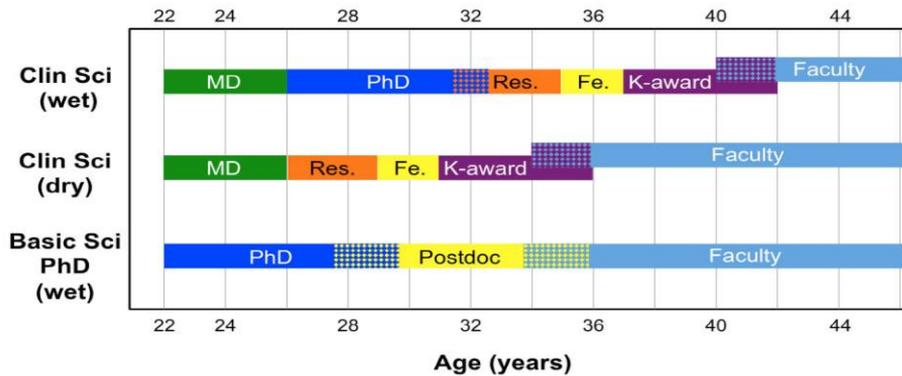
Possible Solutions

- Fund early career MD-scientists sooner
 - Extra ESI points for R01s
 - F/R00, K/R00, R35s
- Help them stay funded
 - Improve first competitive renewal success
- Aim for higher RPG success rates overall

Landscape

- Within NIH control
 - Fewer younger physicians receive RPGs
 - Fewer applications/awards
 - **Timing of research training**
- External challenges
 - Shifting business models
 - Dramatic increases in tuition costs

Long Hauls, Long Breaks



Bourne H, Vermillion E. UCMHP 2016

Possible Solutions

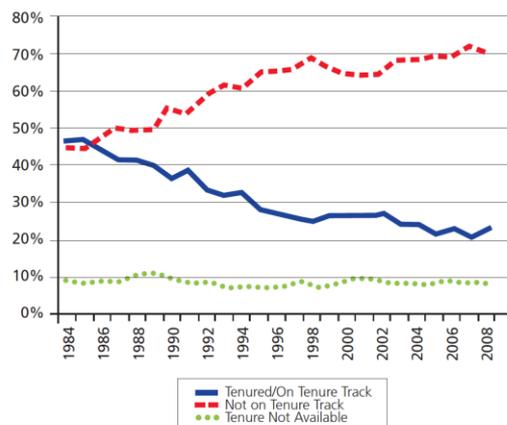
- Post-MD research (residency) training
 - R25 or other mechanisms
 - Focus on competencies and milestones
 - Medical Specialty Board approval
 - Could be combined with PhD
- Example: Hopkins medical genetics

Thanks to Kay Lund, Sherry Mills, Alison Hall
[Hopkins Medical Genetics Training Grant](#)

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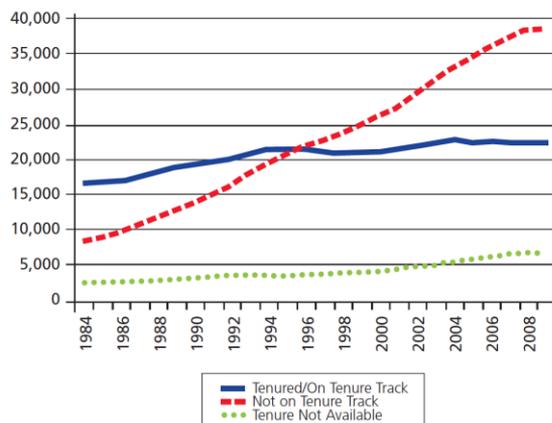
Changing Hiring Practices

Figure 1b: Percentage distributions of newly hired, full-time clinical M.D. faculty by tenure status, 1984-2009



Changing Tenure Demographics

Figure 2: Absolute numbers of full-time clinical M.D. faculty by tenure status, 1984-2009



MD-PhDs: Who Become Full-Time Faculty?

- Cohort of 1846 graduates (Years 2000-2005)
- 52% full-time faculty appointments
 - 94% were in clinical science departments
- Associated with:
 - MSTP; **lower debt**; F30/F31
 - Research during residency
 - Practice specialty (Med, Ped, Neuro, Path)
 - Not gender, race/ethnicity, graduation year



RESEARCH ARTICLE

Predictors of full-time faculty appointment among MD-PhD program graduates: a national cohort study

Dorothy A. Andriole^{1*} and Donna B. Jeffe²

¹Department of Surgery, Washington University School of Medicine, St. Louis, MO, USA; ²Department of Medicine, Washington University School of Medicine, St. Louis, MO, USA

“...our observations also might reflect an increase in the extent to which more contemporary MD-PhD program graduates pursue career paths outside academic medicine, including research-related careers in nonmedical-school-affiliated research institutes (e.g., NIH and industry) or full-time clinical practice in nonacademic settings.”

Andriole and Jeffe. Med Educ Online. 2016 May 13; 21:3094.



Lots and Lots of Debt ...

| Education Debt (including premed) of: | Public | Private | All |
|---|--------|---------|-----|
| \$100,000 or more | 79% | 79% | 79% |
| \$200,000 or more | 41% | 53% | 45% |
| \$300,000 or more | 8% | 18% | 12% |
| Planning to enter loan forgiveness/repayment program: | | | 40% |

| Education Debt Breakdown | % Graduates | Median |
|---------------------------|-------------|-----------|
| Premedical Education Debt | 33% | \$24,000 |
| Medical Education Debt | 78% | \$180,000 |

*Source: FIRST analysis of AAMC 2015 GQ data. Education debt figures include premedical education debt plus medical education debt.

<https://www.aamc.org/download/447254/data/debtfactcard.pdf>



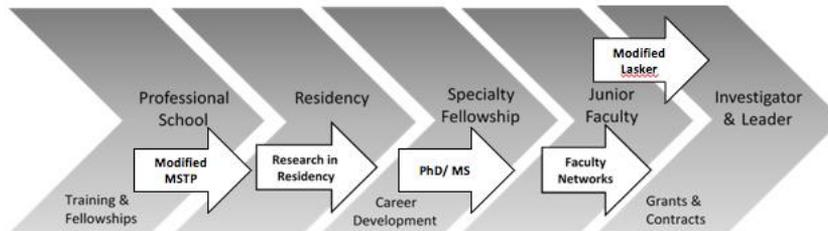
Possible Solutions

- Expand use of LRP
 - Debt relief to incentivize research
- Work with Chief Officer of SWD
 - Enhance NRMN

What's Next?

- Call for novel models
- Looking for reactions
 - Today
 - With invited WG next Friday, December 16

Novel Models



Modified Medical Scientist Training Program

- Separate FOA from parent T32
 - Focus on physician-scientist training
- What is the optimal timing?
- How to integrate clinical & research work?
- Can time to dual degree be shortened?

Modified MSTP (continued)

- Recruitment timing
 - Increase in first 2 years of medical school
 - Better to identify dedication to research
 - Benefits for both programs and students

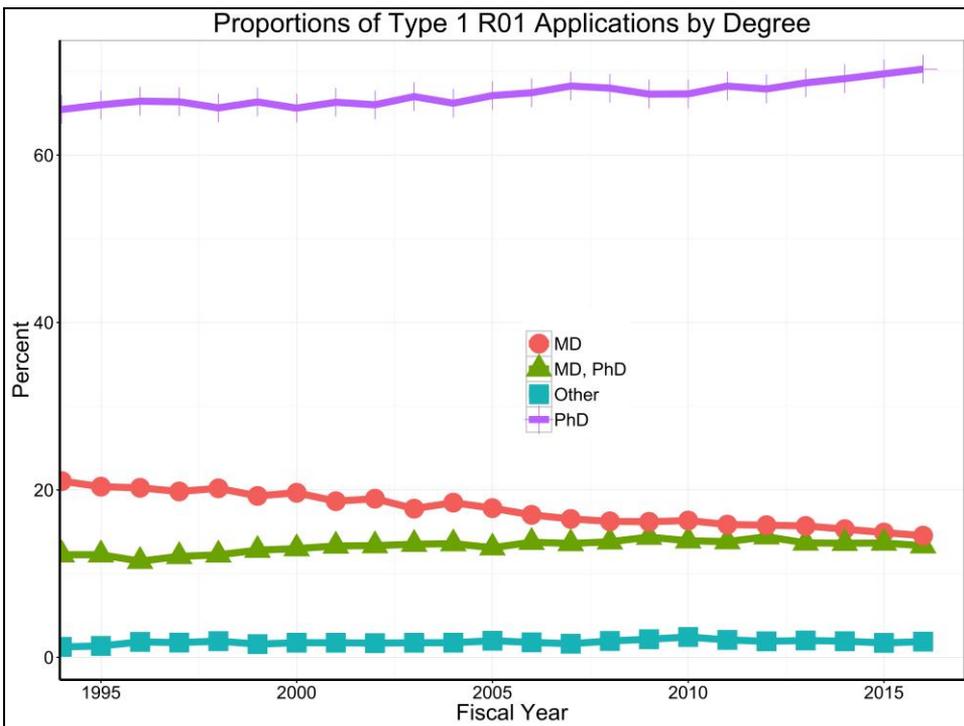
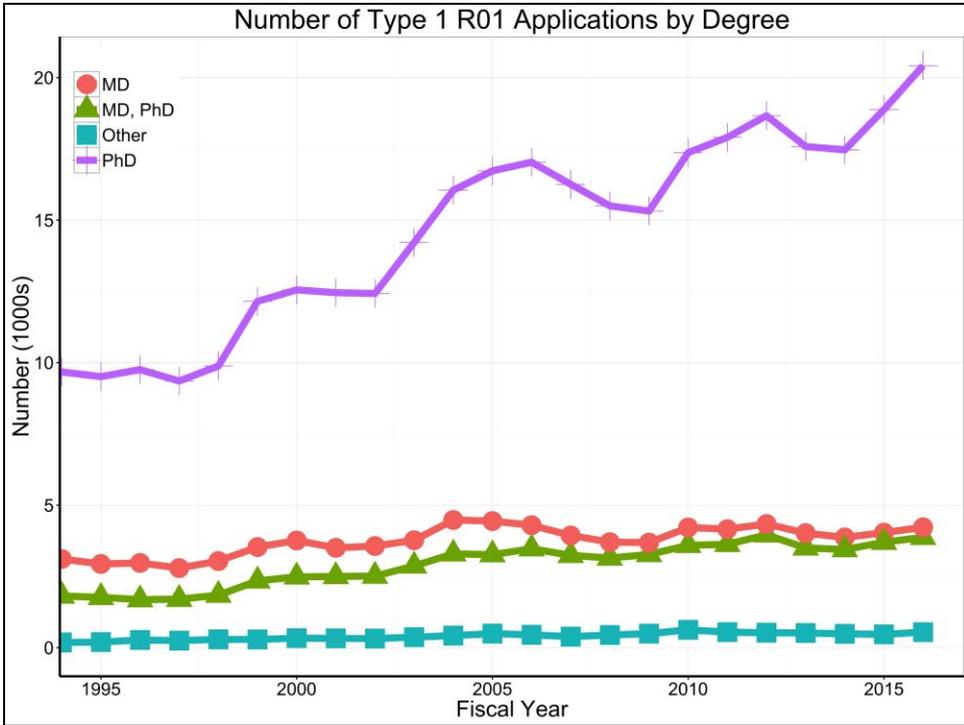
Doctorate or Masters in Fellowship

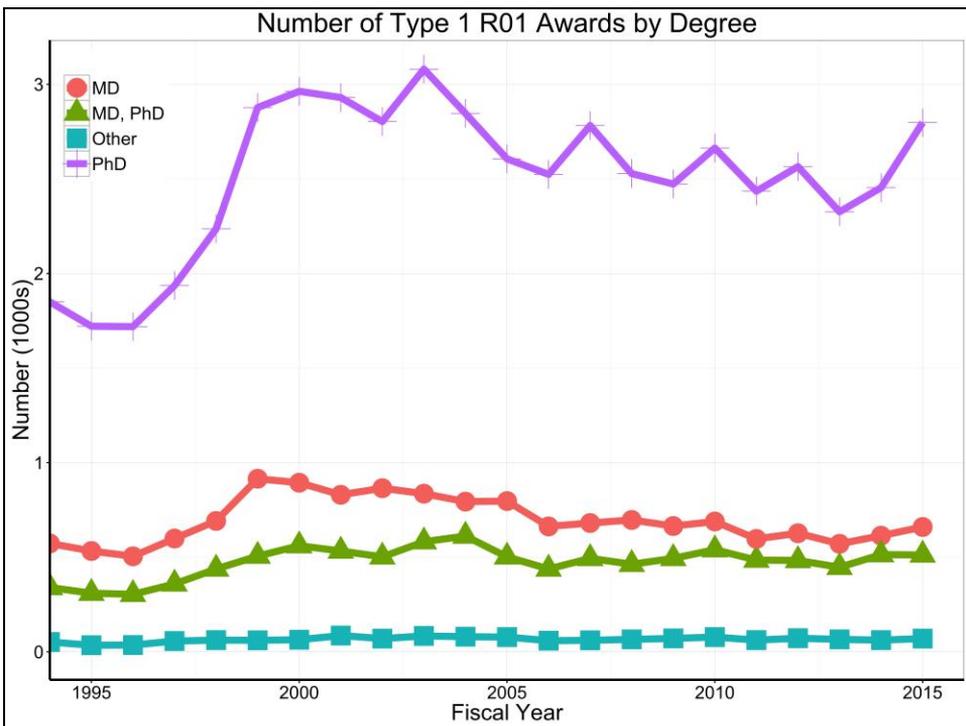
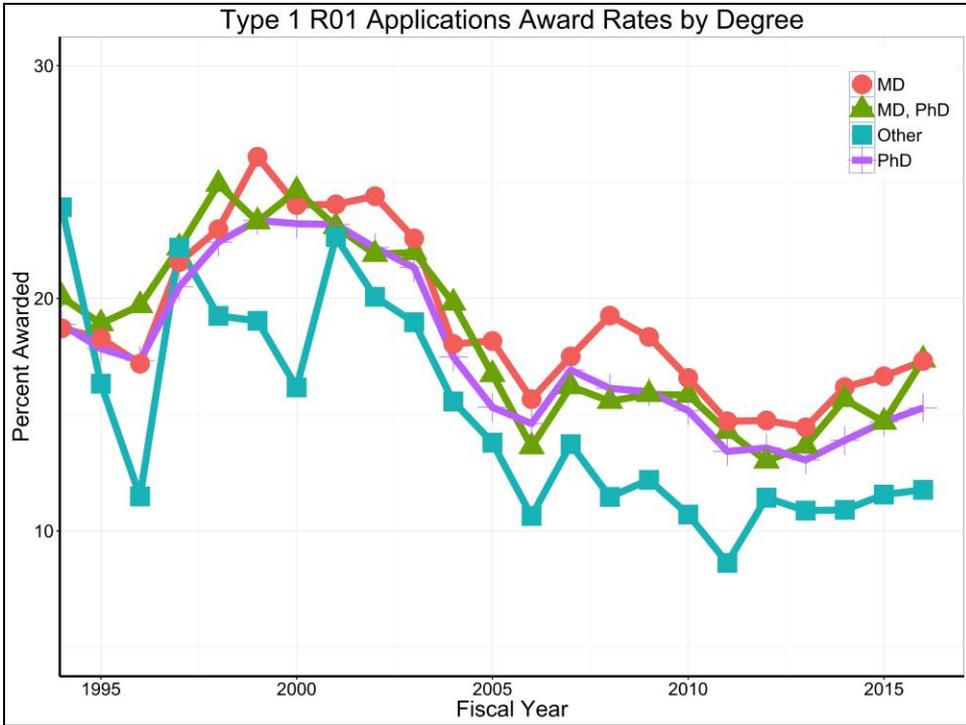
- Consider multiple career stages
- Research PhD after training
- Masters -- MPH, bio-informatics, other
- Multiple mentor model
- Recruit diverse candidate pool

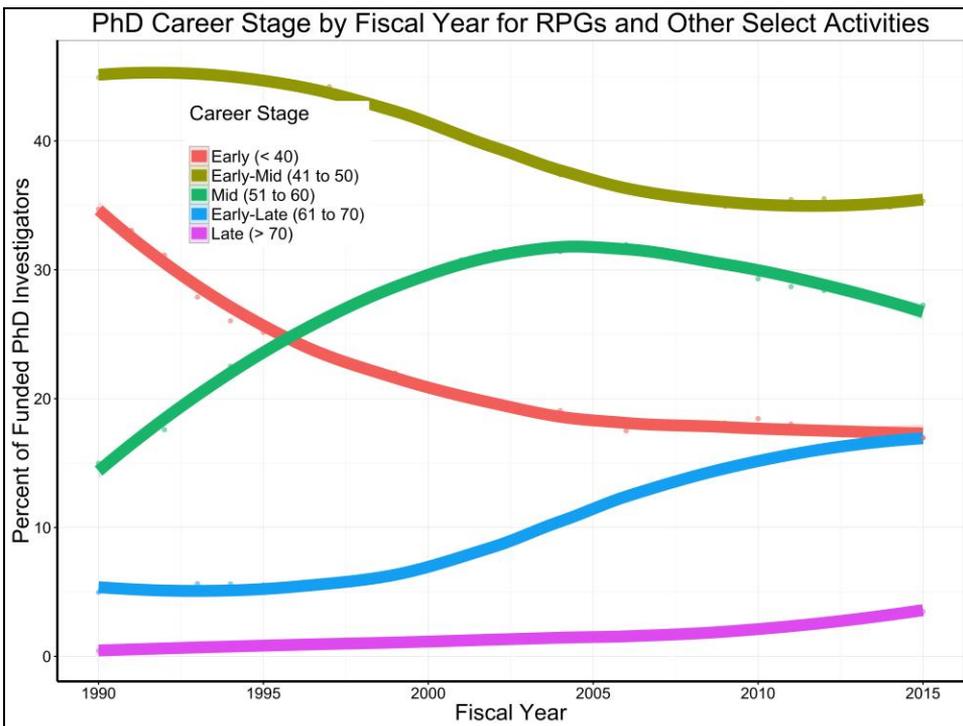
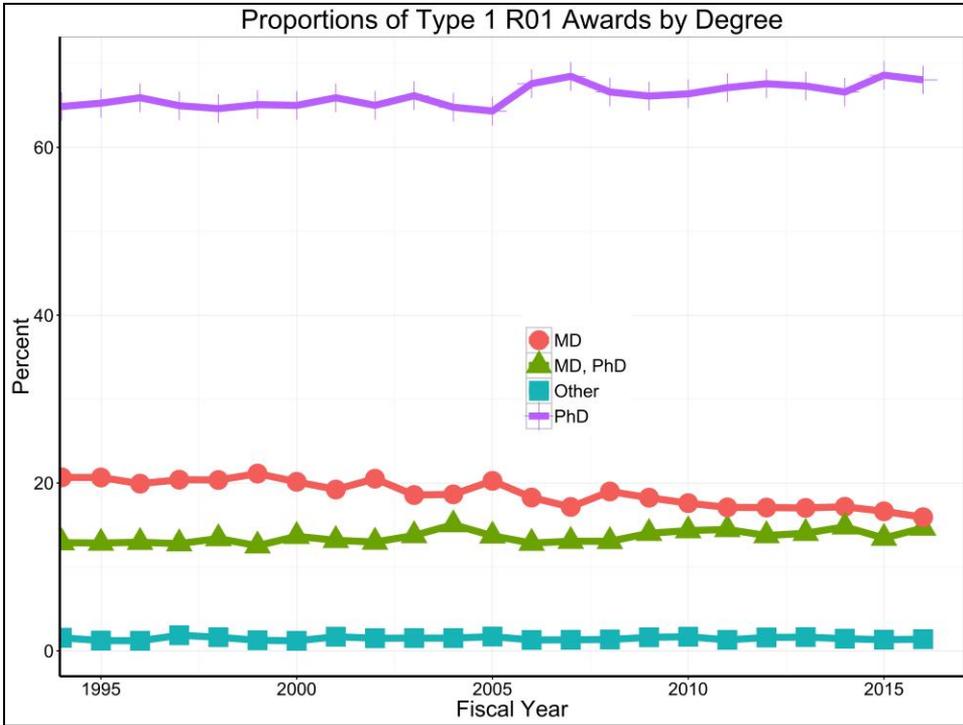
Proposals for Discussion

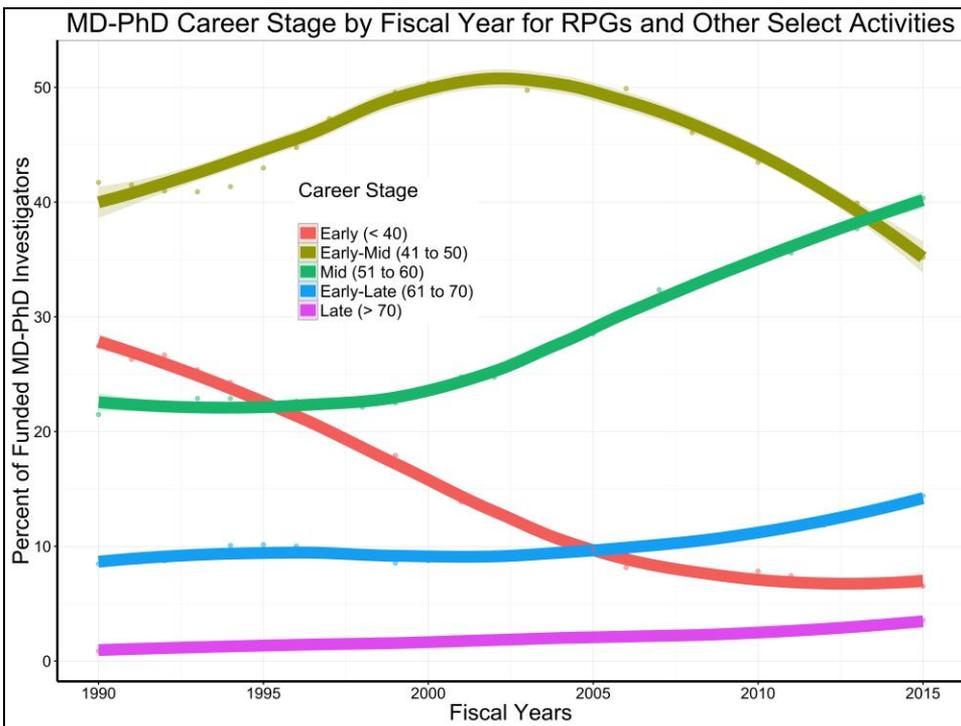
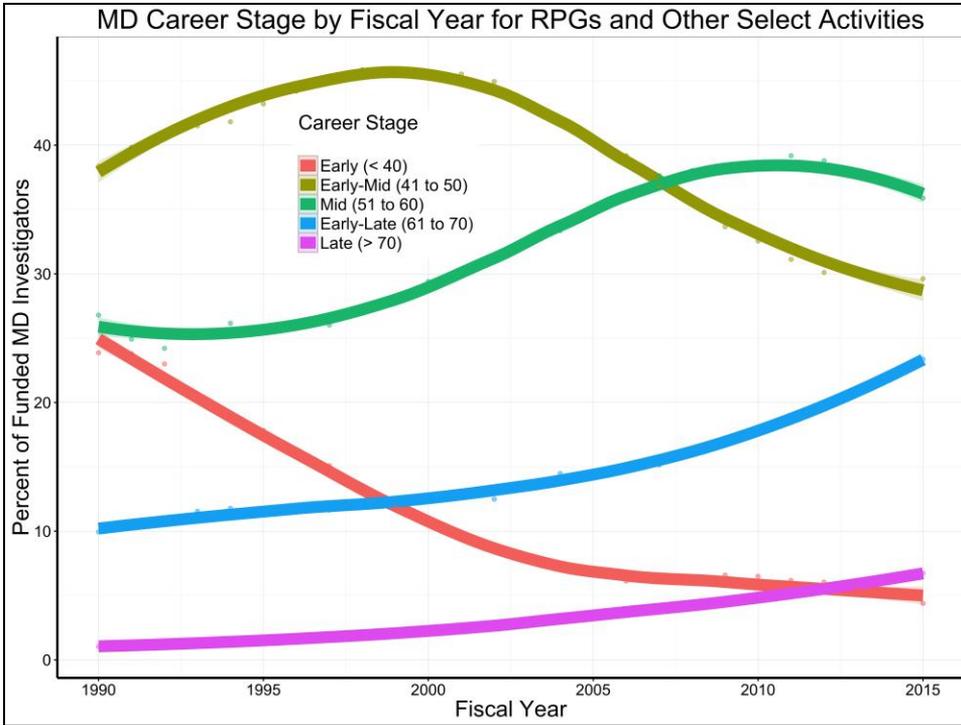
- Modified MSTP
- Research in residency
- Doctorate (or Masters) in Fellowship

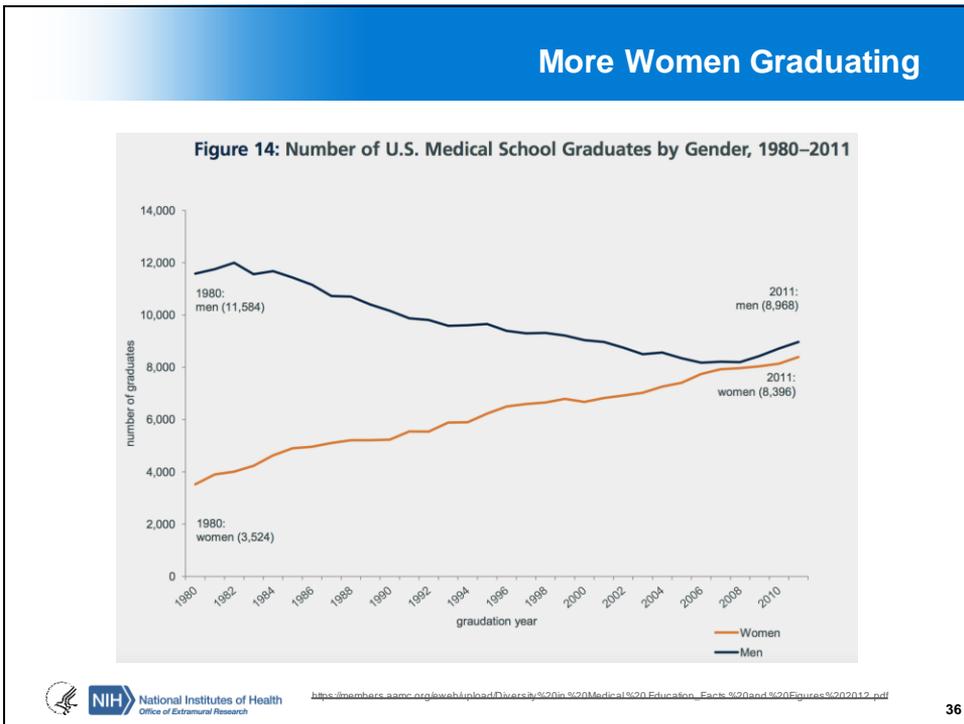
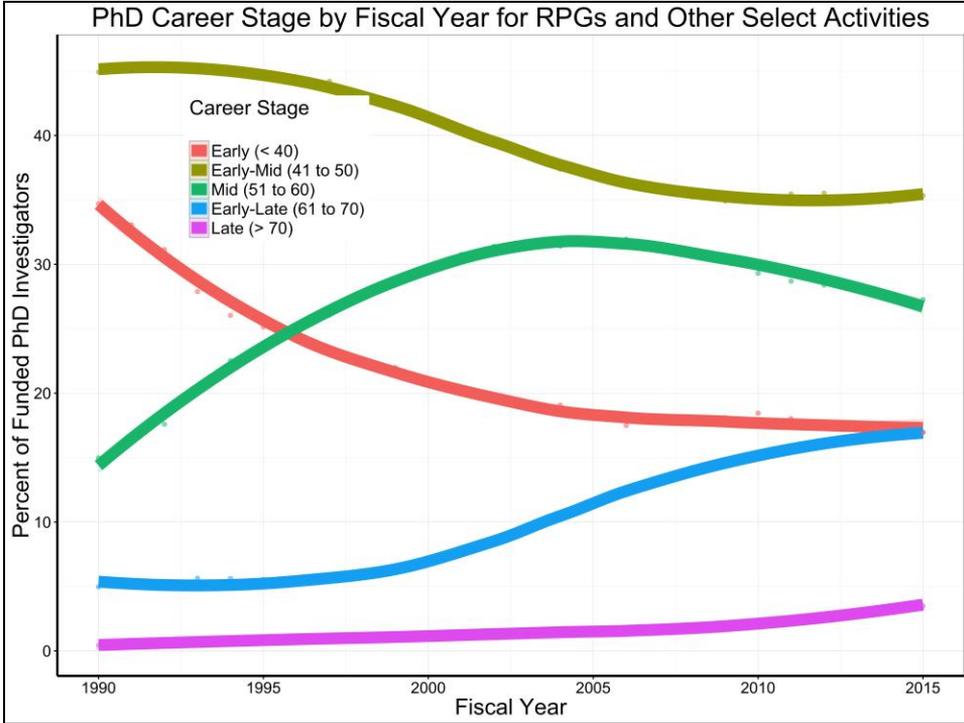
Appendix





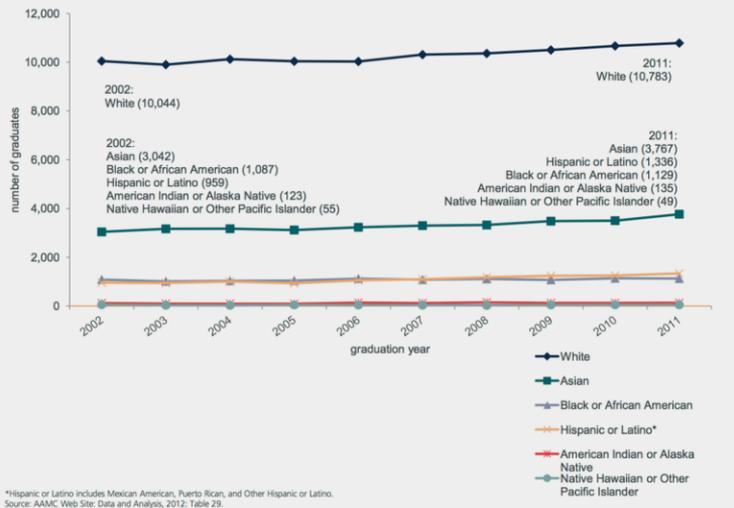






Under-Represented Minorities

Figure 15: Number of U.S. Medical School Graduates by Race and Ethnicity, 2002–2011



National Institutes of Health
Office of Extramural Research

https://members.aamc.org/webupload/Diversity%20in%20Medical%20Education_Facts%20and%20Figures%202012.pdf

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Numbers of MD-PhD and MD Graduates

M.D.-Ph.D. Graduates and Total Graduates
1999-2000 through 2015-2016
AAMC Student Records System (SRS)
November 2, 2016



| Academic Year | M.D.-Ph.D. Graduates | Total Graduates |
|---------------|----------------------|-----------------|
| 1999-2000 | 401 | 15,715 |
| 2000-2001 | 416 | 15,793 |
| 2001-2002 | 363 | 15,678 |
| 2002-2003 | 442 | 15,530 |
| 2003-2004 | 411 | 15,826 |
| 2004-2005 | 403 | 15,764 |
| 2005-2006 | 429 | 15,927 |
| 2006-2007 | 488 | 16,140 |
| 2007-2008 | 494 | 16,168 |
| 2008-2009 | 530 | 16,466 |
| 2009-2010 | 523 | 16,835 |
| 2010-2011 | 555 | 17,362 |
| 2011-2012 | 554 | 17,344 |
| 2012-2013 | 564 | 18,155 |
| 2013-2014 | 570 | 18,072 |
| 2014-2015 | 616 | 18,705 |
| 2015-2016 | 602 | 18,851 |

Note: Total Graduates includes M.D.-Ph.D. graduates, as well as M.D. graduates and other dual degree program graduates. The accuracy of the number of M.D.-Ph.D. graduates reflected above is unknown due to the quality of dual degree information historically collected in SRS. Starting in 2004-2005, M.D.-Ph.D. dual degree information is pre-populated into SRS from AMCAS.

Thanks Kay Lund



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