

Physician/Scientists: Rumors of our death have been vastly exaggerated--or have they?

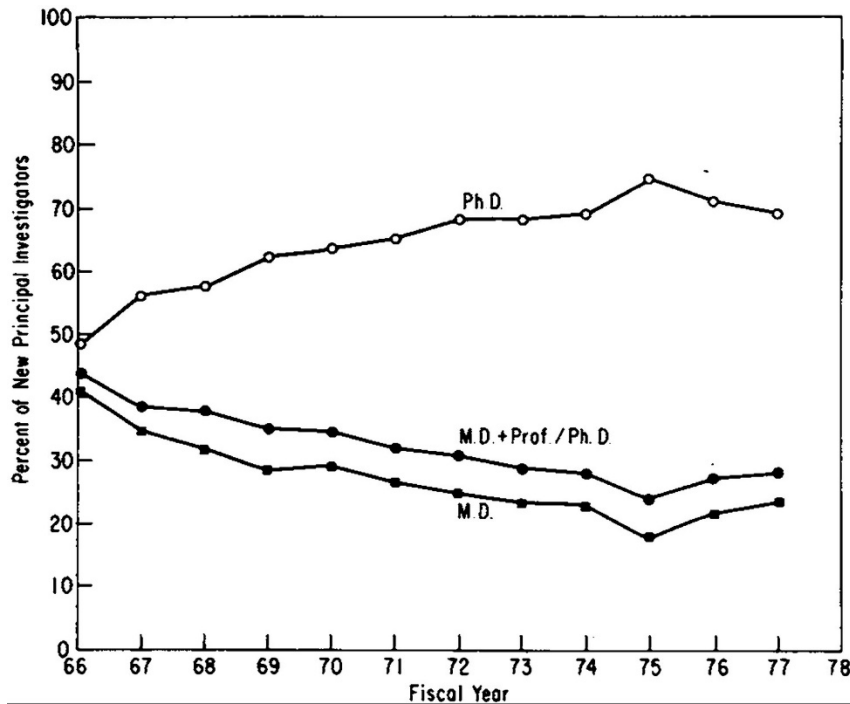
David Ginsburg, MD
University of Michigan

*AAIM 2019 Research
Pathways Directors Workshop
April 14, 2019*

SPECIAL ARTICLE

THE CLINICAL INVESTIGATOR AS AN ENDANGERED SPECIES

JAMES B. WYNGAARDEN, M.D.



“reasons for the decline in research interest among young physicians are complex”

- Instability of funding
- Reduced Med School basic-science curriculum
- Board certification requirements
- “Economic considerations”
 - Debt
 - “resident-fellow-Porsche syndrome”

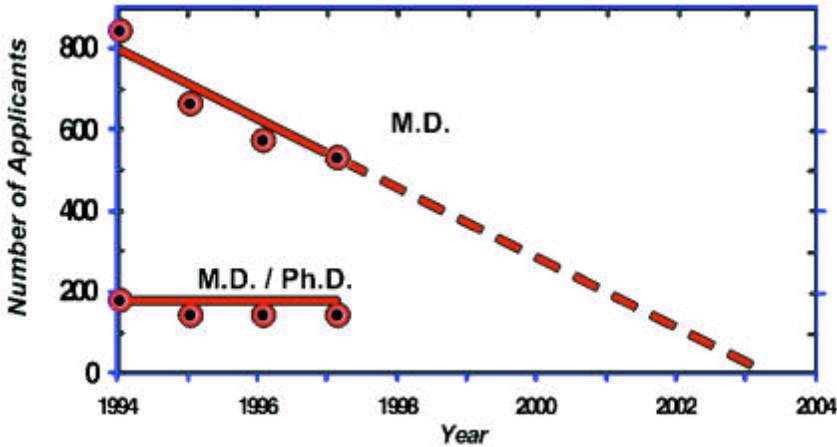
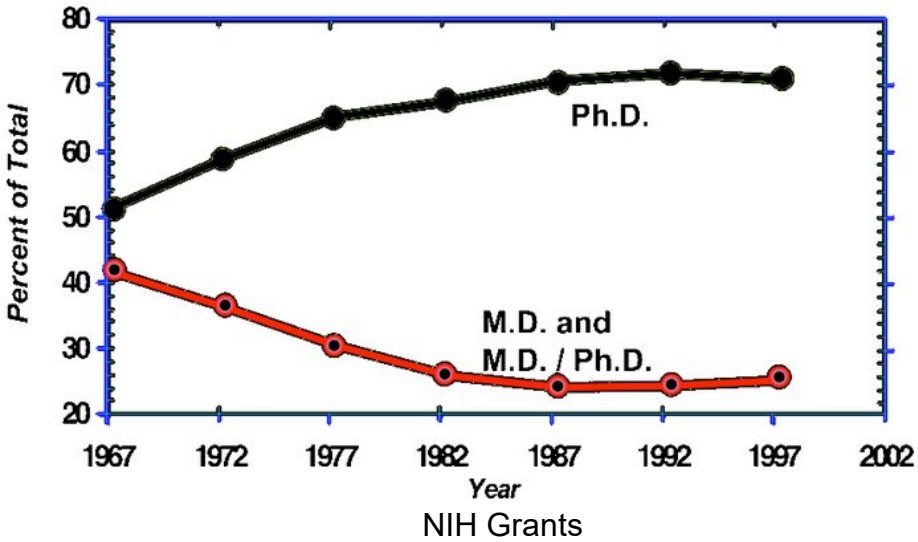
The physician-scientist: An essential — and fragile — link in the medical research chain

Leon E. Rosenberg

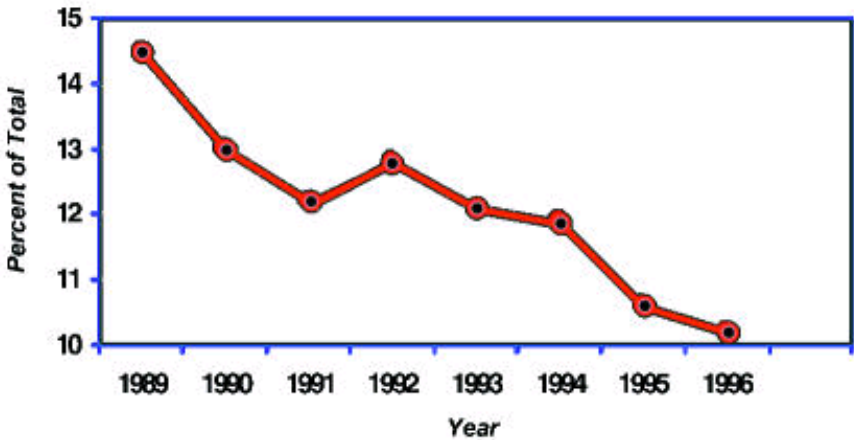
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Perspective

Editor's note: This Perspective is based on the second annual Shannon Lecture at the National Institutes of Health, delivered by Dr. Rosenberg in October 1998. A shorter version was published previously ("Physician-Scientists — Endangered and Essential," *Science* **283**:331–332; 1999).



First-time applicants for NIH Grants

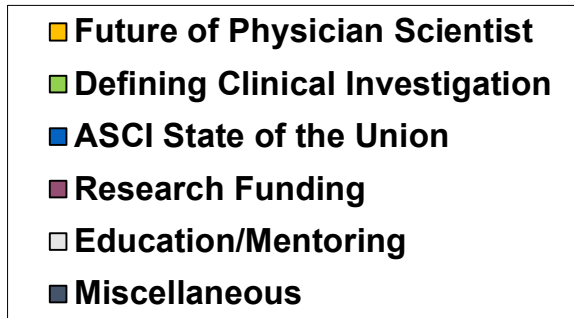
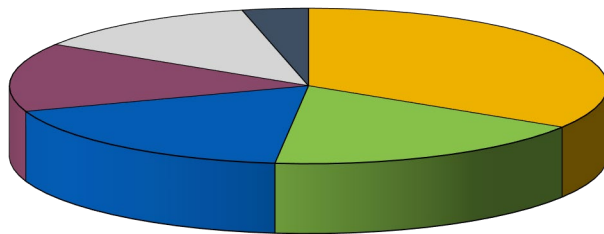


Graduating medical students with strong research career intentions.

- This is not a new problem:

- This is not a new problem:

ASCI Presidential Addresses 1939-2001



“Academic medicine is in trouble
and we all know it.”

“This system is now in trouble. It is
under more serious attack than
at any point in its history.”

“We cannot return to the past,
the golden era is ended.”

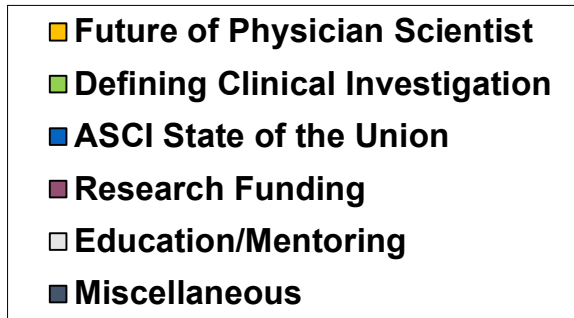
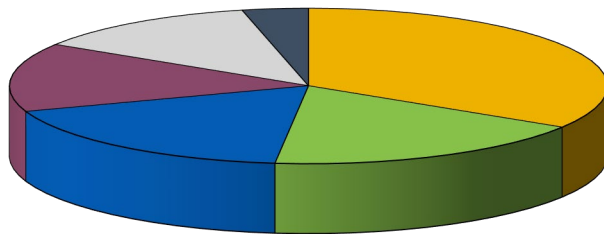
“... we must make certain that there
will be clinical investigators
in the year 2000.”

The rumors of our death have been vastly exaggerated.

Don't scare the children!

- This is not a new problem:

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“... we must make certain that there will be clinical investigators in the year 2000.”

The history and evolution of the ASCI: déjà vu all over again.
Ginsburg (2002). JCI, 110(12):S1-4.

PSW Working Group Roster

David Ginsburg, MD

Elaine Larson, RN, PhD

Sherry Mills, MD, MPH

Vivian S. Lee, MD, PhD, MBA

Susan Shurin, MD

Timothy J. Ley, MD

Nancy Andrews, MD, PhD

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Juanita L. Merchant, MD, PhD

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Helen H. Hobbs, MD

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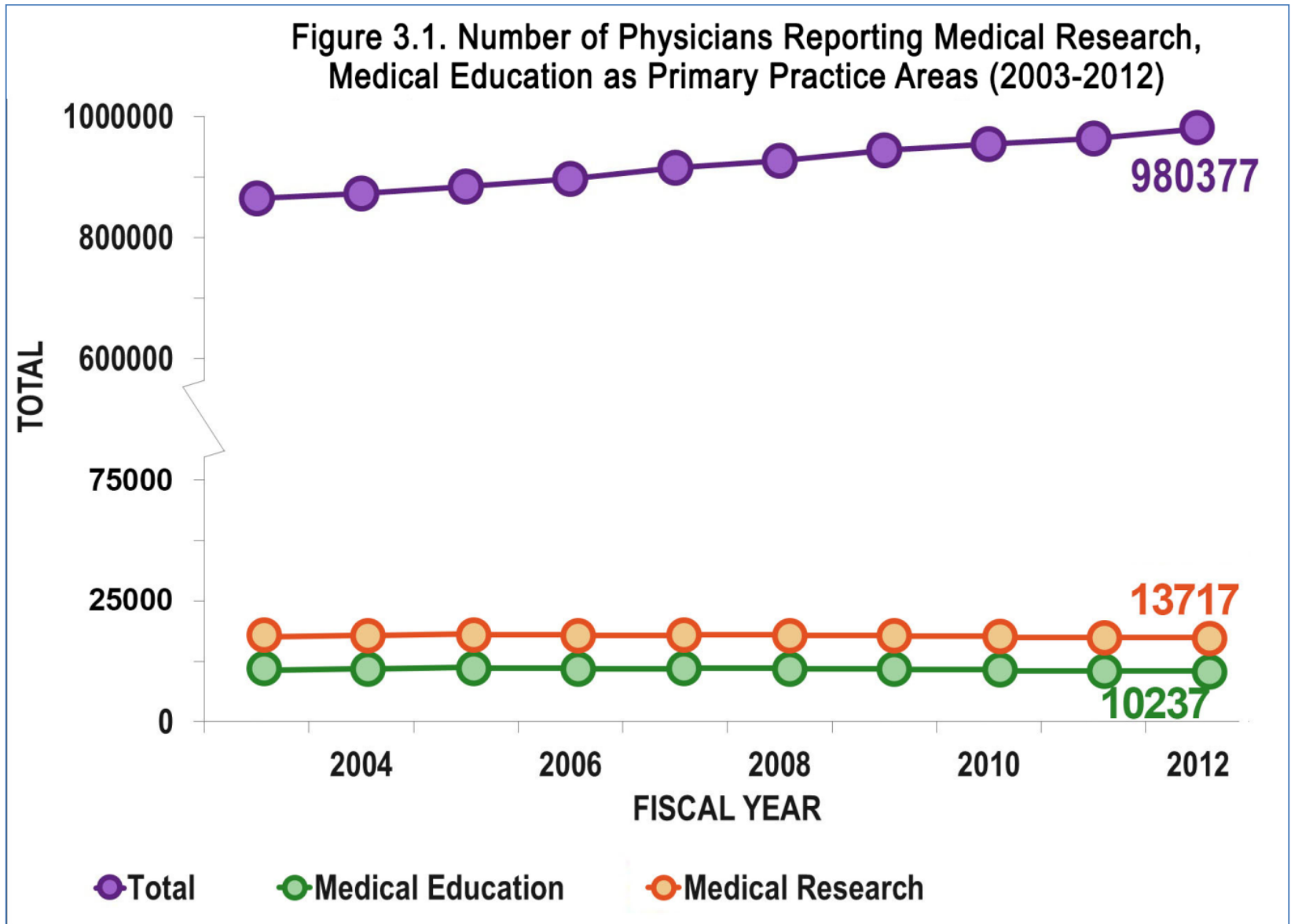
Ann R. Knebel, RN, PhD

Susan VandeWoude, DVM

Report:

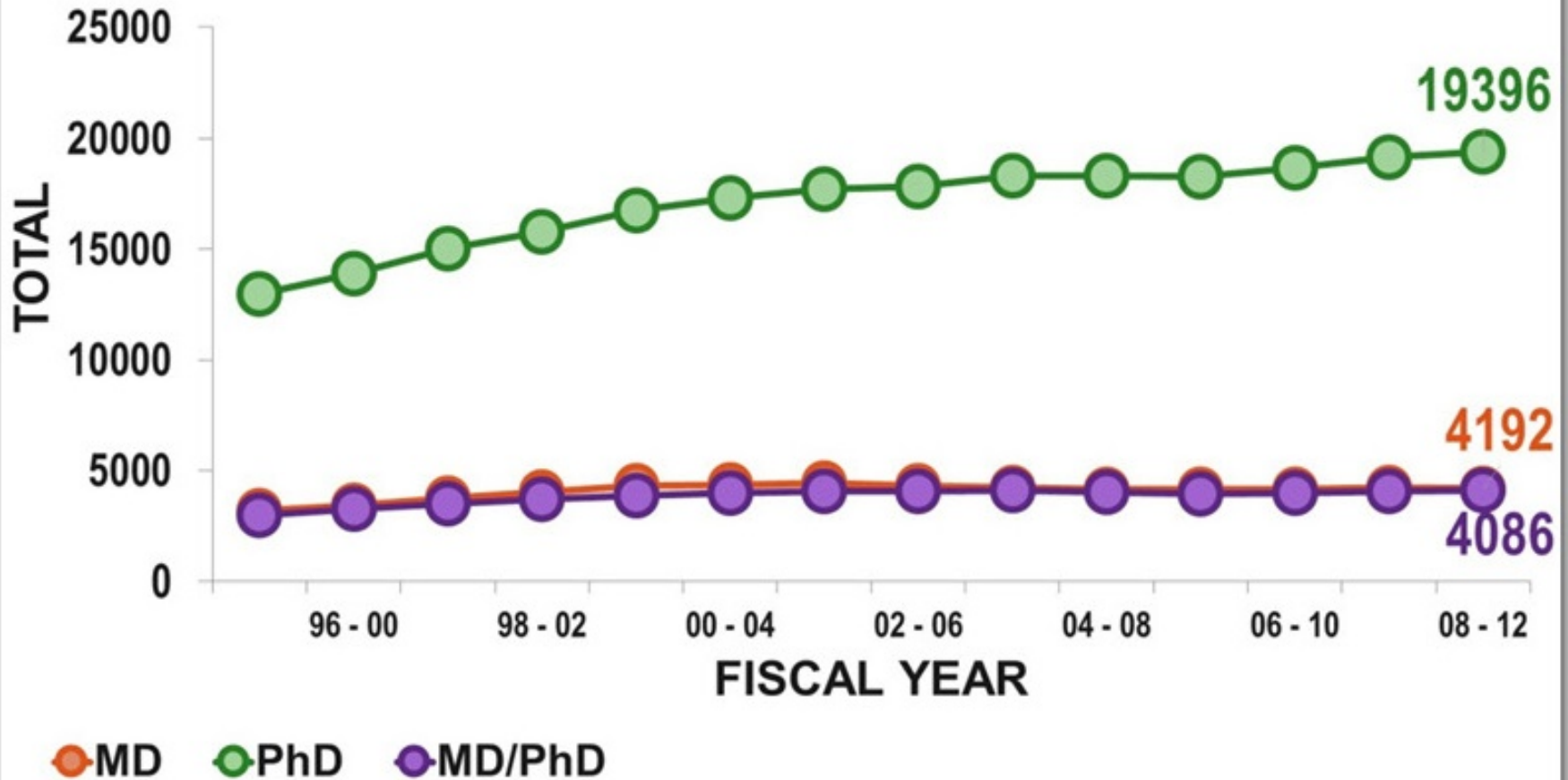
http://acd.od.nih.gov/reports/PSW_Report_ACD_06042014.pdf

How many physician-scientists are there?



MDs or MD/PhDs?

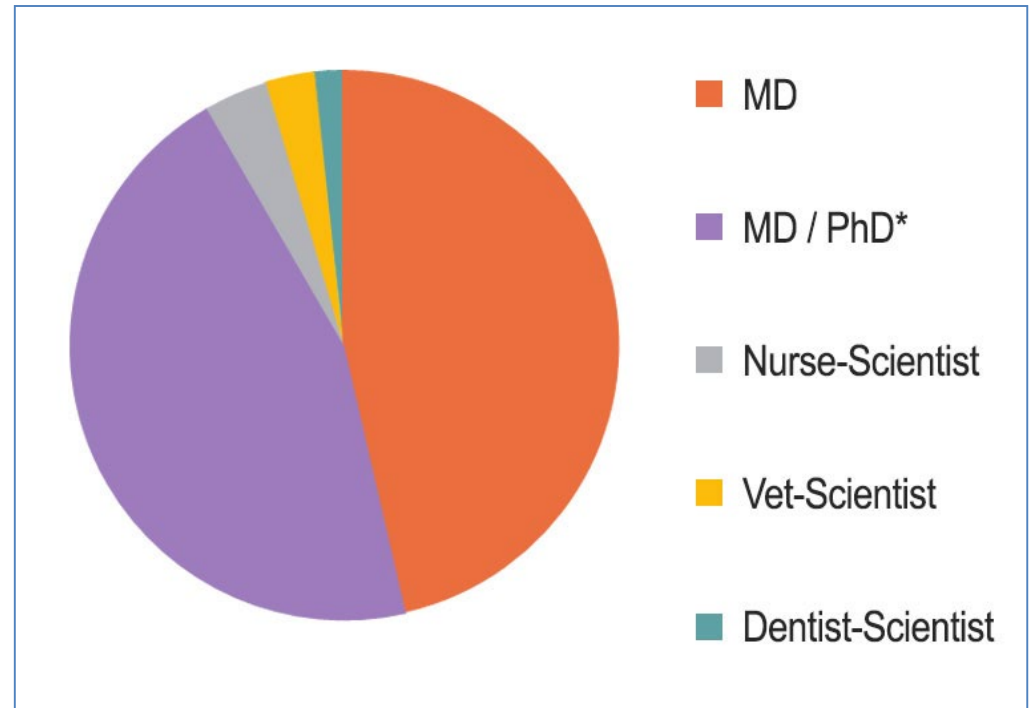
Figure 3.3. Individual NIH Research Project Grant Awardees, PhD, MD, and MD/PhD Degree (FY1995-2012)



Physician-Scientist Workforce

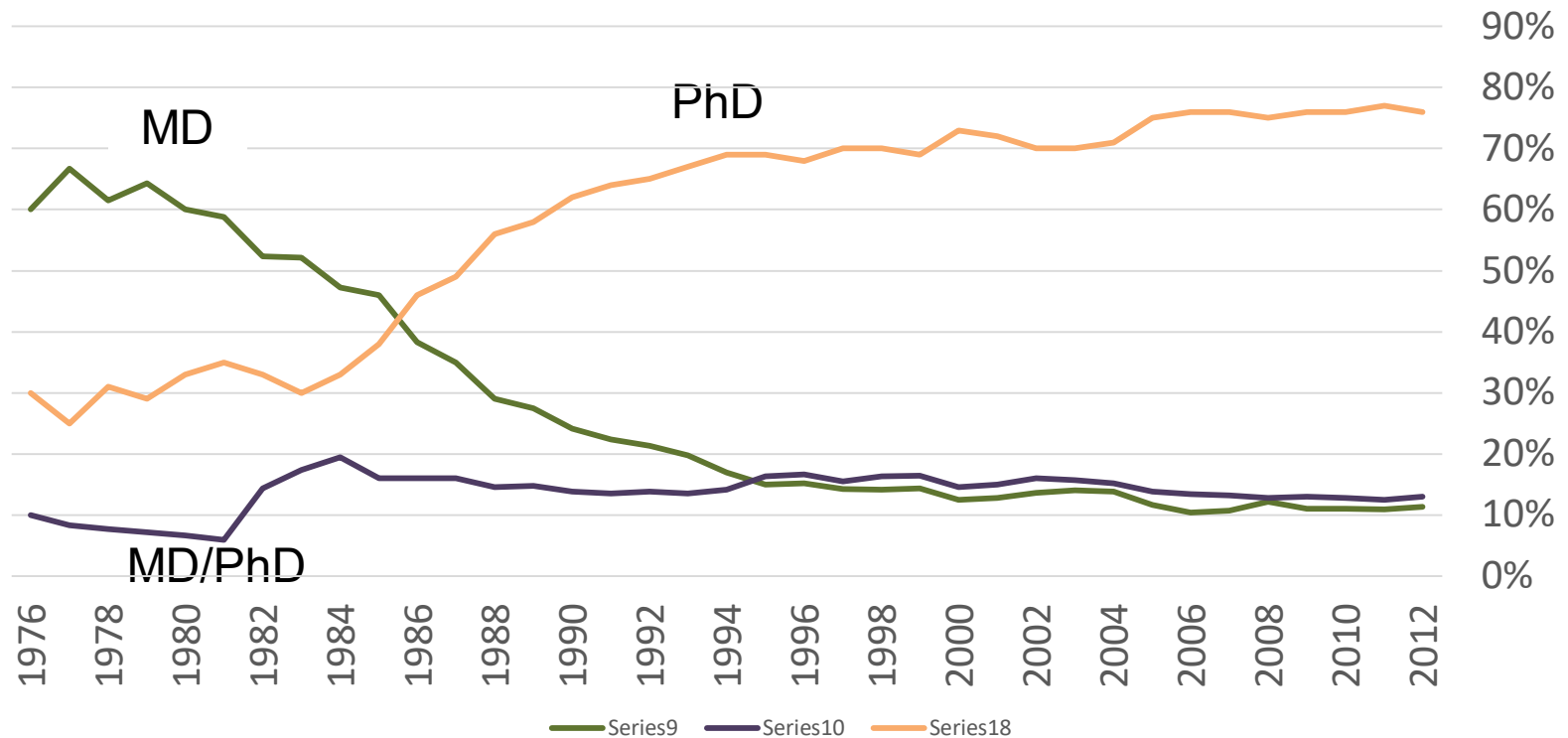
- NIH-Funded PS
- Academic PS funded by other sources
- Professional School Educators
- The invisible PSW
 - Pharma
 - Biotech

NIH-funded Physician-Scientist Workforce (FY2008-2012)



***MD/PhD includes:** MSTP Programs grads; non MSTP MD/PhD Program grads; PhD and MD in series; PhD and/or MD obtained outside US

HHMI Investigators



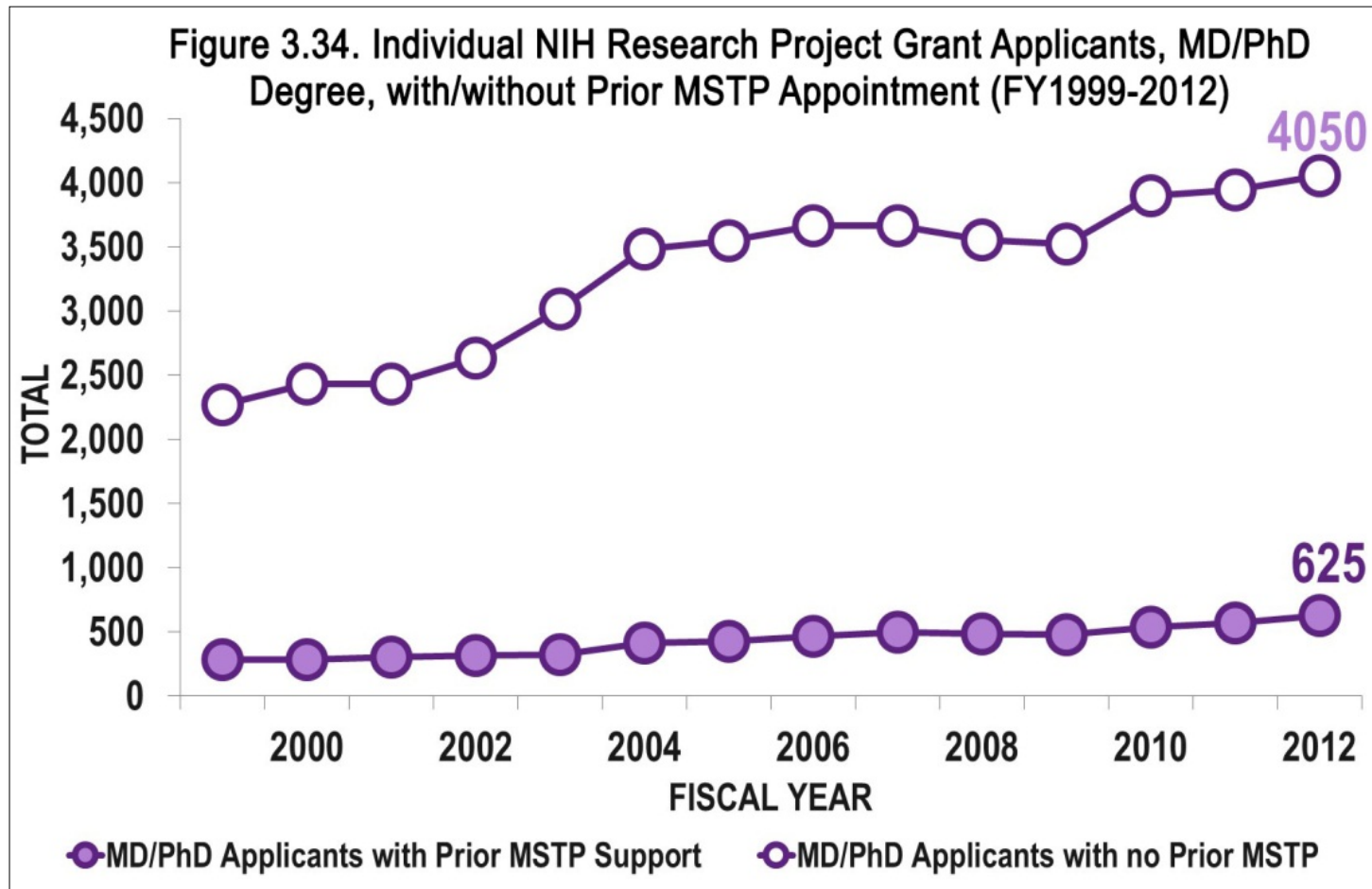
Today:

288 Investigators-- 21% MD/MD-PhD

Other Programs-- 2% MD/MD-PhD

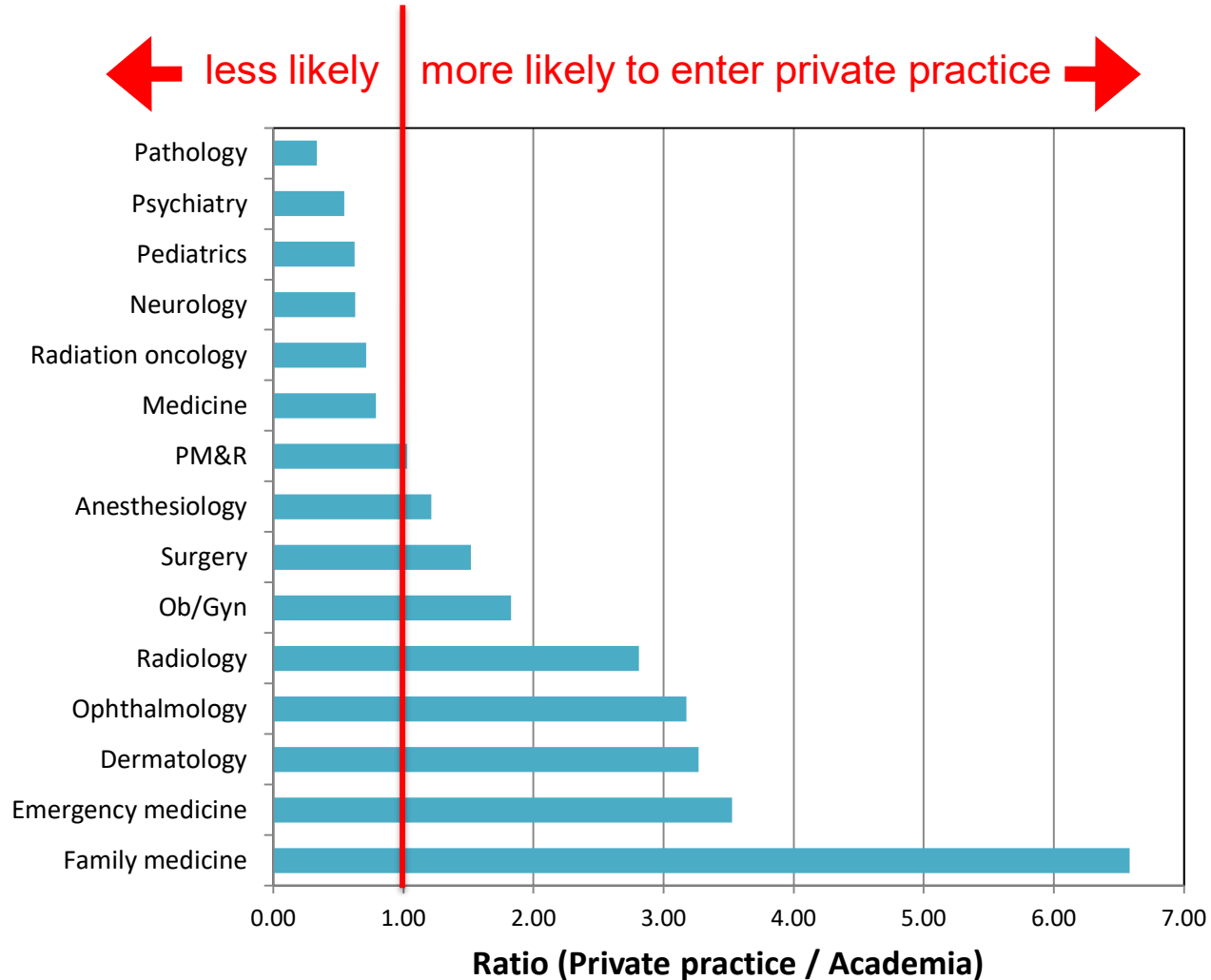
Overall-- 546 (12.1% MD/MD-PhD)

Where do MD/PhDs come from?



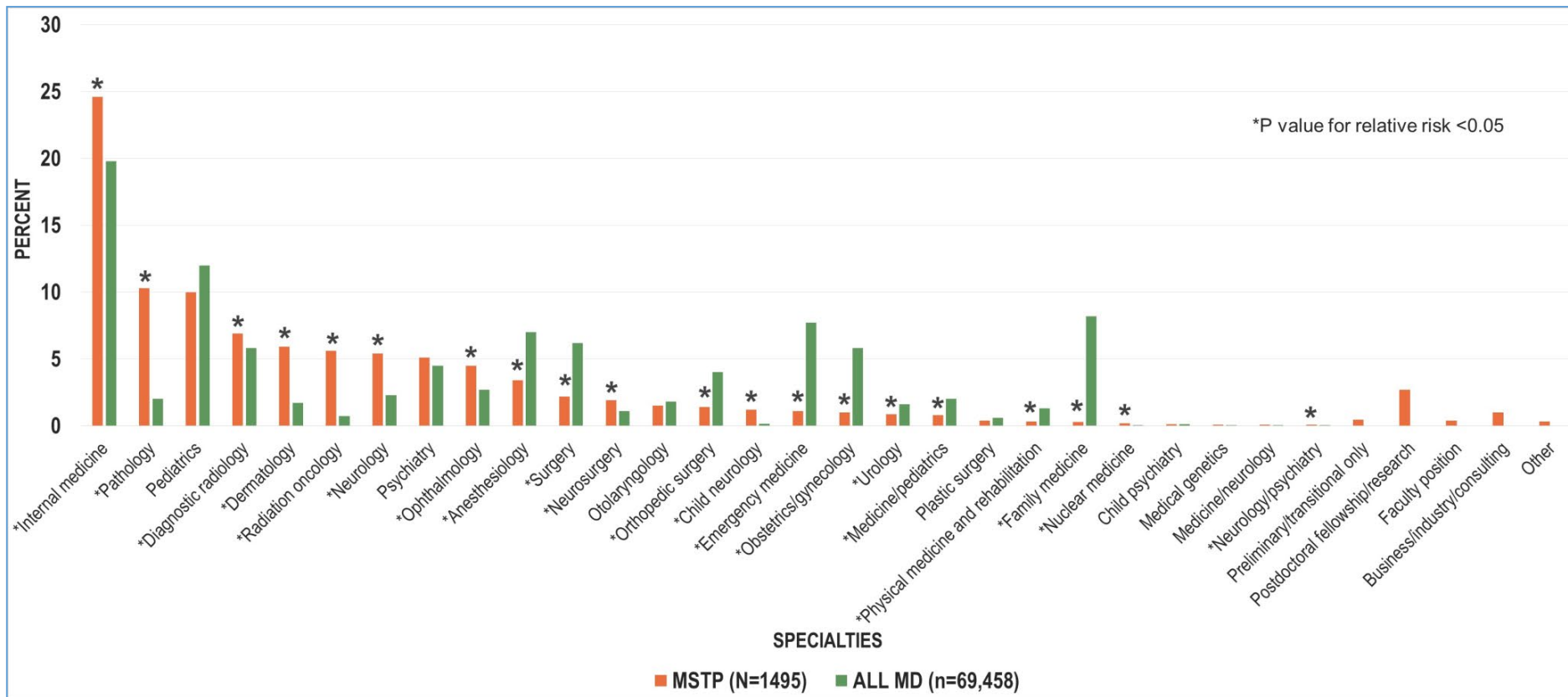
- In 2012, only 13.4% MD/PhD applicants had prior MSTP support
- MSTP - higher RPG award rates (35.8% in 2012) than non-MSTP MD/PhDs (22.9%)

Residency choice as a predictor of eventually entering private practice



Courtesy of L. Brass (Brass et al., Acad. Med 85: 692 (2010))

Residency Choices of MSTP Graduates



Paik, J.D., Howard, G., & Lorenz, R.G. (2009). Postgraduate Choices of Graduates from Medical Scientist Training Programs, 2004-2008. *Journal of the American Medical Association*, 302(12), 1271-1273

AAMC MSTP Study: April 2018



National MD-PhD Program Outcomes Study

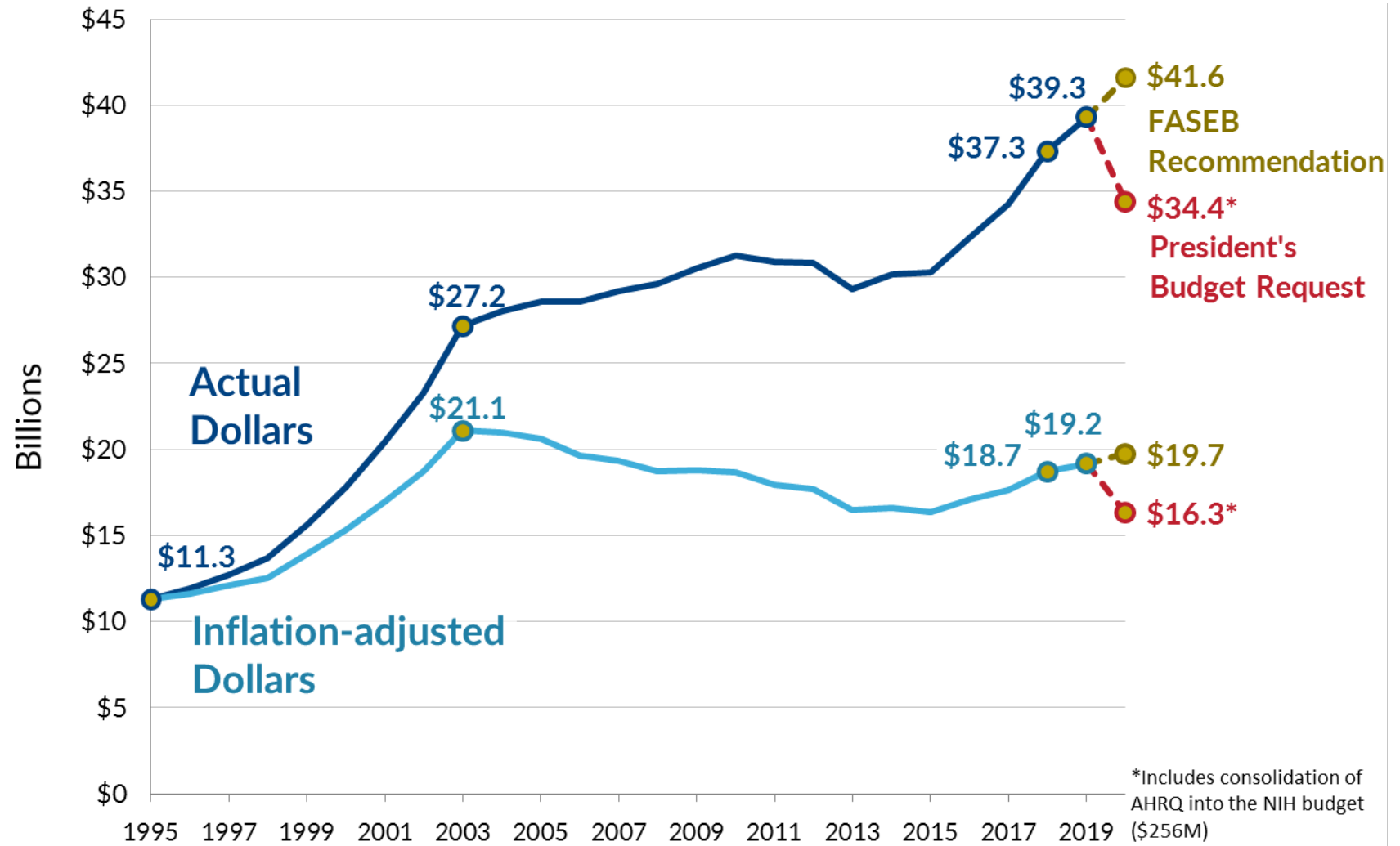
Learn
Serve
Lead



Association of
American Medical Colleges

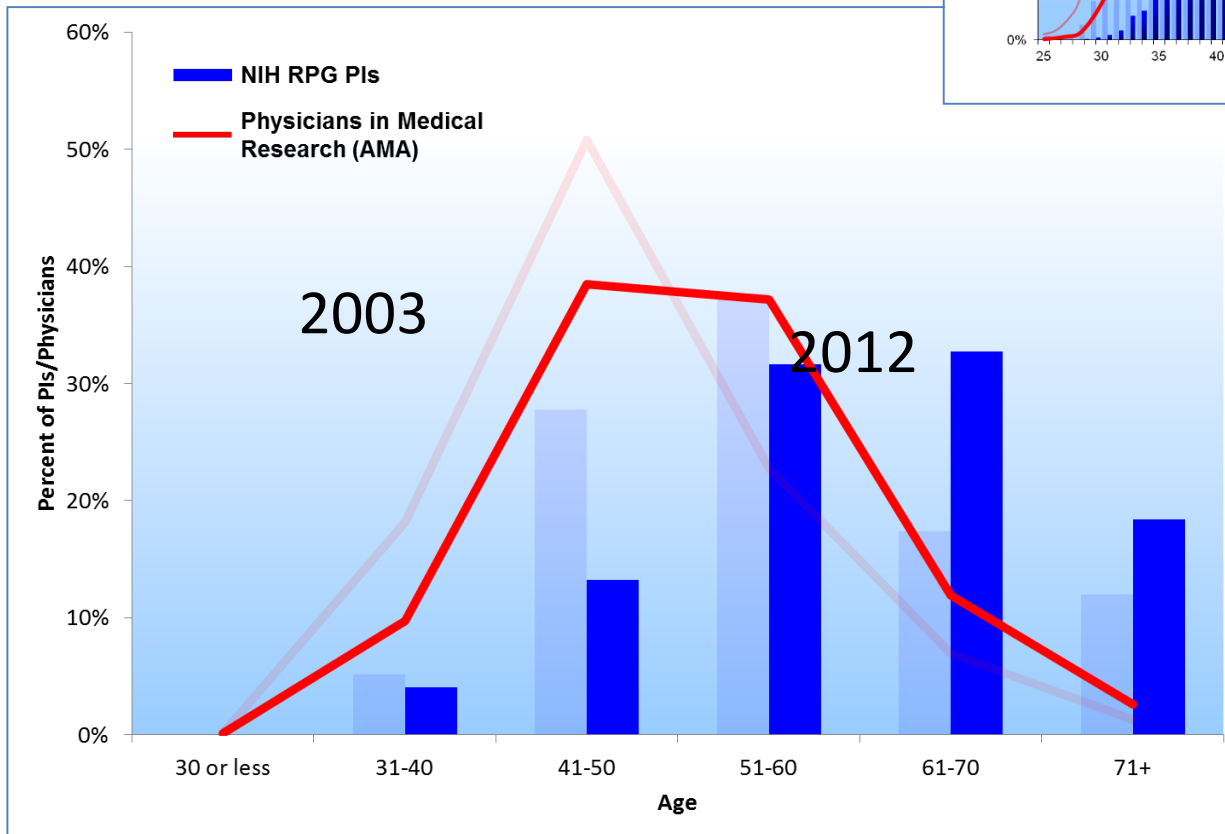
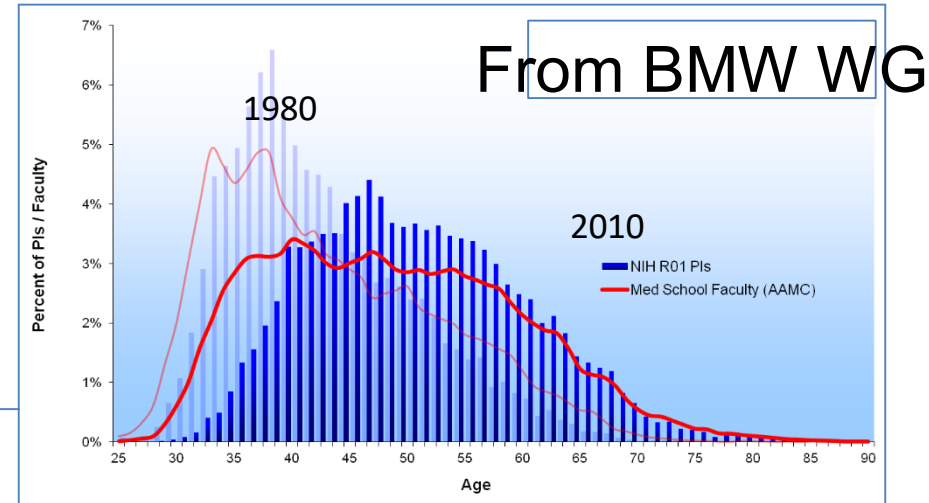
- **? A rosier picture:**
 - 77% of respondents report doing “some” research
 - 65%, full-time Academic
- All MSTP alumni surveyed
 - 64% response rate (31% of these still in training)
 - 60% of alumni listed in AAMC Faculty Roster (~80% for survey respondents)
 - 17.1% report >80% research; 52.7% <50% effort.

NIH Appropriations in Current and Constant Dollars



The Physician-Scientist Pool is Aging

Aging in PSW similar to BMW,
but more pronounced



Major Challenges for Physician-Scientists

- Availability of research funding
- Average educational debt for 2013
 - For MDs: \$175,000
 - For veterinarian-scientists: \$162,000
 - For dentist-scientists: \$220,000
- Increased length and complexity of training
- Work-life balance
- Clinical vs. research responsibilities
- Factors outside the purview of the NIH

Limitations

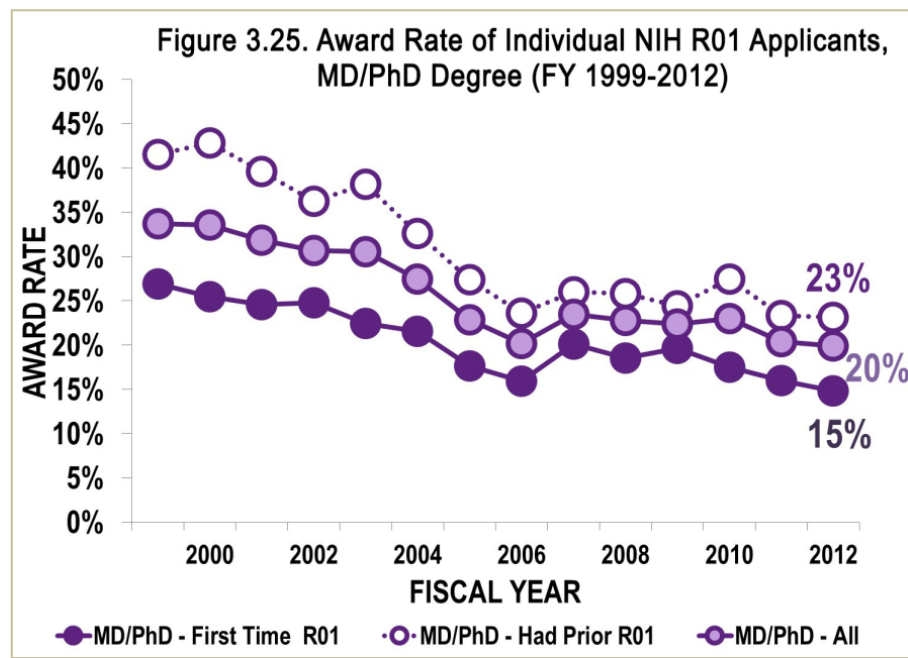
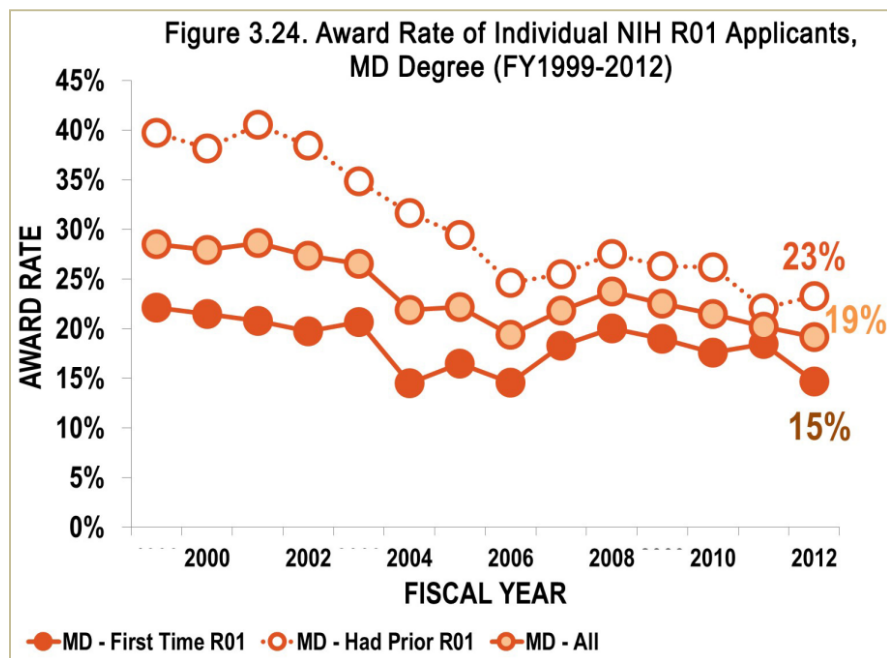
- Unresolved question about optimal research training
 - When/where should research training occur?
 - Before/during/after clinical training?
 - Exposure during or before college?
 - What dose of research experience is necessary/sufficient/optimal?
- No high quality data available to address these questions

Recommendations:

#1: Sustain Strong Support for MD/PhD Programs

#2: Shift NRSA Postdoc Training Awards to Support Proportionately More Individual Fellowships vs Institutional Grants

#3: Continue to Address the Gap in R01 Award Rates Between New and Established Investigators



#4: Develop More Effective Tools for Assessing the Strength of the Biomedical Workforce & Tracking Career Progress

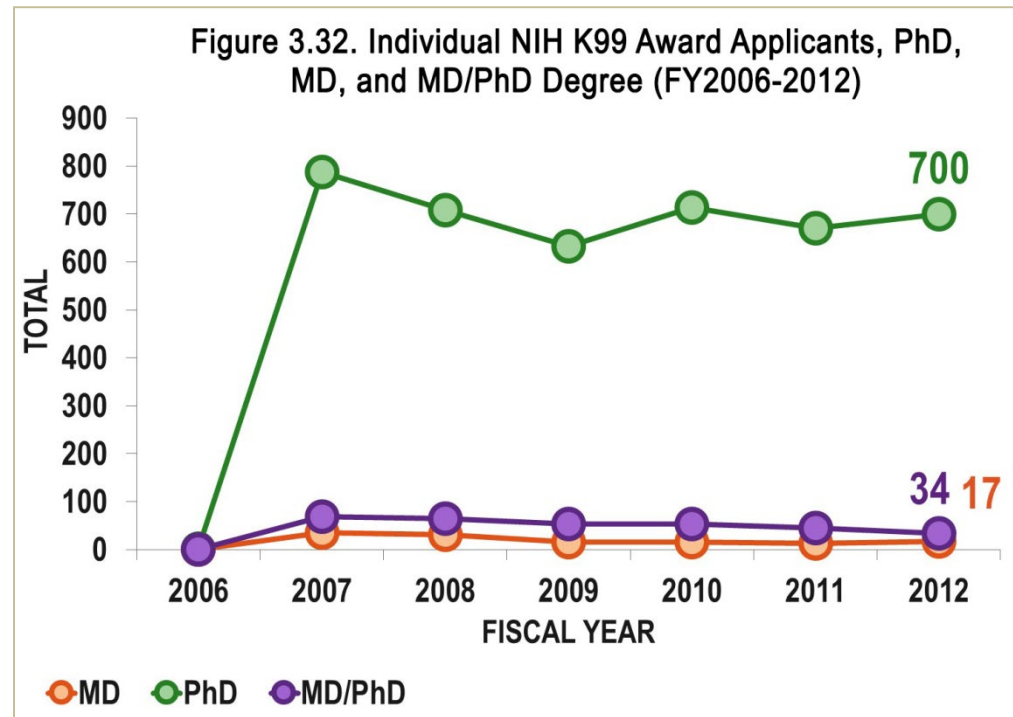
#5: Establish PS-Specific K99/R00-Equivalent Granting Mechanism

K awards

- >80% awardees applied for RPGs
- >60% award rate

PS-Specific Pathway to Independence Award [K99/R00-type]

- Longer period of support - lengthen R00 to 5 years
- Provide sufficient salary support
- Rigorously enforce minimum 75% effort protected time



Current K99/R00 program funds almost exclusively non-MD PhD graduates

#6: Expand Loan Repayment Programs
& Increase Dollar Amounts of Loan Forgiven

#7: Support Pilot Grant Programs to Test Existing
& Novel Approaches to Improve and/or Shorten
Research Training

#8: Intensify Efforts to Increase Diversity in the
Physician-Scientist Workforce

#9: Leverage the Existing Resources of the
CTSA Program to Obtain Maximum Benefit for
Training and Career Development

Future Considerations (1)

- How to attract optimal candidates to enter the PSW?
- How to incentivize mentorship?
- How will changes in medical practice impact the PSW?
- What is the future role for multi-disciplinary teams in clinical research?
 - How to appropriately credit contributions from team members?

Future Considerations (2)

- What is the impact of foreign-trained PS and how is this changing?
- How can the PSW maintain clinical practice in light of:
 - Changing board certification requirements
 - Licensure requirements
 - Malpractice insurance
 - RVU system for clinical faculty

Useful Links

- 2014 PSW Working Group Report is accessible electronically at the ACD website at <http://acd.od.nih.gov/psw.htm>
- Full set of data and graphs of the PSW Report will be accessible from NIH *RePORT* website at <http://www.report.nih.gov/workforce.aspx>

Physician Regulatory Burden/Overhead

- Certification
- MOC
- Credentialing/recredentialing
- EMR Training/documentation
- HIPAA and other mandatory health system learning modules

5-10% clinical time “overhead”

*No “discount” for physician scientist=
50-150% overhead*

- Do lab-based Physician Scientists choose different specialties/subspecialties?
- Do they certify? Participate in MOC?
- What about active clinical researchers?

WE HAVE NO IDEA!

ABMS

REPORT OF THE SPECIAL COMMITTEE ON PHYSICIAN- SCIENTISTS & CONTINUING CERTIFICATION

JUNE 2016



American Board
of Medical Specialties
Higher standards. Better care.®

- Are laboratory-based Physician Scientists– the canaries in the coal mine?
- Are academic clinical researchers next?

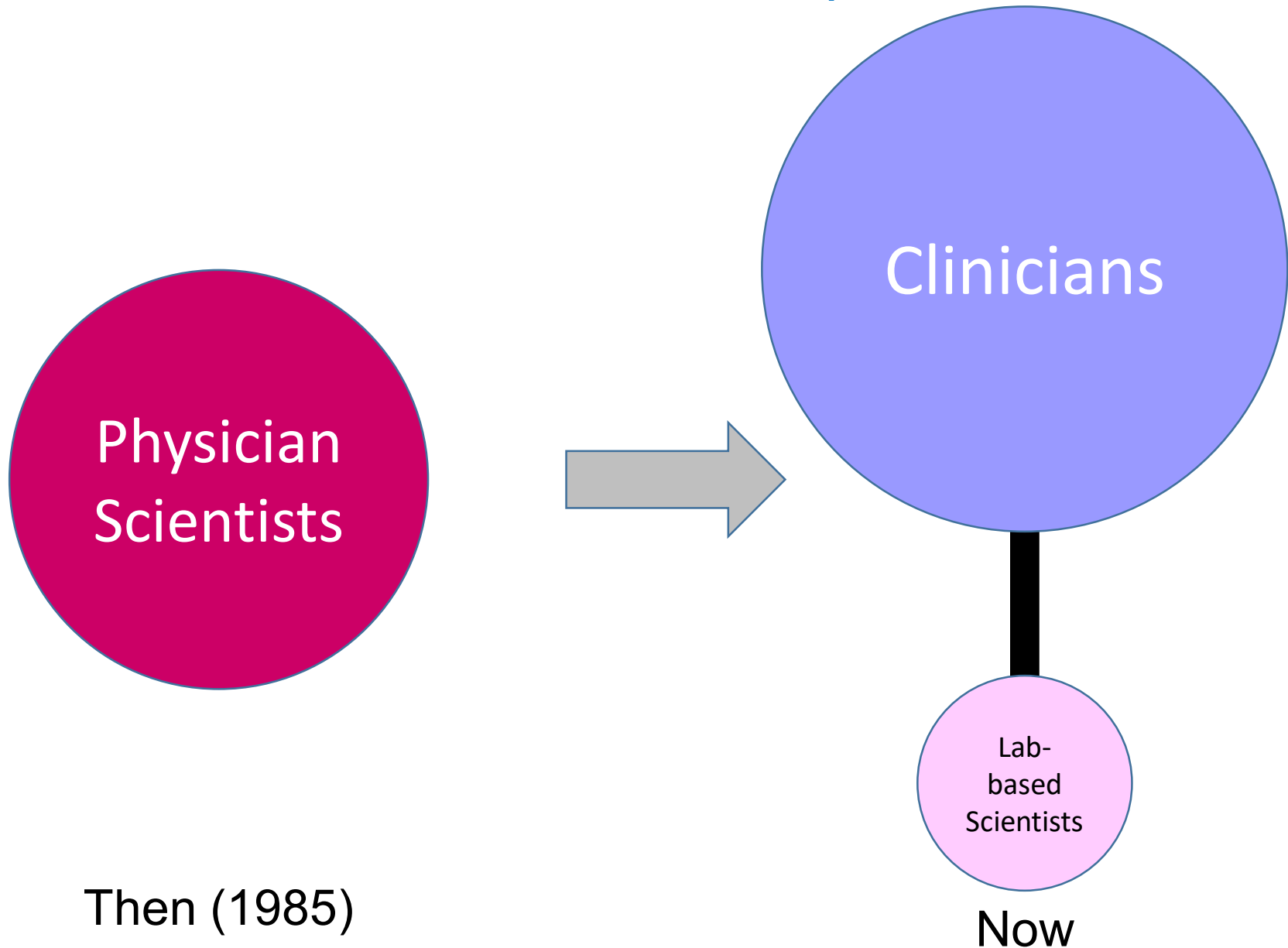
The Academic Medical Center Department of Medicine



Physician
Scientists

Then (1985)

The Academic Medical Center Department of Medicine



McKinsey Health Reform Team Analysis

Academic medical centers:
Transformational imperatives
to succeed in the new era

Operating margins at AMCs are under severe pressure, placing their tripartite mission at risk. To survive, AMCs need significant structural and cultural changes. Five steps are imperative if they are to navigate the challenges ahead.

EXHIBIT 2 AMCs must pursue five imperatives to counter upcoming margin decline and build for the future

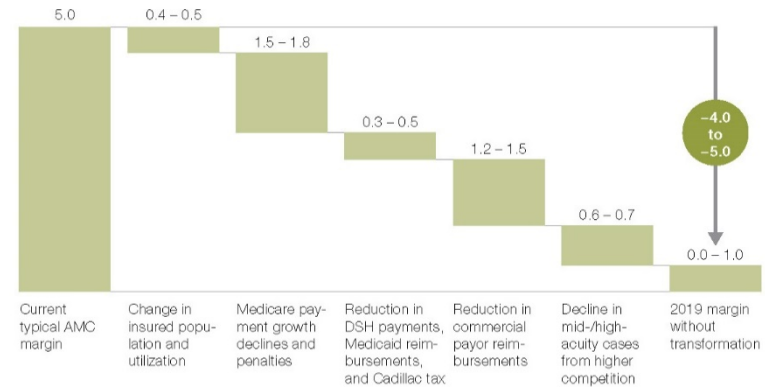
- 1 **Strengthen the value proposition** to define a clear vision and strategy to guide the sequence and depth of the other four imperatives
- 2 **Upgrade the operating model and capabilities** to generate revenue and enable the value proposition

Protect/increase existing revenue
 - Service line focus and research priorities
 - Active referral flow management
 - Physician engagement**Key enablers**
 - Capability to operate across care settings
 - Technology management
 - Transparency on quality and performance
 - Governance
- 3 **Pursue cost reductions aggressively** to drive 10%+ savings across the cost base

- Improved clinical operations cost effectiveness
 - Support service optimization
 - RCM overhaul
 - EHR value capture
 - Research portfolio rationalization
- 4 **Increase revenue flows** to enable 2–5% year-on-year growth, even in a post-reform environment, through volume growth (across care settings), pricing and reimbursement strategy, and participation in select risk-sharing arrangements, and (where possible) by leveraging retail options in hospitals
- 5 **Develop a comprehensive partnership and acquisition approach** (beyond traditional acute-focused M&A programs) as both an opportunity to improve margins and a defensive move

EXHIBIT 1 AMC operating margins could decrease by 4 to 5 percentage points because of reform, competition, and shifting demographics

Operating margin as percentage of AMC revenue



AMC, academic medical center; DSH, disproportionate share hospital.

Source: McKinsey Health Reform Team analysis, MPACT tool

- Increasing division between basic/clinical research and clinical practice
 - Medical trainees rarely encounter physician scientists
 - Decreasing science in Medical School curriculum
- Increasing regulatory burden (EMR, RVUs, re-certification)
- Physician scientists— no longer fit in the business model
 - Physician scientists giving up/chased out of clinical practice
 - Academic hospitals increasingly resembling corporate healthcare networks
 - Hospital divestitures from AMCs



MEDPAGE TODAY[®]

Blogs > Revolution and Revelation

Med Schools' Business Model Is Officially Dead

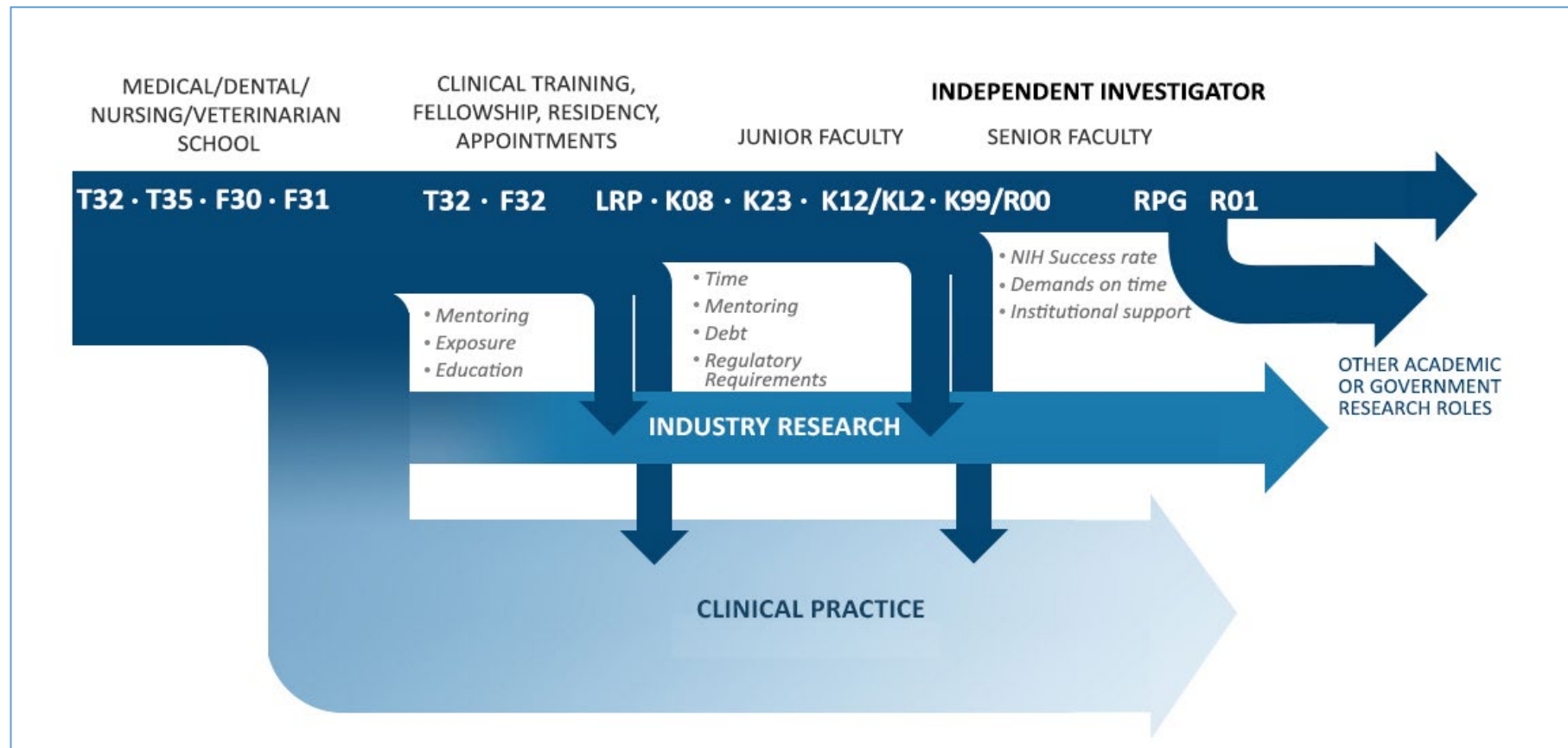
— Milton Packer describes the slaughter of "academic" medicine

by Milton Packer MD
November 28, 2018

Challenges to the Physician Scientist

- Outside the purview of the NIH
- Business model of Medicine
 - Why do research?
 - Marketing/reputational value
 - Why pay for MDs?

Physician-Scientist Pathway



Challenges to the Physician Scientist

- Outside the purview of the NIH
- Business model of Medicine
 - Why do research?
 - Marketing/reputational value
 - Why pay for MDs?
- Is there any hope?
 - Major change/disruption to the system
 - Dramatic increase in NIH funding
 - Philanthropy

The rumors of our death have been vastly exaggerated--or have they?

Shhhhh- this is just between us:
Don't scare the children!