

# The NIH and New Opportunities for Training

**Neil R. Aggarwal, M.D.**

Chief, Lung Biology and Disease Branch  
Division of Lung Diseases  
National Heart, Lung, and Blood Institute

Alliance for Academic Internal Medicine  
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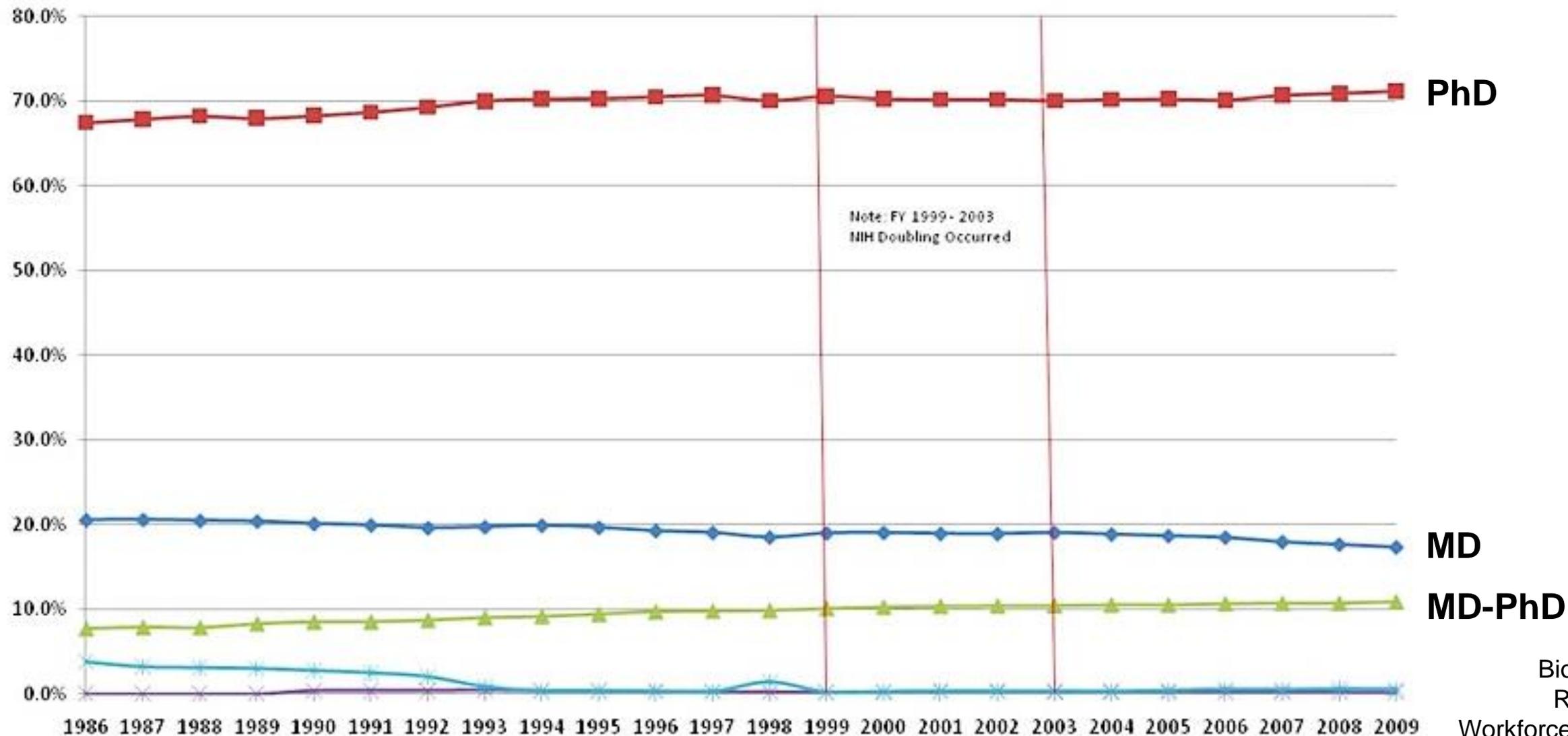
# Disclosures

- No relevant disclosures for this speaker

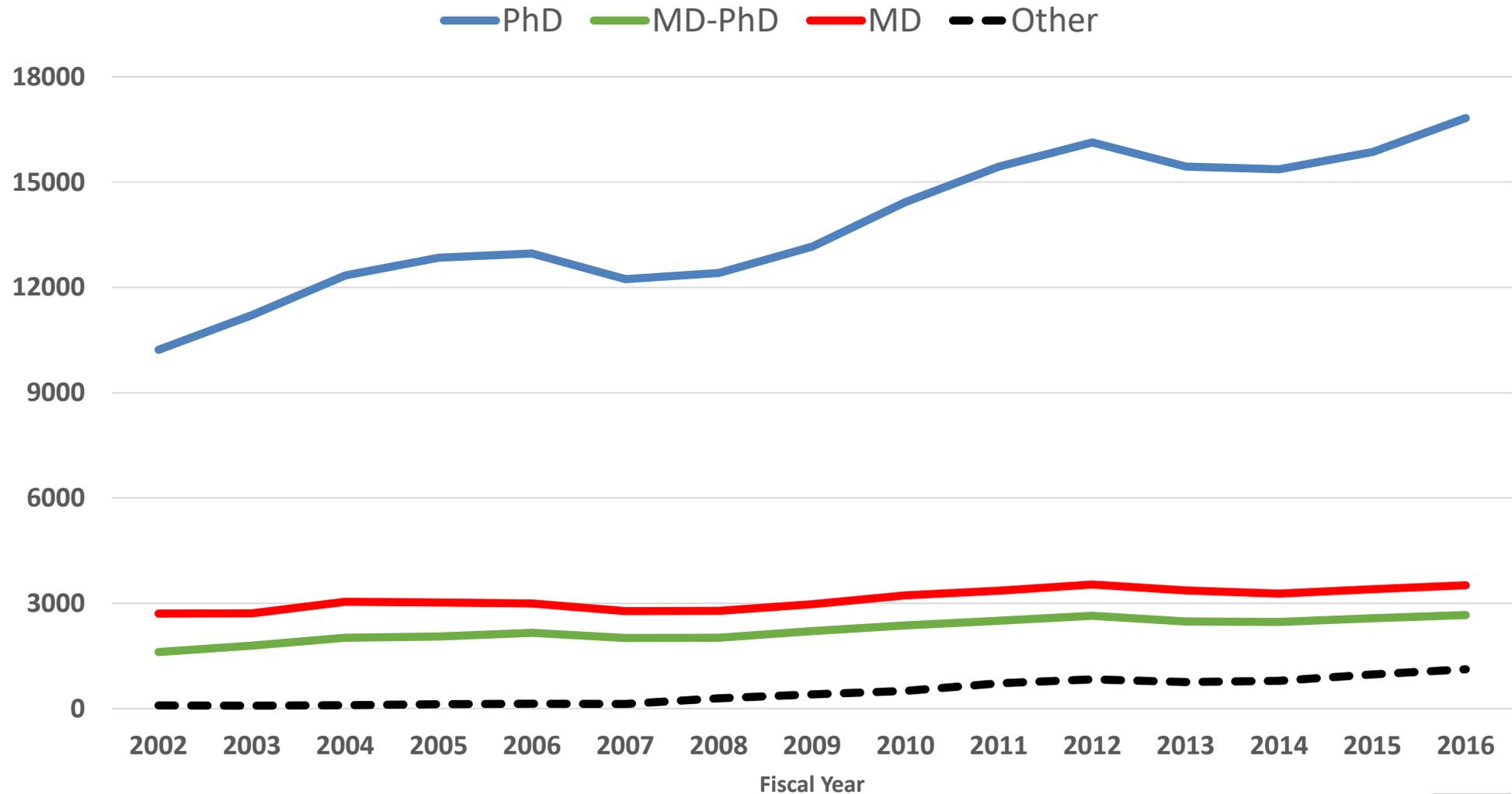
# Outline

- Historical data on physician-scientists at NIH and NHLBI
- NIH-sponsored programs in response to observed trends
- NIH/NHLBI StARR (R38) and StARRTS (K38) programs

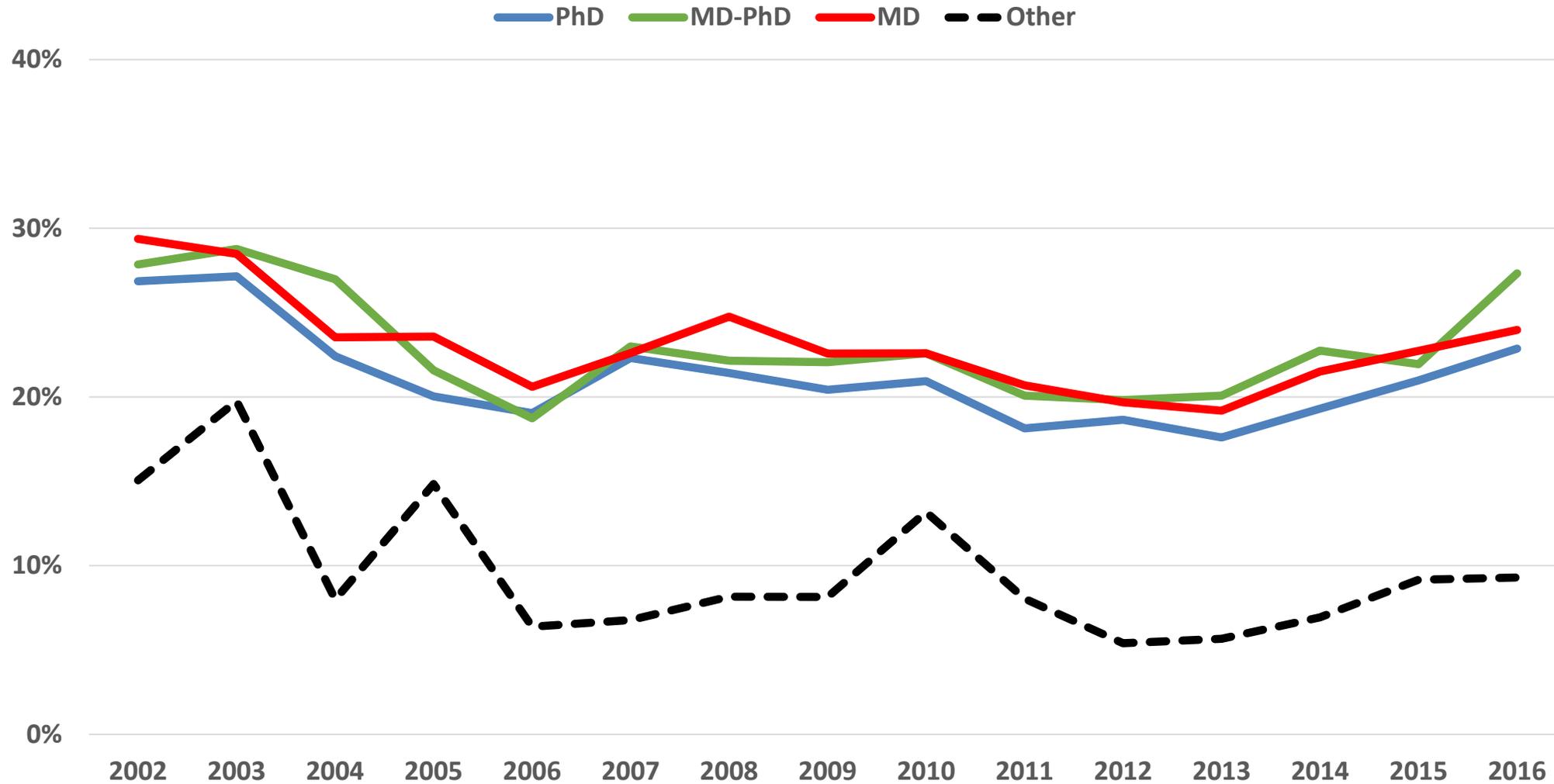
# % NIH-funded Principal Investigators by Degree-type



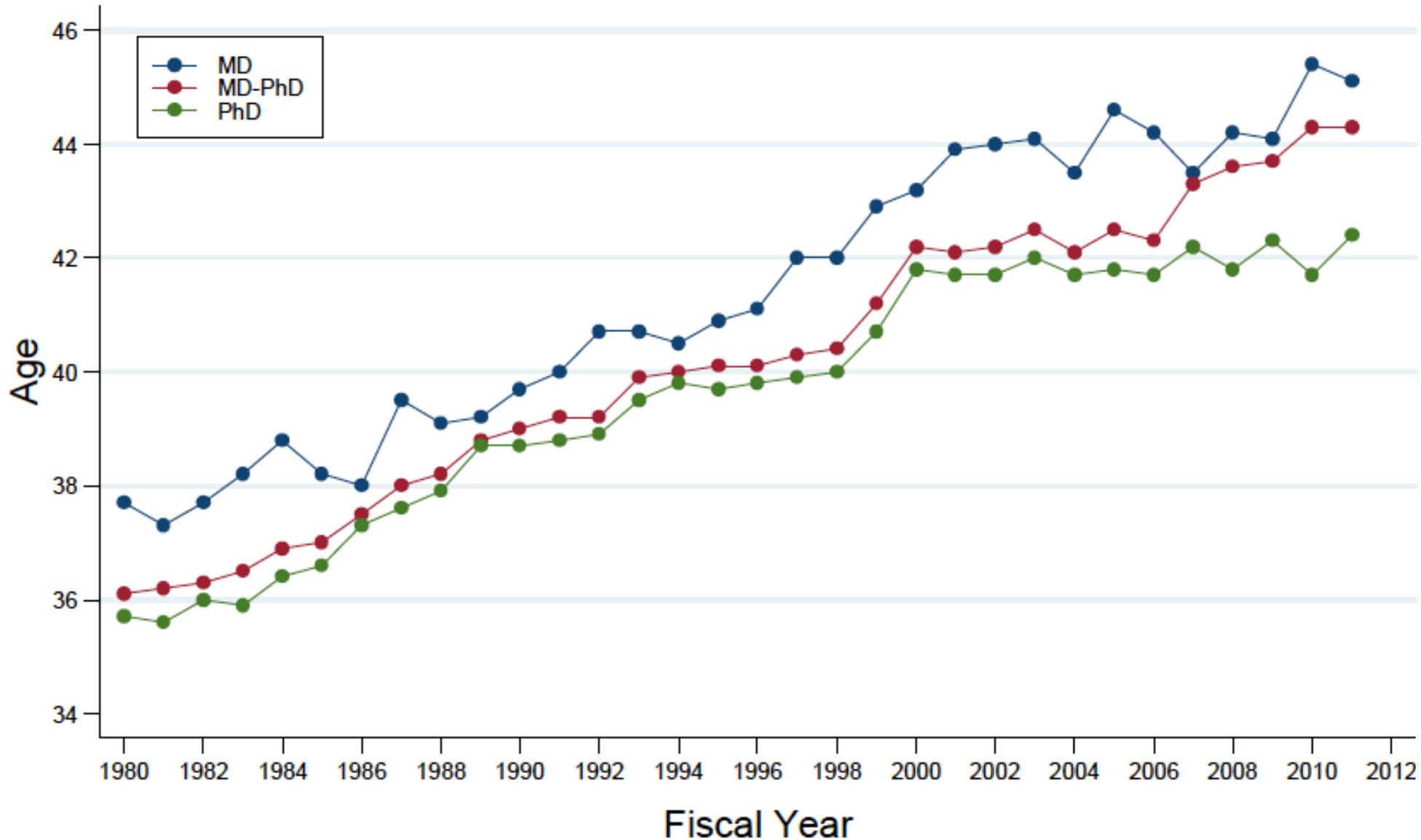
# Distribution of NIH competing first-time R01 applications



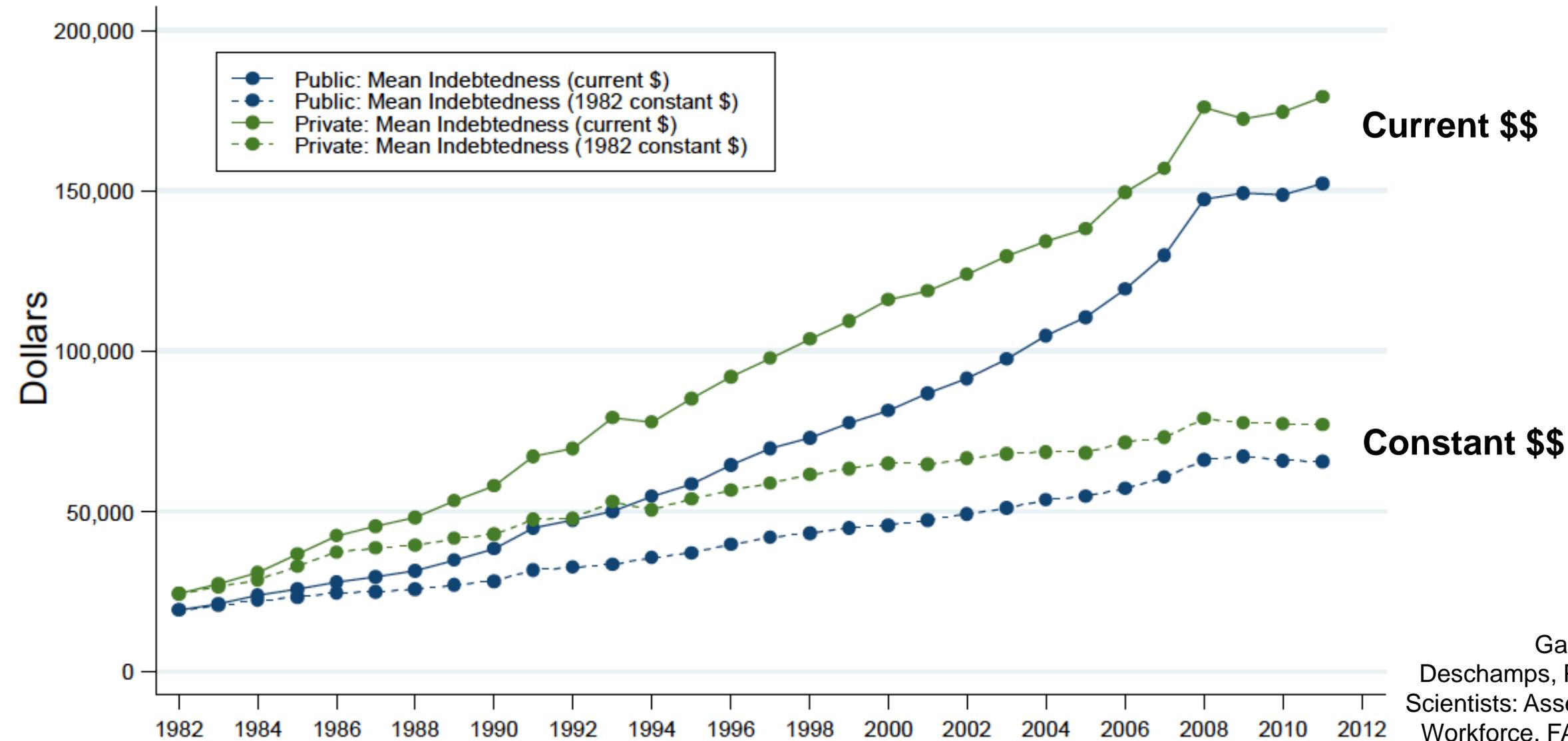
# NIH competing first-time R01 success rates (2002-2016)



# Average age for first R01-equivalent grant (1980-2011)



# Average debt of medical school graduates

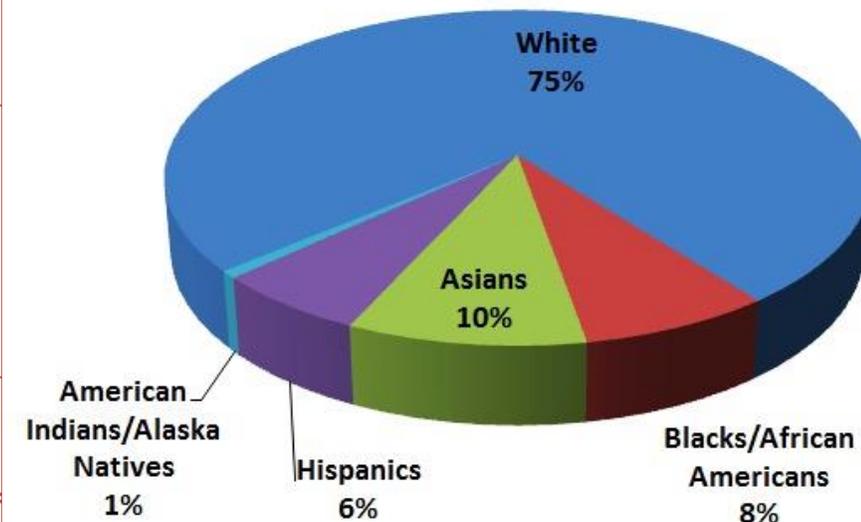
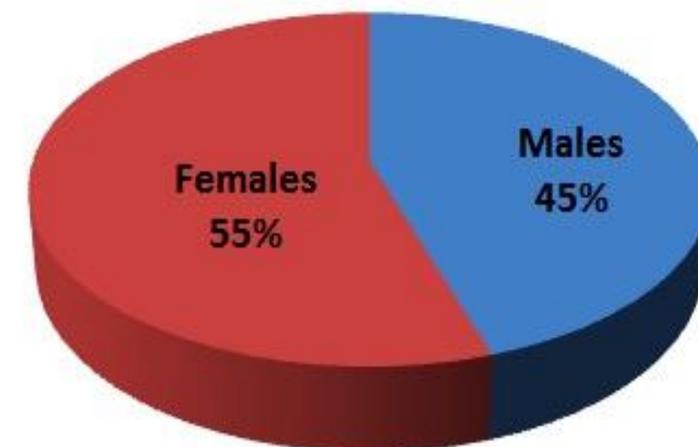


# Expansion of the NIH Loan Repayment Program (LRP)

- NIH Director's Panel on Clinical Research (1997) recommended expansion of the LRP to offset financial barriers
  - Pediatric researchers
  - Extramural scientists in clinical research
  - Health disparities researchers
  - Clinical researchers from disadvantaged backgrounds
- Since 2004, LRP has made 1200-1600 awards per year

# NIH LRP characteristics (FY 2013)

LRP	Applications (New and Renewal)	Awards	Success Rate
Clinical Research	1,508	771	51%
Pediatric Research	642	294	46%
Health Disparities Research	493	228	46%
Clinical Research for Individuals from Disadvantaged Backgrounds	36	18	50%
Contraception and Infertility Research	42	17	40%
<b>Total</b>	<b>2,721</b>	<b>1,328</b>	<b>49%</b>



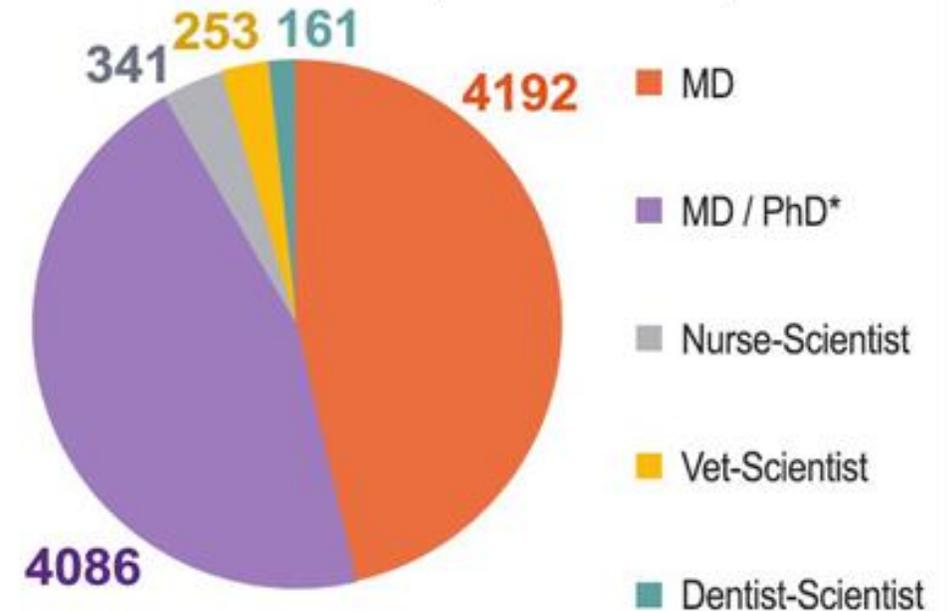
# External advisory committees have helped NIH support the physician scientist pipeline

- 1995 – NIH Director’s Committee on Clinical research
  - Expand the LRP
  - Establish the K23 to give protected time for individuals with a clinical doctorate to do patient-oriented research
  - Establish the K24 program to support mid-career mentored research
- 2011 – NIH Director’s Committee on Biomedical Workforce
  - MD-PhDs with 75-80% retention as independent academic faculty
  - Reduced K/LRP applications suggests reduced MD workforce
- 2014 – NIH Director’s Committee on Physician-Scientist Workforce
  - NIH, academic, industry, and professional organization representation

# NIH Committee for Physician-Scientist Workforce

- Physician scientists defined as those that are clinically-trained and engaged in independent biomedical research with professional degrees
- ~9000 physician-scientists in NIH-funded workforce from 2008-2012
- % of overall biomedical workforce has declined, but the # is constant
- % of female MDs with RPG grant increased from 17% (~1995) to 29% (2012); MD-PhD % increase slower

Figure 2.1. NIH-funded Physician-Scientist Workforce (FY2008-2012)



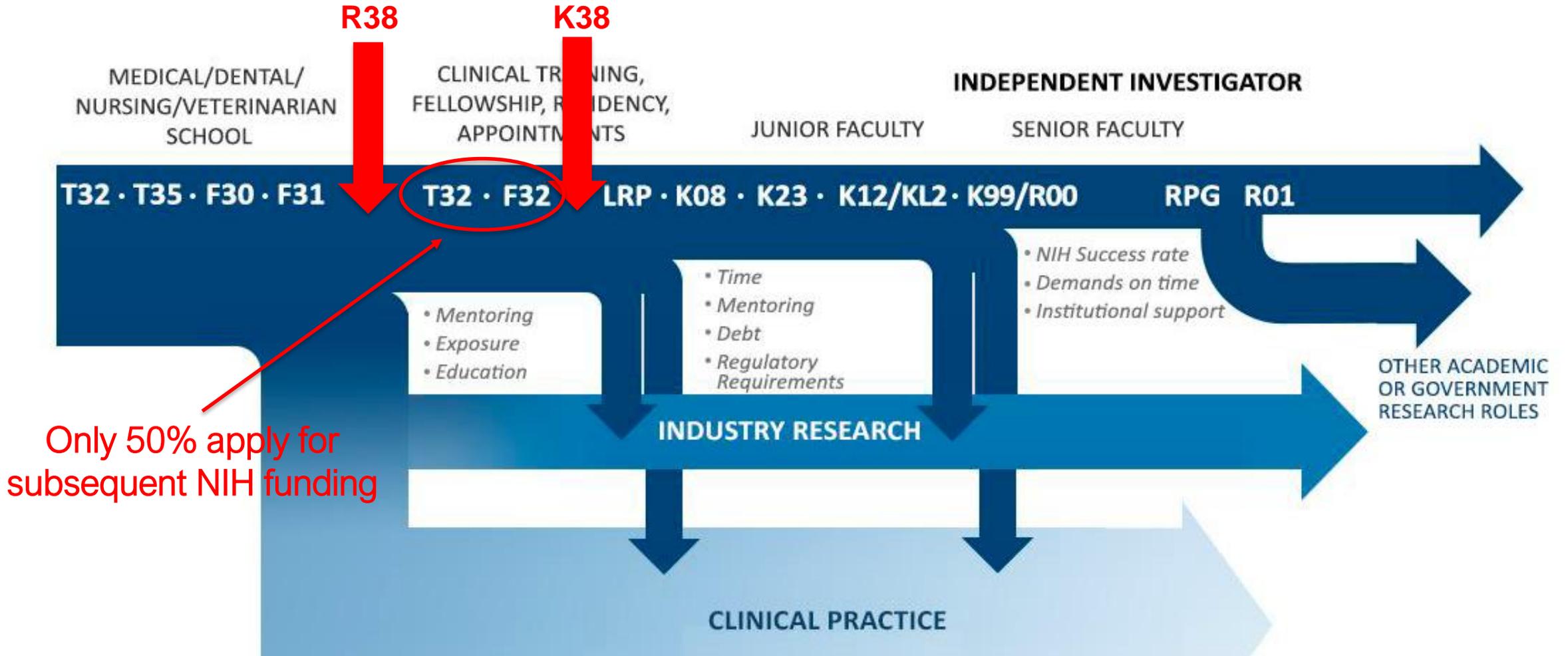
# NIH Committee for Physician-Scientist Workforce

- Challenges to expanding the PS workforce
  - Medical education costs
  - Lengthened training to obtain clinical / scientific research competency
  - Need to support higher % of salary with clinical time that strain work-life balance
  - More robust financial opportunities in practice
  - Vulnerable transition between fellowship and independent research endeavor
  - Difficulty finding mentors who can support and guide early career investigators

# Key recommendations for the Physician-Scientist Workforce

- Sustain strong support for MD/PhD training
- Shift NRSA postdoctoral training so that a greater proportion are supported through individual fellowships
- Establish a new physician-scientist-specific granting mechanism to facilitate transition from training to independence
- Develop rigorous and effective tools for assessing the strength and tracking the career development of the biomedical workforce
- **Support pilot grant programs to rigorously test existing and novel approaches to improve and/or shorten research training for physician-scientists**
  - Explore timing and space of the research and clinical components of post-graduate training

# Career timeline of NIH-funded mechanisms



# R38 Stimulating Access to Research in Residency (StARR)

- Goal to provide an opportunity to identify and support physician-scientists early in training for Resident-Investigators (RIs)
- Institutional award to support mentored research activities to foster physician-scientist careers for RIs
  - Residency training that would occur directly after completion of medical (or eq.) school and prior to subspecialty training (fellowship)
  - RIs are expected to pursue subsequent subspecialty training
- Research areas should be within Institute-mission (HLBS diseases for NHLBI) with the expectation that RIs will continue research in these disease areas during subspecialty training (K38)
- Current participating ICs – NHLBI, NIAID, NCI

# NIH/NHLBI R38 StARR Program

- RIs should pursue a minimum of 12 months of research at 80% effort (> 3 mos. consecutive) during their residency training
  - Timeline of defined planned periods of research and clinical responsibilities
- The PD/PI and research preceptor team should provide an environment conducive to maximizing the learning experience for the RIs across or within a clinical discipline (IM, pediatrics, etc)
- A plan for recruitment, selection, matching, and assessment of a diverse cadre of RIs should be in place, and should include research training and skill-building tailored to the RI pool
- NHBLI upcoming receipt dates (Oct 2018, 2019)

# K38 Stimulating Access to Research in Residency Transition Scholar (StARRTS)

- Provide a continuum of NIH-funded research support for residents who matriculated through the R38 program (transition scholars)
- An individual award offering up to 2 years of support (80% effort) during subspecialty training (e.g. fellowship)
- Research within IC mission with the same or new mentor, department, or institution
  - Career sponsor to facilitate access to professional societies
- Plan to help foster the K38 awardee's subsequent career development (e.g. K08, K23) or independent research awards (e.g. R21, R01, R34)
- Additional funds to facilitate research and professional development
- Anticipated first receipt date: October 2020
  - <https://grants.nih.gov/grants/guide/notice-files/NOT-HL-17-533.html>

# How can you help the NIH / NHLBI?

- How should individual R38 programs be evaluated for success?
- What competencies should Residence-Investigators possess having completed the program?
- What metrics should we track for the R38 residents that matriculate through the program?
- What elements of the R38 program should be conserved in the K38 StARRTS program, and what is the optimal timing?

# Summary

- The decline of physician-scientists is a real and complicated problem
- The NIH continues to identify strategies to target "leaky" pipes in the pipeline
- The NIH hopes to continue to engage academic institutions, professional organizations, industry, foundations, and other interested parties to help grow the pool of physician-scientists



National Heart, Lung,  
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