The Challenge of Maintaining our Physician-Scientist Workforce

Terry Flotte, MD
Provost and Dean
UMMS

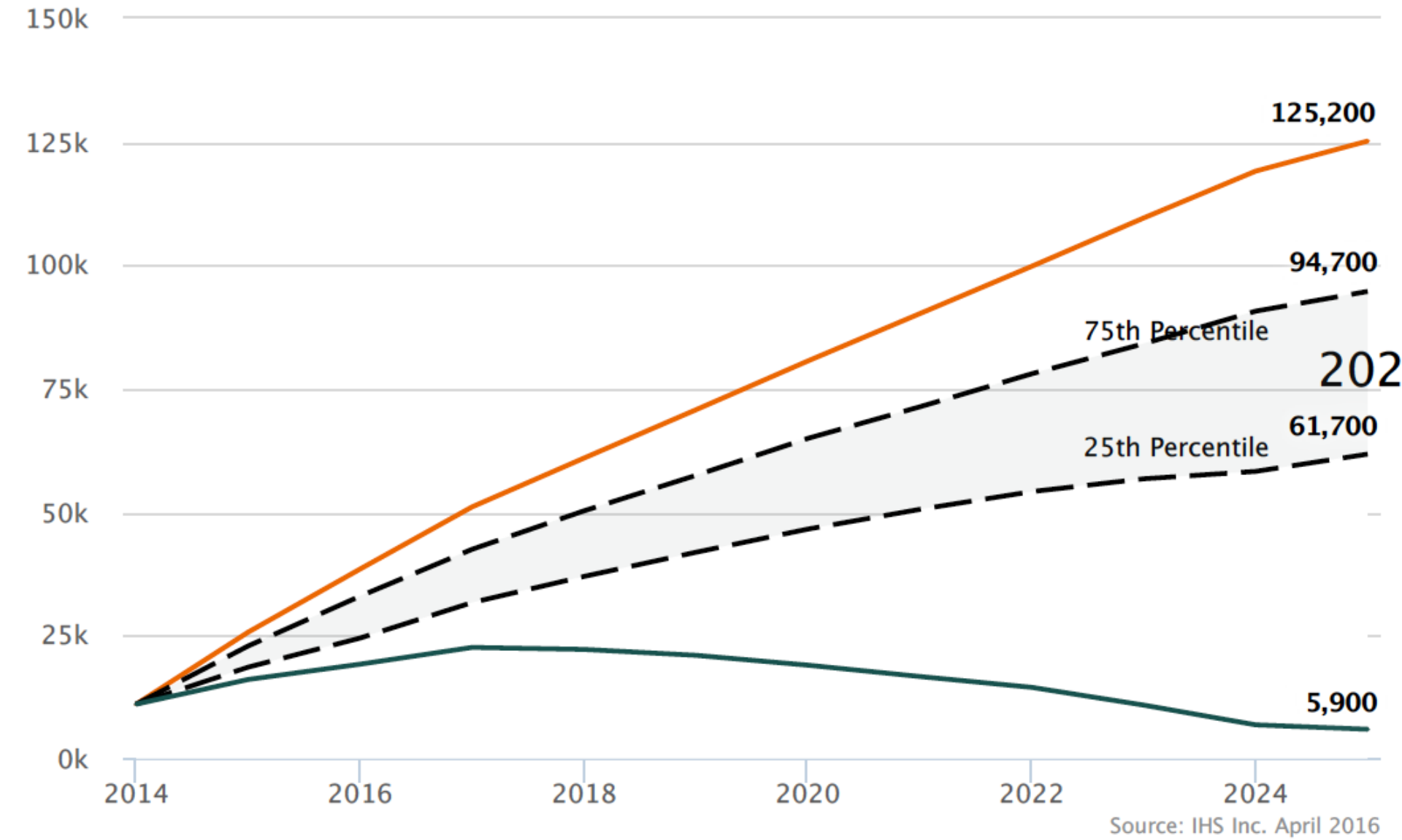
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Disclosure

- **I have no actual or potential conflict of interest in relation to this program/presentation.**

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Projected Total Physician Shortfall, 2014–2025



Source: IHS Inc. April 2016

Value of Physician-Scientists

- Bridge worlds of science and medicine, bringing questions and observations to the “lab” and translating discovery to practice
- Disproportionally represented in leadership positions
- Illustrate justification of funding research for the public

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"…no distinction can be made between research and practice. The investigator, obviously, observes, experiments, and judges; so do the physician and surgeon who practice their art in the modern spirit. At bottom the intellectual attitude and processes of the two are—or should be –identical…"



Abraham Flexner, 1925

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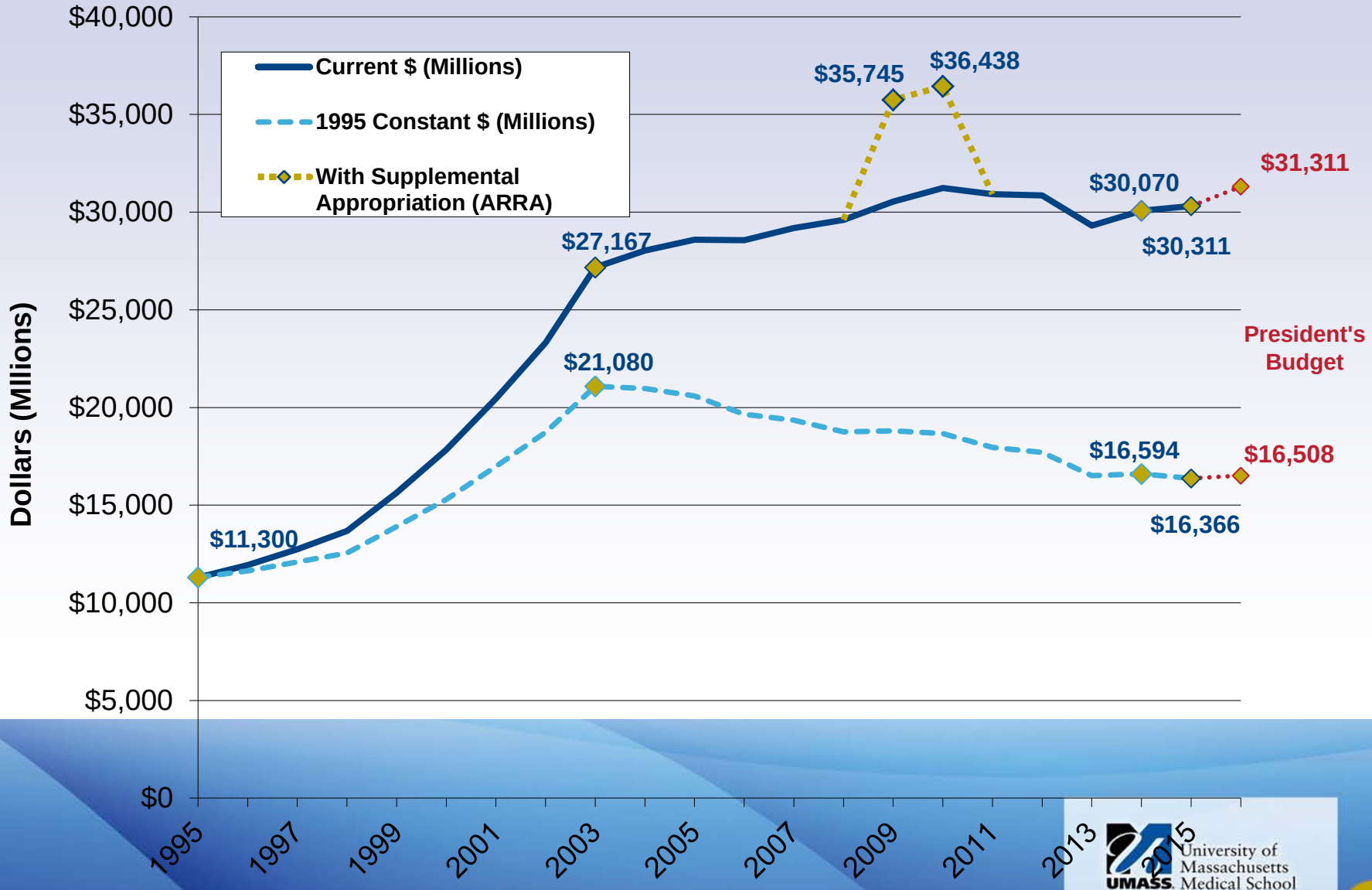
Challenges and Rewards

- Lengthy training
- Delayed gratification
- Reduced income potential
- Competing demands on time
- Competition with research faculty for grants
- Competition with clinical faculty for productivity
- Temptation to over-commit

- Broad view of relevance of their work
- Satisfaction (albeit delayed) of seeing impact
- Enhanced rate of advancement to leadership
- Admiration of colleagues

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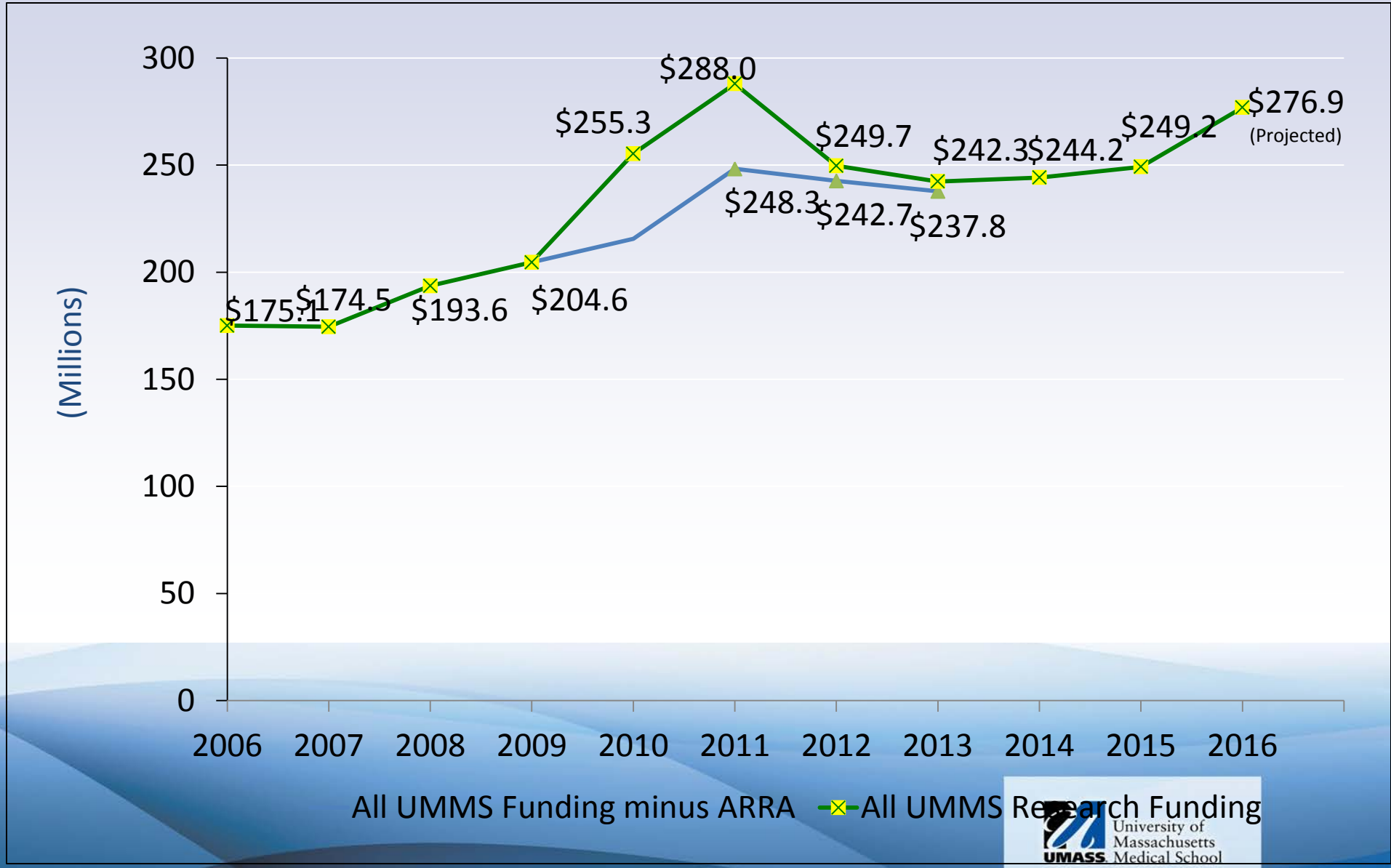
NIH Appropriations in Current and Constant Dollars



Source: NIH Office of the Director, Office of Budget: http://officeofbudget.od.nih.gov/

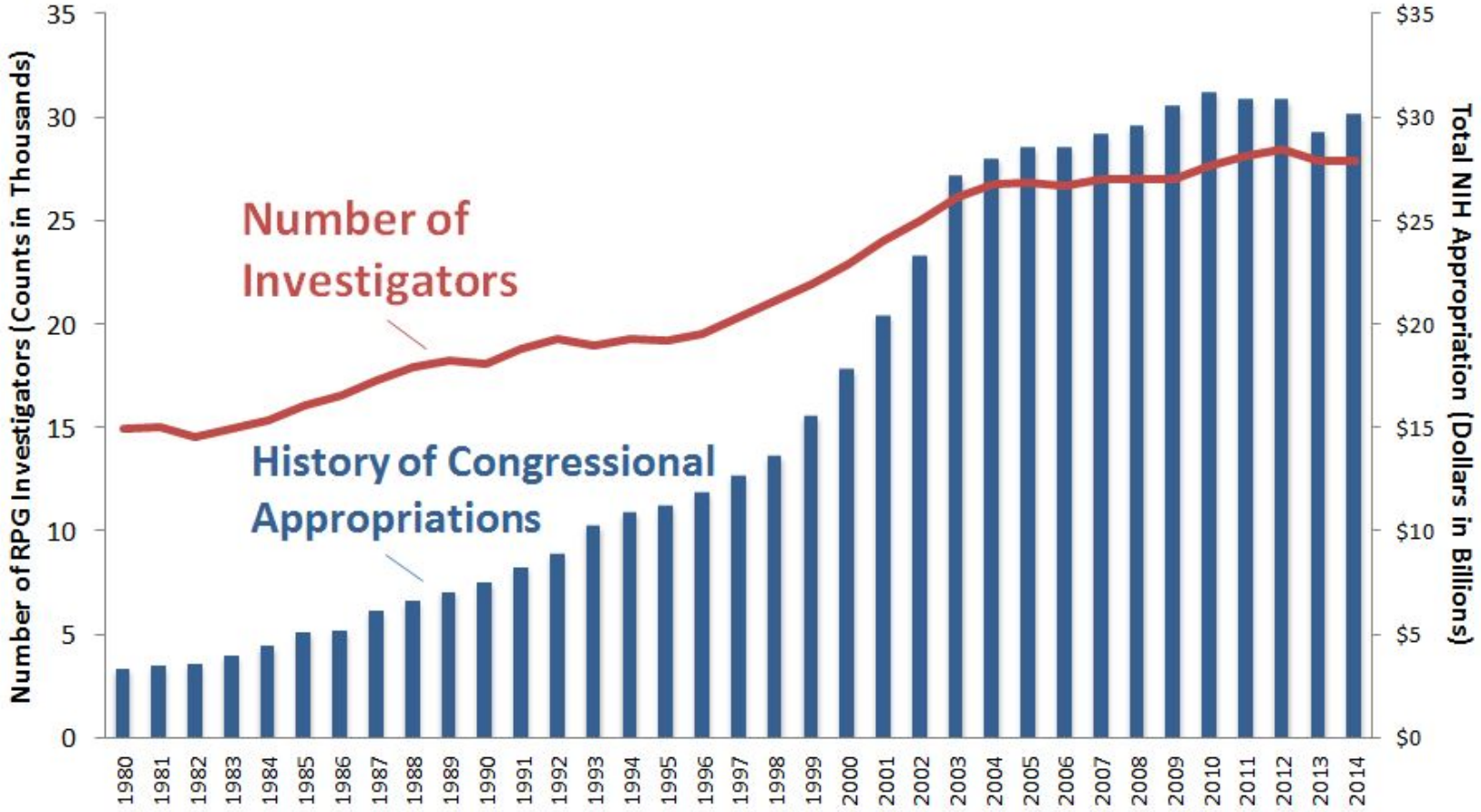
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Extramural Research Awards at UMMS: Fiscal Years 2006 - 2016



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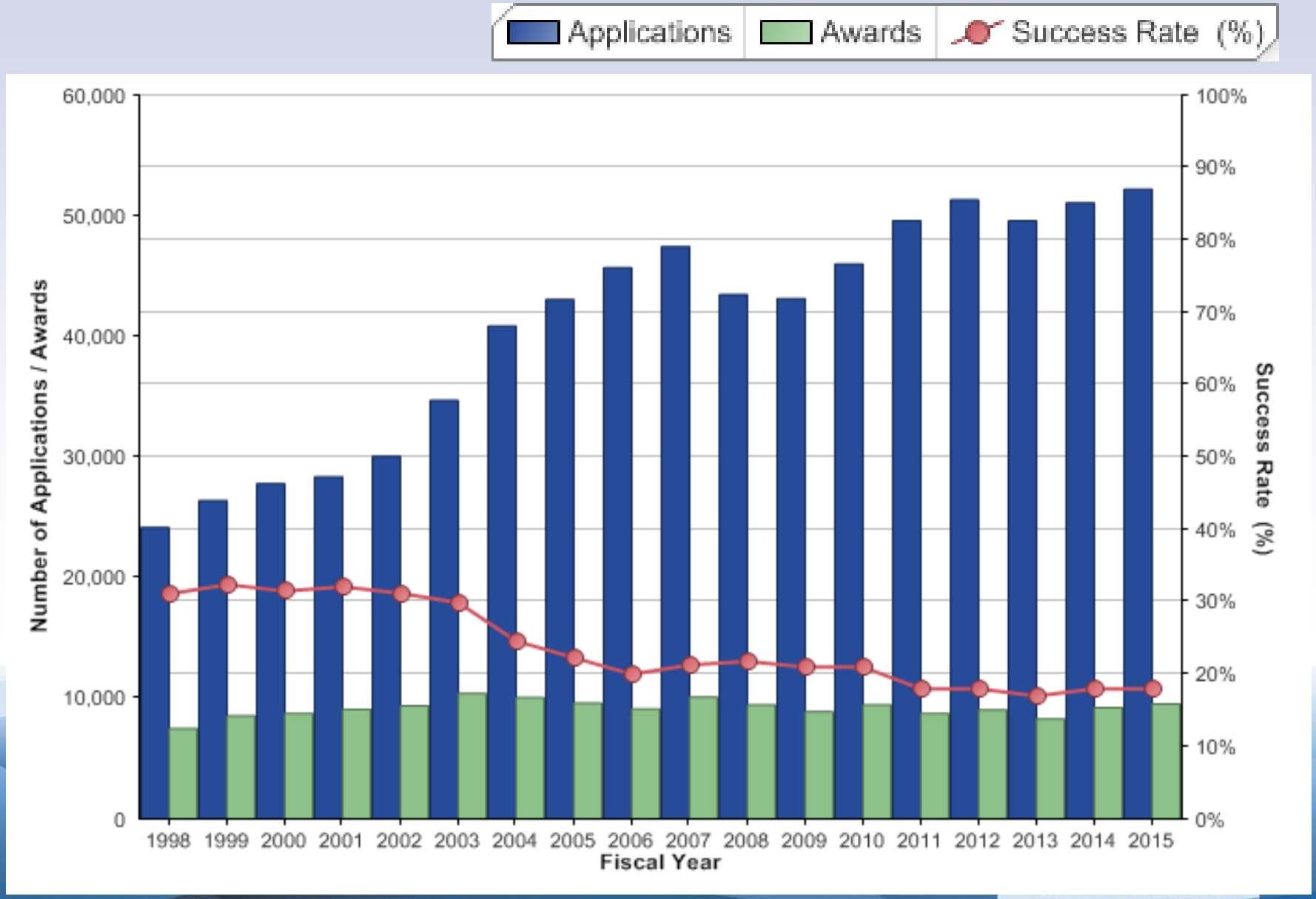
Number of Principal Investigators* Supported on NIH Research Project Grants (RPGs) and History of Congressional Appropriations



NIH Rock Talk Blog: http://nexus.od.nih.gov/all/category/blog/
NIH RePORT: http://report.nih.gov/special_reports_and_current_issues/index.aspx

*Includes contact and multiple principal investigators. Excludes awards made with American Recovery and Reinvestment Act funds.

Research Project Grants
Competing applications, awards, and success rates



Success Rates for New (Type 1) Applications

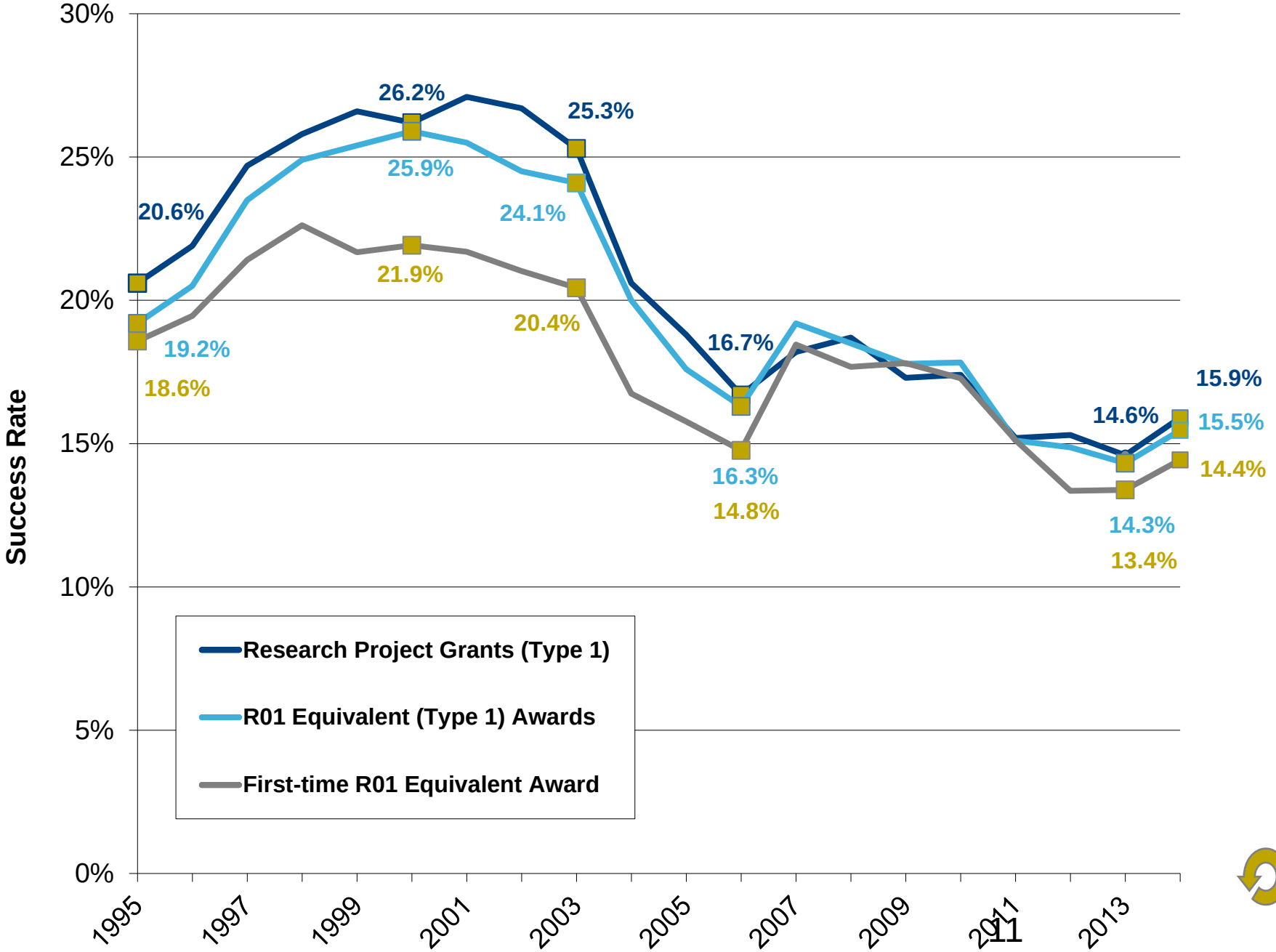
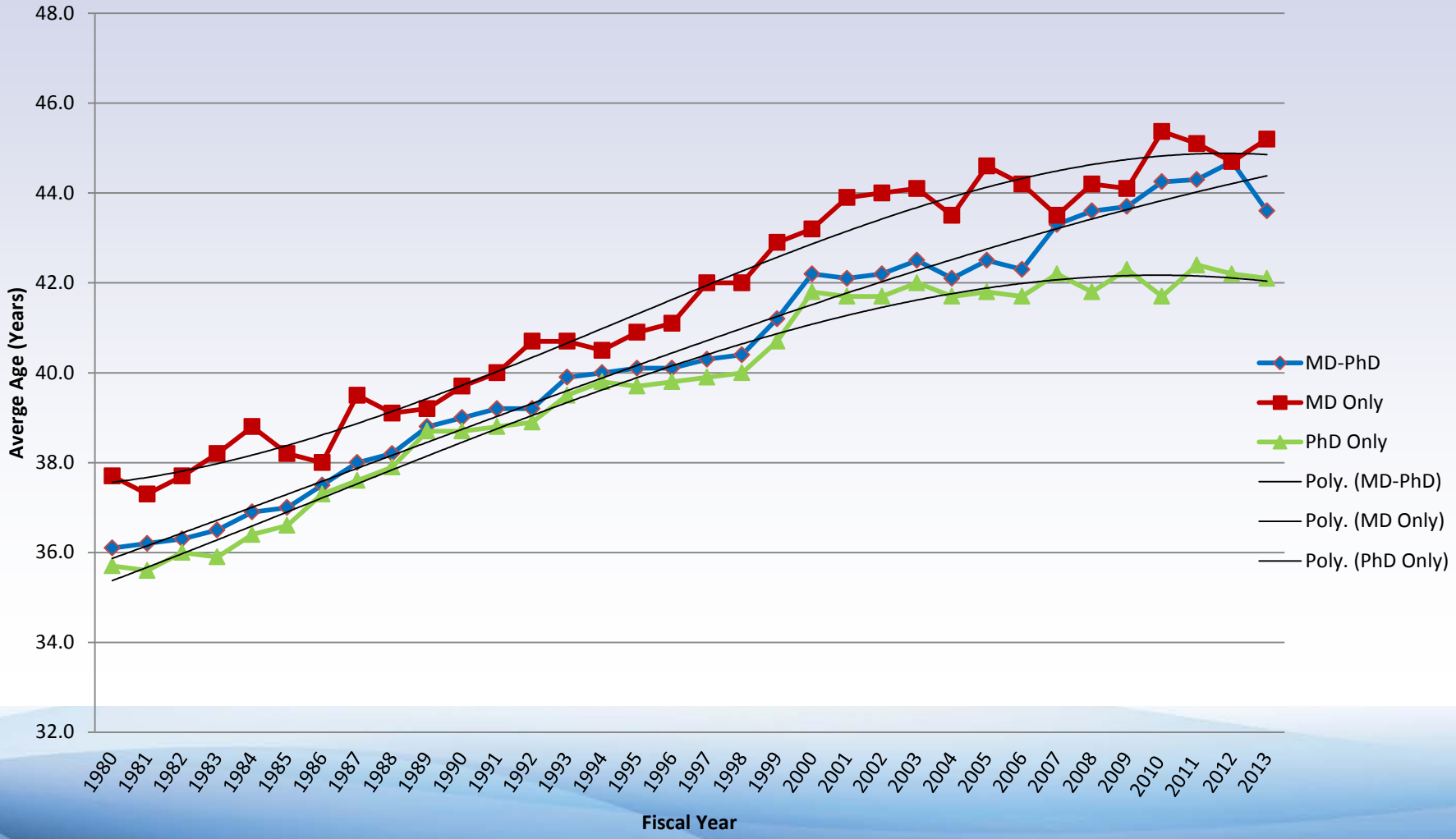


Chart 13-14-1. Average Age and Degree Type of First-Time Investigators on R01-Equivalent Grants* (Fiscal Years 1980-2013)**



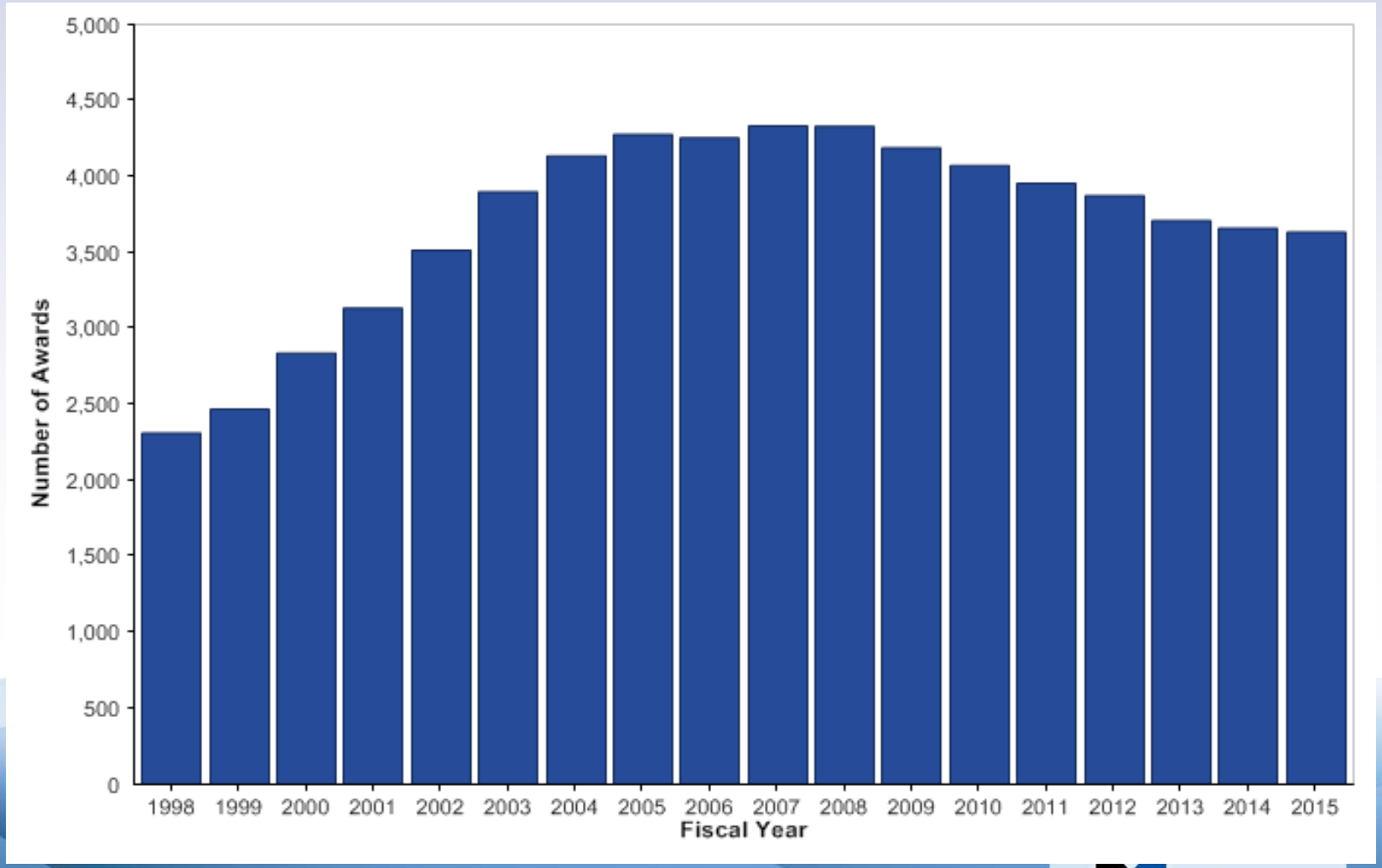
*The definition of first time investigator has changed over time, and the annual numbers in the chart reflect the first time investigator policies that were in place during those years. R01 Equivalents include activity codes R01, R23, R29, and R37, and beginning in 2008 included DP2 awards to first-time NIH investigators. Not all these activities are in use by NIH every year.

** Excludes American Reinvestment and Recovery Act Awards (ARRA).

See associated blog post at http://nexus.od.nih.gov/all/category/blog/

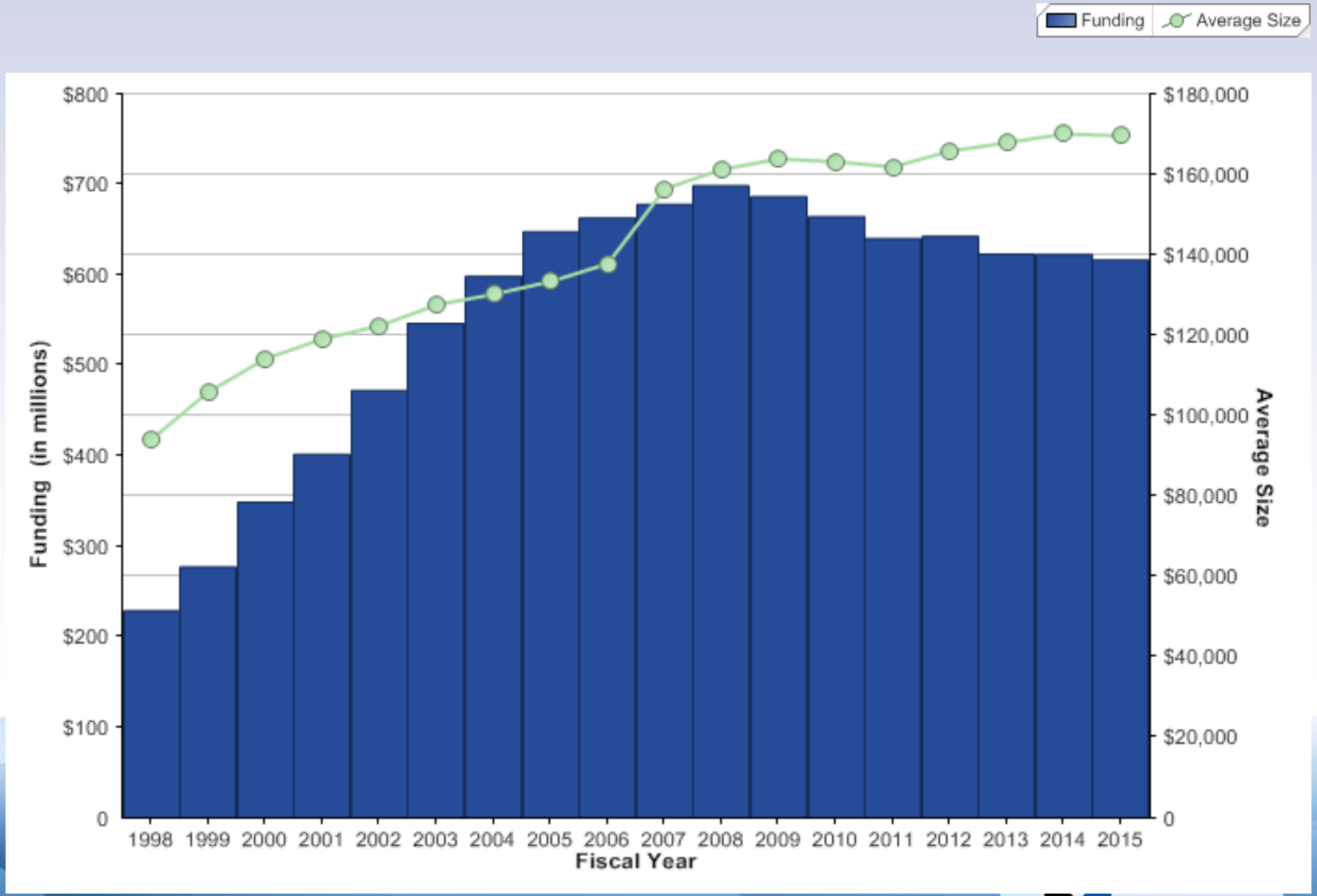
Type of Classification	Number of Awardees	Average Age	Median Age
Early Stage Investigators[2]	785	39.2	39
Targeted New Scientist Programs	**Number of Awardees**	**Average Age**	**Median Age**
Outstanding New Environmental Scientist (ONES) in 2011[1a]	<11	36.9	37
Biobehavioral Research Award for Innovative New Scientist (BRAINS)[1b]	<11	36.4	36
NIH Director's New Innovator Award Program[1c]	45	37.4	37
NIH Pathway to Independence Award (R00)[3]	153	36.2	36
NIH Director's Early Independence Awards[1d]	14	32.1	32

Research Career Development Awards (all K awards)



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Research Career Development Awards
Total funding and average size



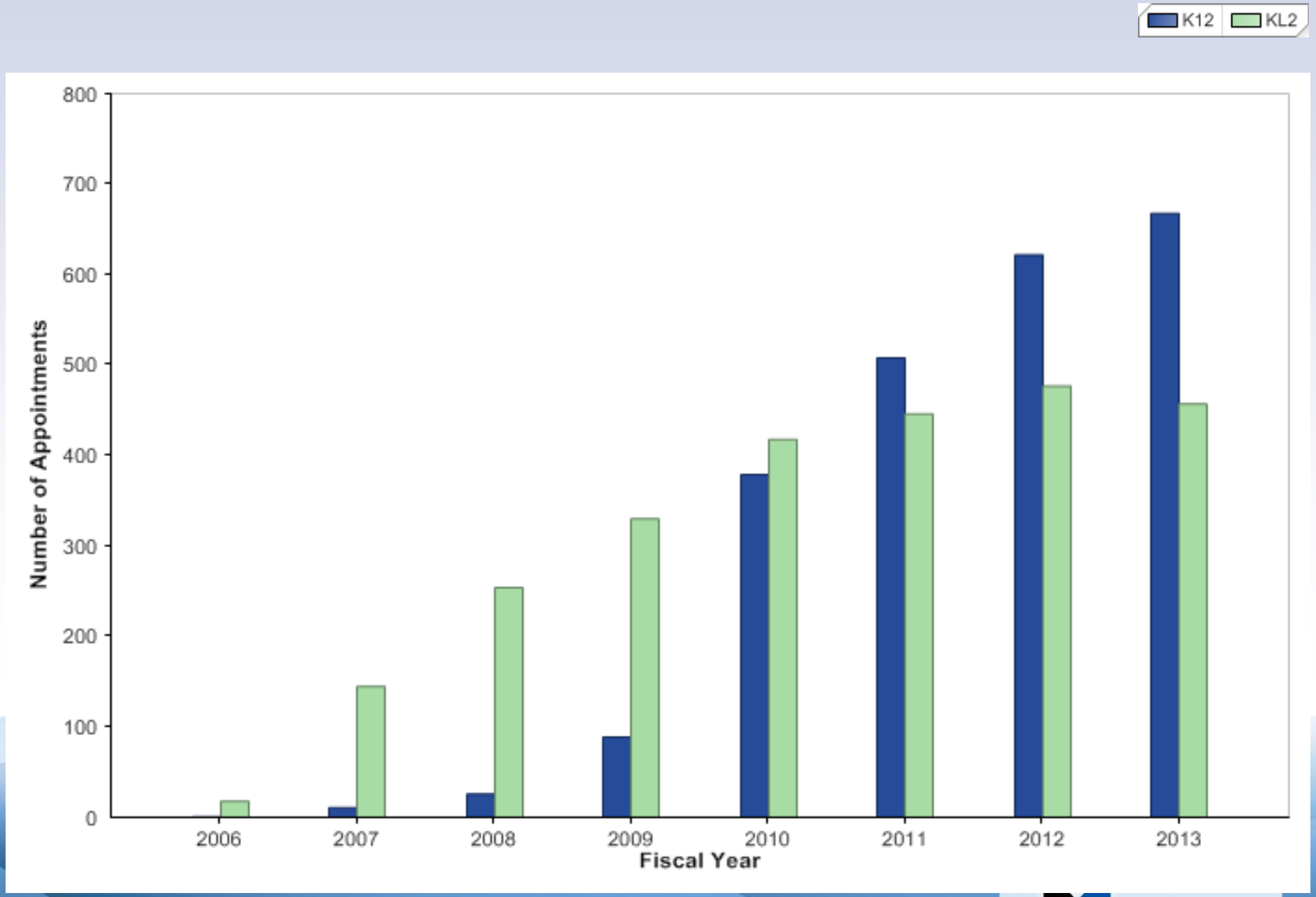
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Individual Research Career Development Awards
Number of entry-level awards



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Institutional Research Career Development Awards
Number of entry-level appointments



KL2 Program Sponsored by the UMass Center for Clinical and Translational Science

KL2 Scholar	Award Date	# Successful Grant Proposals	Total Amount	# Journal Publications
Olga Hardy Gupta, MD*	2007	1	$160,305	20
Wendy K. Marsh, MD, MS	2008	1	$75,000	25
Jeffrey Bailey, MD, PhD	2009	4	$22,454,338	18
Sarah L. Cutrona, MD, MPH	2010	9	$2,534,760	22
Heena P. Santry, MD	2010	2	$2,300,000	27
David D. McManus, MD	2012	5	$3,188,612	74
Nancy Byatt, DO, MD, FAPM	2013	5	$4,479,736	20
Molly E. Waring, PhD	2013	1	$6,000	41
Melissa Anderson, PhD	2014	2	$300,314	4
Stephanie Carreiro, MD	2016			
Mara Epstein, ScD	2016			
TOTALS		30	$35,499,065	251

* Recruited to UTSW as endowed “Dedman Family Scholar in Clinical Care” in 2012

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Summary

- Value of Physician-scientists remains central to mission of academic medicine
- Challenges have stabilized but require ongoing affirmative efforts
- Specific purposeful mechanisms must be developed to ensure ongoing viability of physician-scientist role

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