



# PHYSICIAN-SCIENTIST WORKFORCE WORKING GROUP REPORT

*ACD Meeting, June 2014*



# Biomedical Workforce (BMW) Working Group June 2012 Report Recommendation

**BMW WG recommended that NIH conduct a follow-on study that focuses on physician-scientists:**

- Different economic and educational drivers affect the training and career paths of the physician-scientist workforce than the PhD workforce
- Changing landscape of health care and its effects on academic medical centers will affect future physician-scientist workforce

# Charge to the Physician-Scientist Workforce (PSW) Working Group

- Develop approaches that can inform decisions about the development of the U.S. PSW
- Analyze the size and composition of the PSW; consider impact of NIH funding policies
- Assess needs and career opportunities for PS trainees
- Identify incentives and barriers to entering the PSW

# Who are Physician-Scientists?

- Scientists with professional degrees who have training in clinical care and who are engaged in independent biomedical research
- Individuals with MD, DO, DDS/DMD, DVM/VMD degrees and nurses with research doctoral degrees who devote the majority of their time to biomedical research

# PSW Working Group Roster

**David Ginsburg, MD**

Elaine Larson, RN, PhD

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Susan VandeWoude, DVM

# Subcommittees

- Clinical/Translational PS (incl. Nursing PS)
- Lab-based PS
- Non-MD PS
  - Dentist PS
  - Veterinarian PS
- Data

# Quantitative Research

- Analyzed individual-level data of physician-scientists vs applications data
  - Focused on ‘Applicants’ and ‘Award Rates’ (as opposed to ‘Applications’ and ‘Success Rates’)
- Large amount of aggregated individual-level workforce data is available with this report

# Qualitative Research

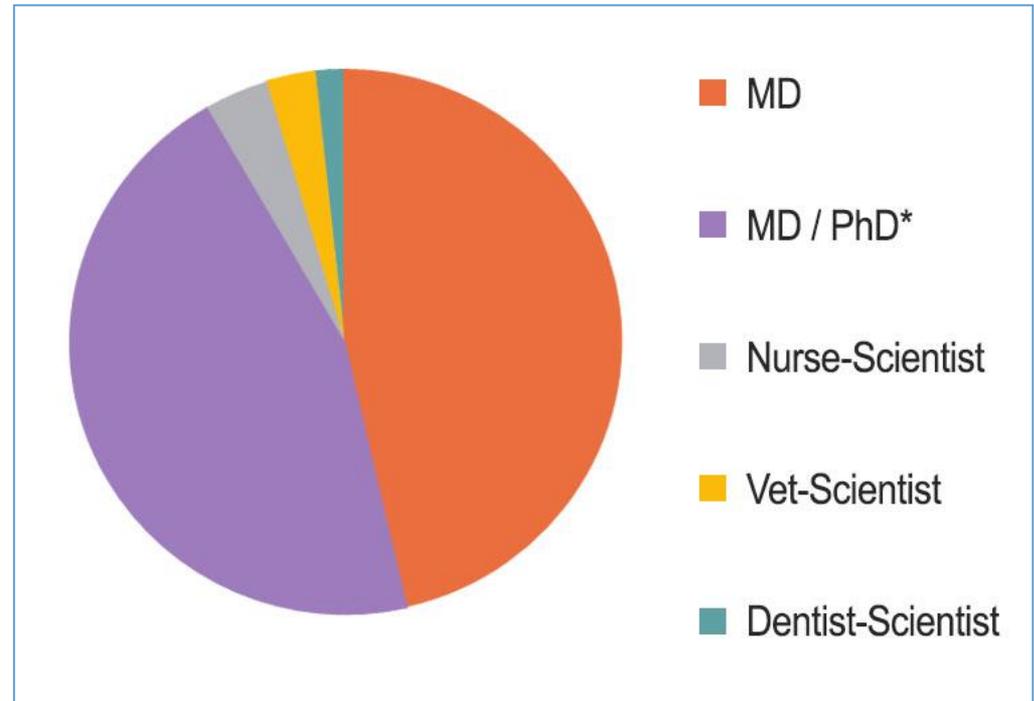
- Focus groups and interviews
  - Medical, dental, and veterinary students
  - Young faculty
  - Deans of medical, dental & veterinary schools
- Questions on factors that influenced decision to pursue a research career

# *Physician-Scientist Workforce*

# Physician-Scientist Workforce

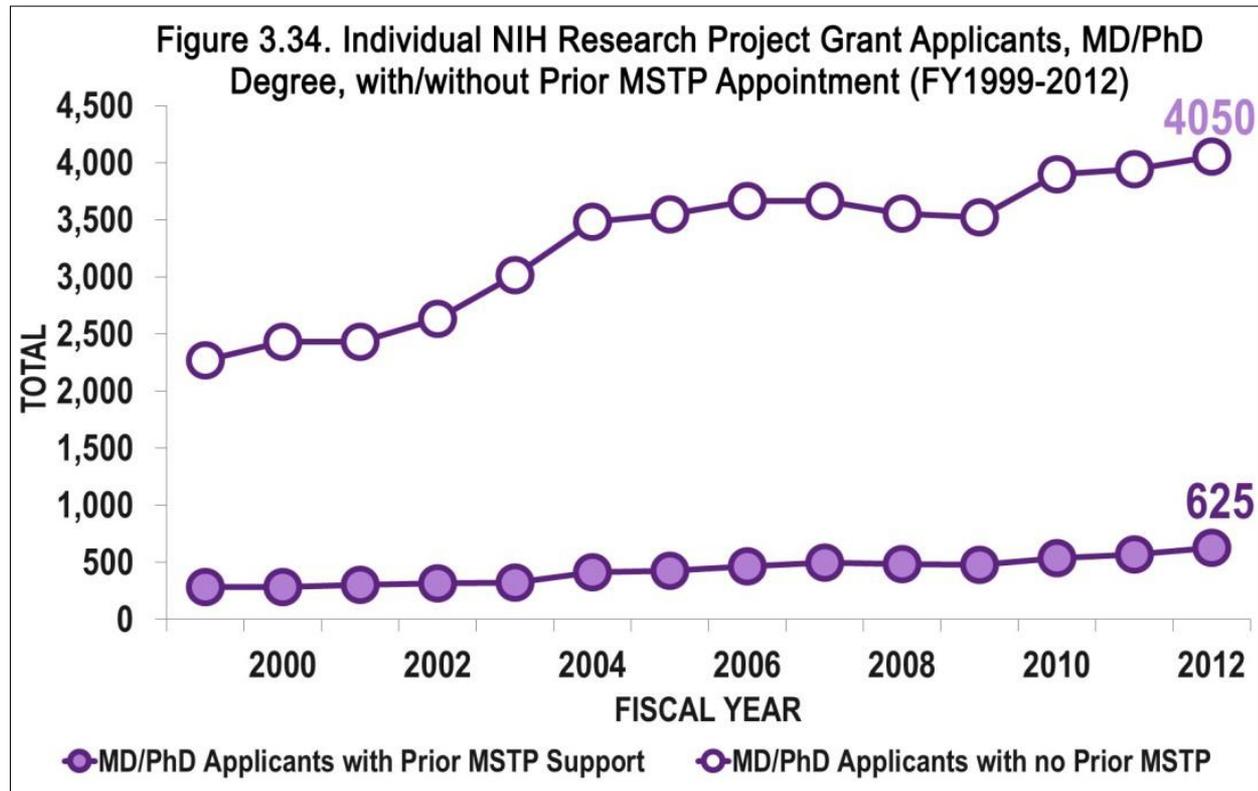
- NIH-Funded PS
- Academic PS funded by other sources
- Professional School Educators
- The invisible PSW
  - Pharma
  - Biotech

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



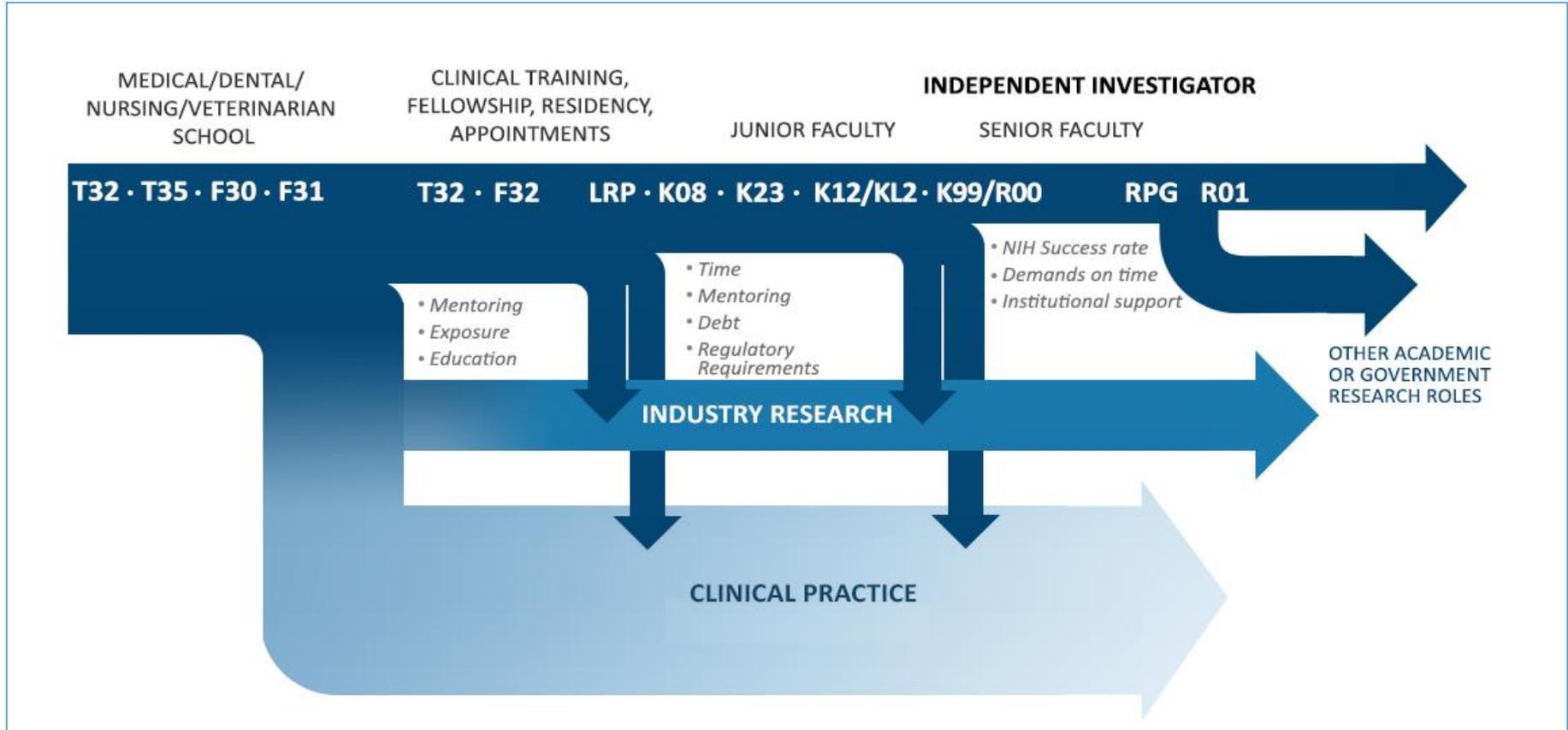
\***MD/PhD includes:** MSTP Programs grads; non MSTP MD/PhD Program grads; PhD and MD in series; PhD and/or MD obtained outside US

# Physician-Scientists with MD/PhD Degree

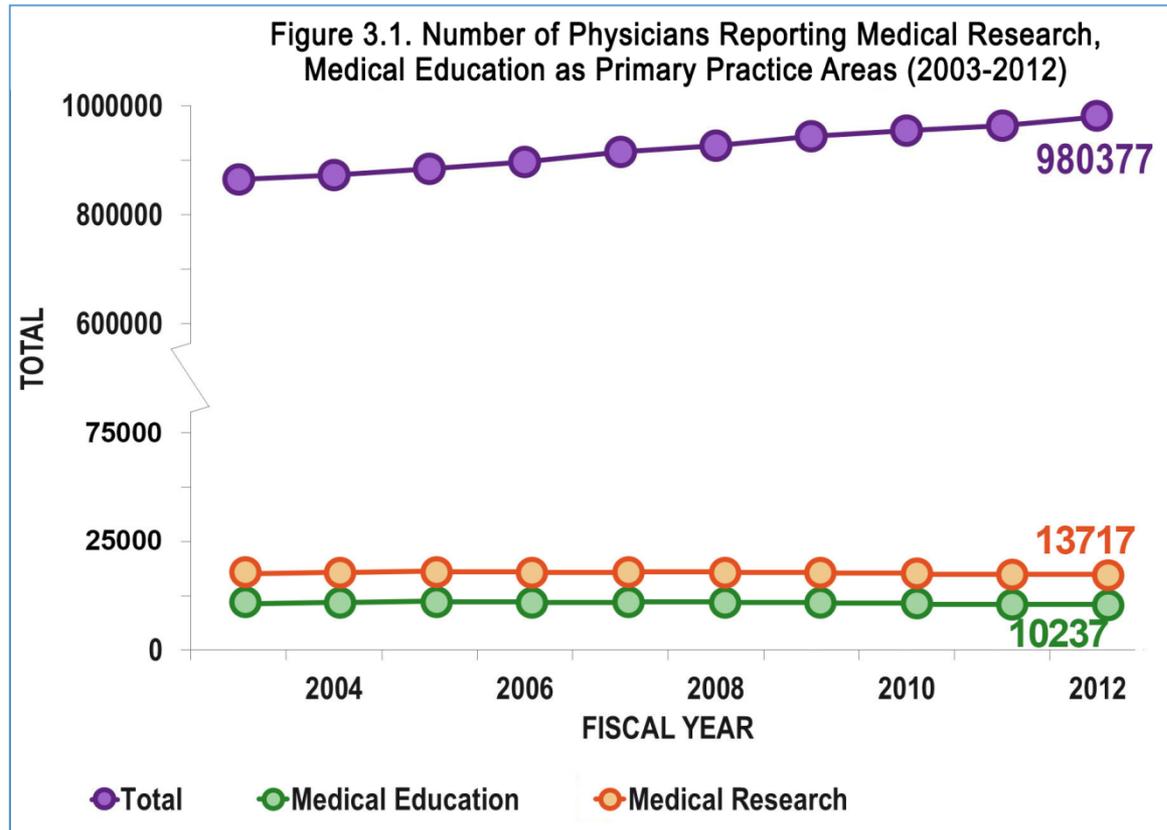


- In 2012, only 13.4% MD/PhD applicants had prior MSTP support
- MSTP - higher RPG award rates (35.8% in 2012) than non-MSTP MD/PhDs (22.9%)

# Physician-Scientist Pathway



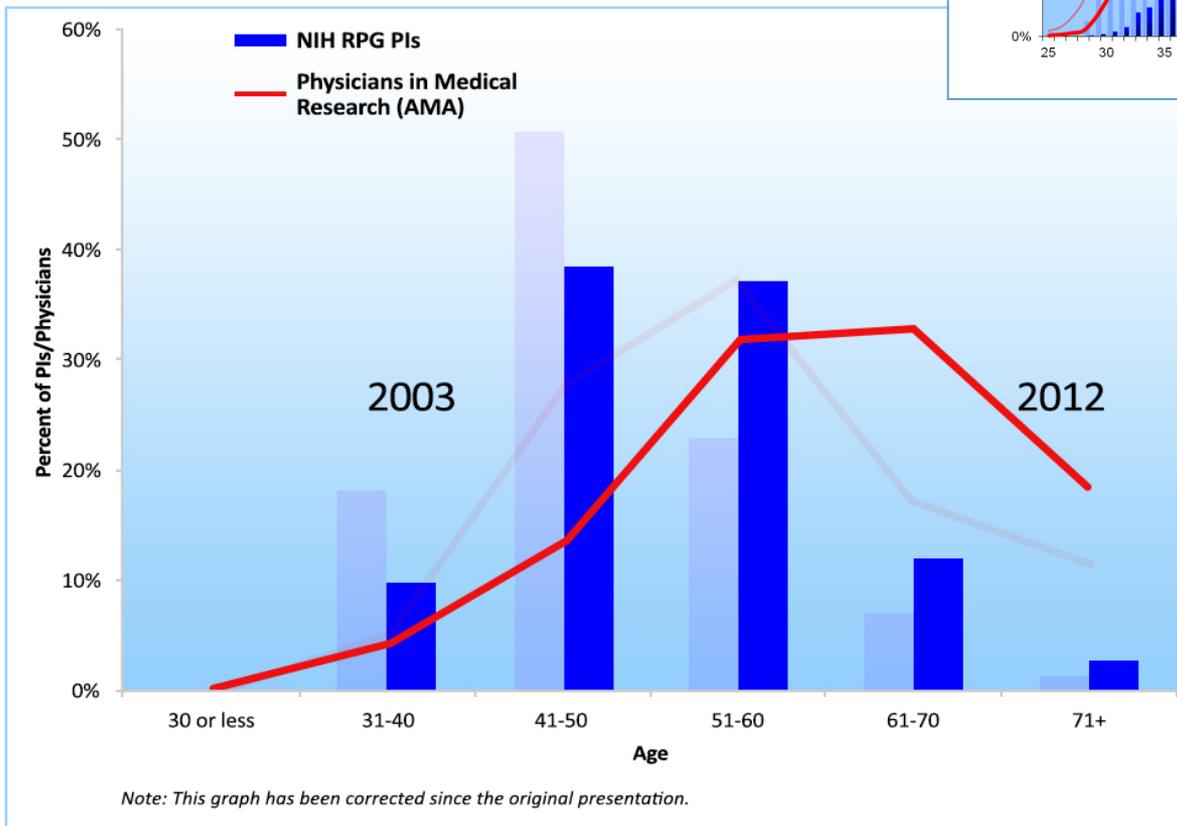
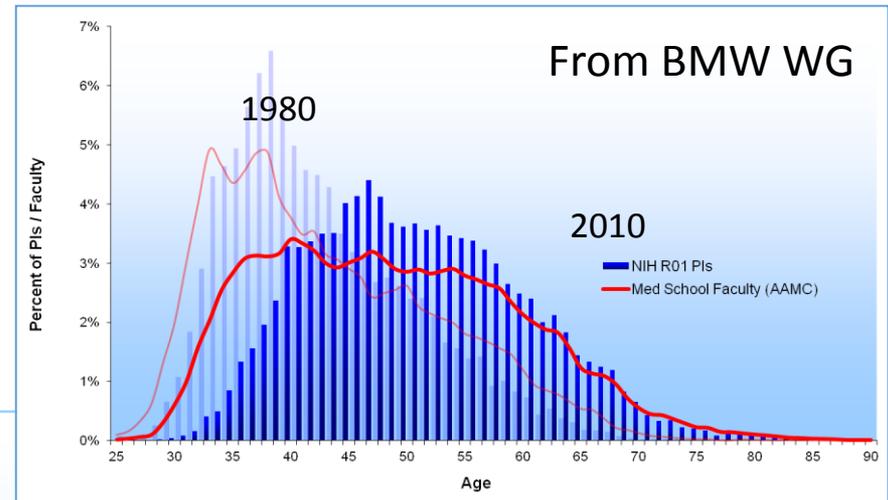
# The Physician-Scientist Pool is Stagnating



Total number of physician-scientists engaged in research unchanged over past decade

# The Physician-Scientist Pool is Aging

Aging in PSW similar to BMW, but more pronounced



# Gender Diversity Among Physician-Scientists

## MD physician-scientists

- No difference in NIH RPG award rates – (2012): men 22.9%, women 23.8%
- But male applicants outnumbered female applicants ~3:1

## Nurse-scientists

- Women RPG applicants outnumbered men ~9:1

## Dentist-scientists

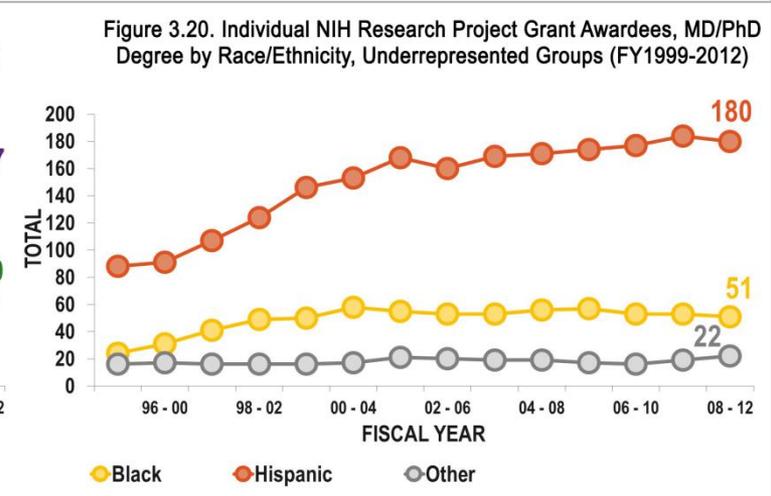
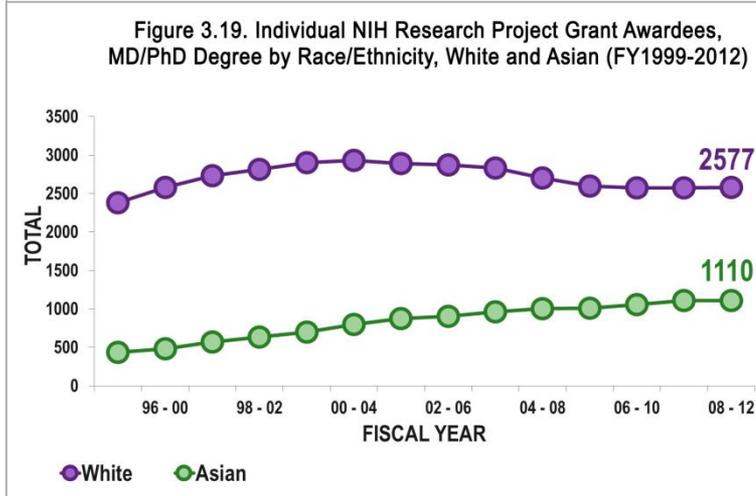
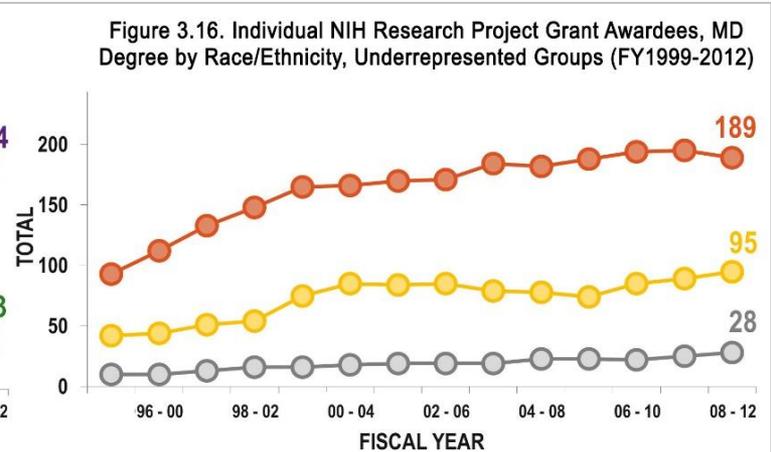
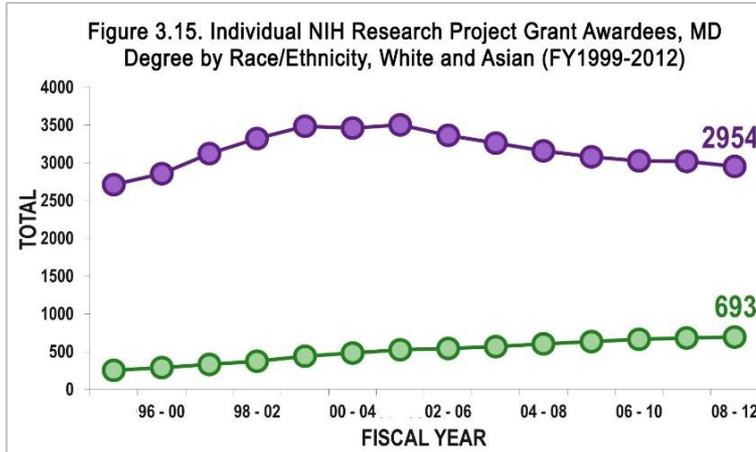
- Men outnumbered women ~3:1 in the workforce
- But women awarded almost one-third of the RPGs

## Veterinarian-scientists

- 90% of current graduates are women
- But men outnumbered women ~3:1 among RPG recipients

# Race/Ethnicity Differences Among MDs and MD/PhDs

- Significant growth of Asian and Hispanic awardees #s
- Less growth of African-American and Native American #s



# Major Challenges for Physician-Scientists (1)

- 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

## Major Challenges for Physician-Scientists (2)

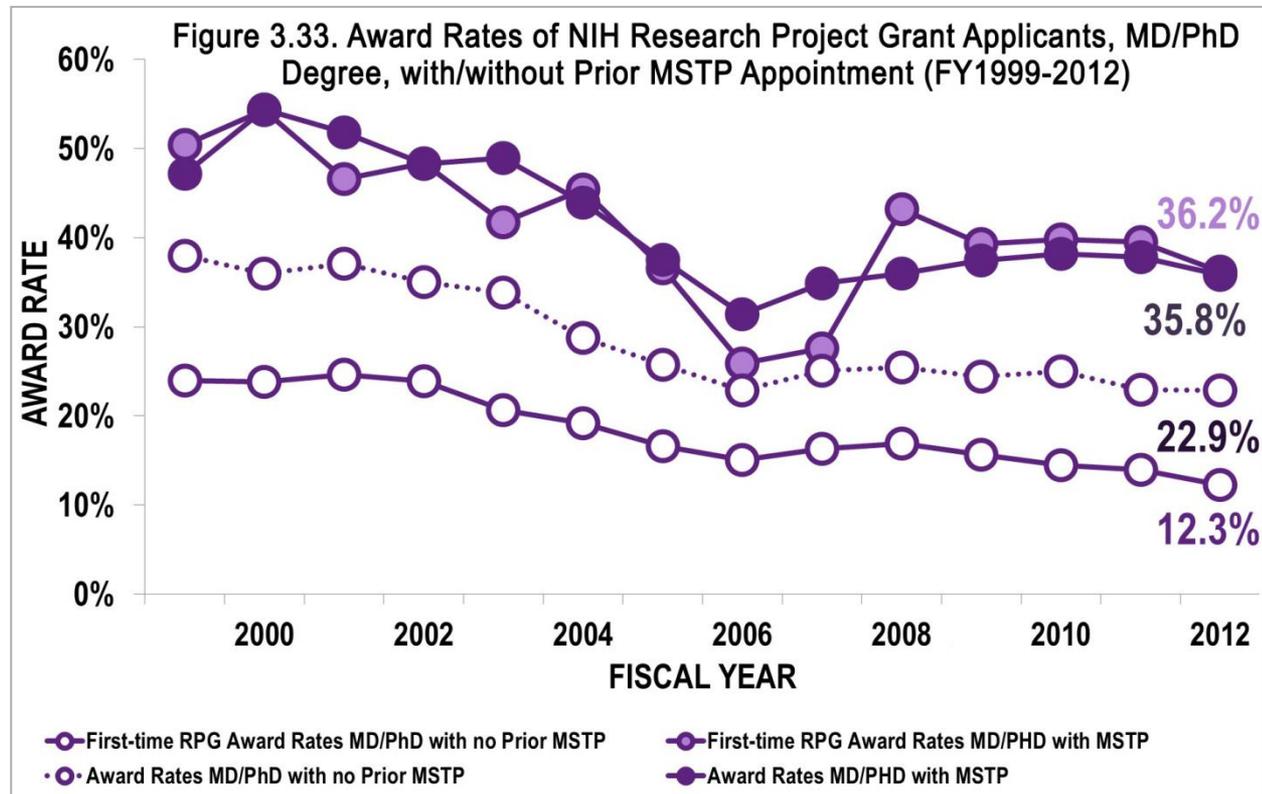
- Particular obstacles for non-MD PS training
  - Primary educational focus is on producing clinical practitioners
  - Shortage of faculty members with scientific research programs as role models/mentors
  - Lack of research training infrastructure

# *Recommendations*

## 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

# #1: Sustain Strong Support for MD/PhD Programs



- MSTP - higher RPG award rates (35.8% in 2012) than non-MSTP MD/PhDs (22.9%)
- **However, only ~13% of RPG-funded MD/PhDs were previously supported by MSTP!**

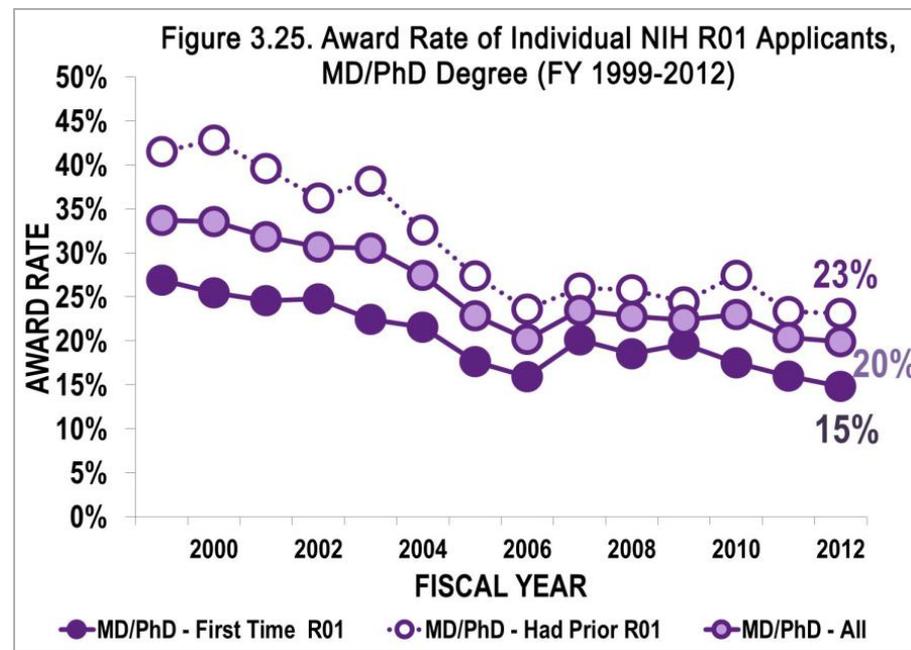
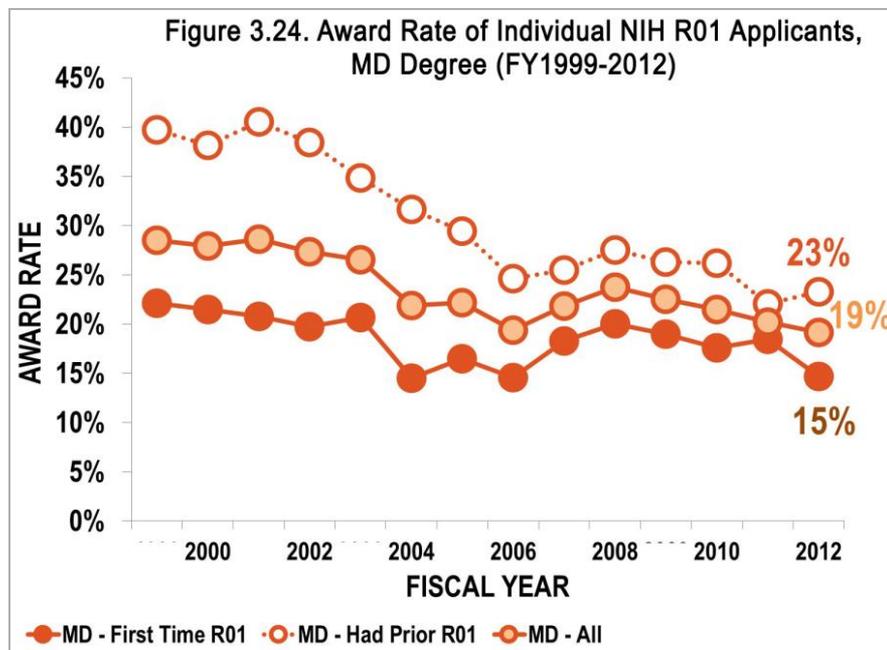
## #2: Shift NRSA Postdoc Training Awards to Support Proportionately More Individual Fellowships vs Institutional Grants

### PSW-WG Finding:

Of 27795 T32 appointees (1999 -2008)

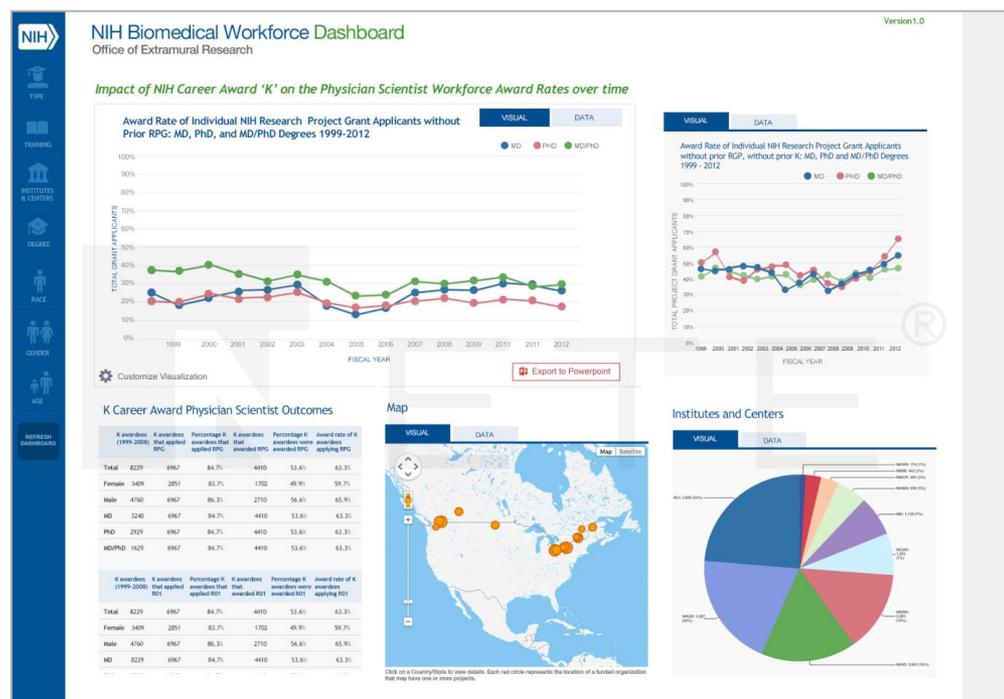
- 6500 (23.4%) applied for RPGs
- Award rate was 47.8%

# #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

- Establish standing committee to support the development and dissemination of biomedical workforce dashboard for real-time tracking
- Require rigorous reporting & tracking of outcomes of NIH awards



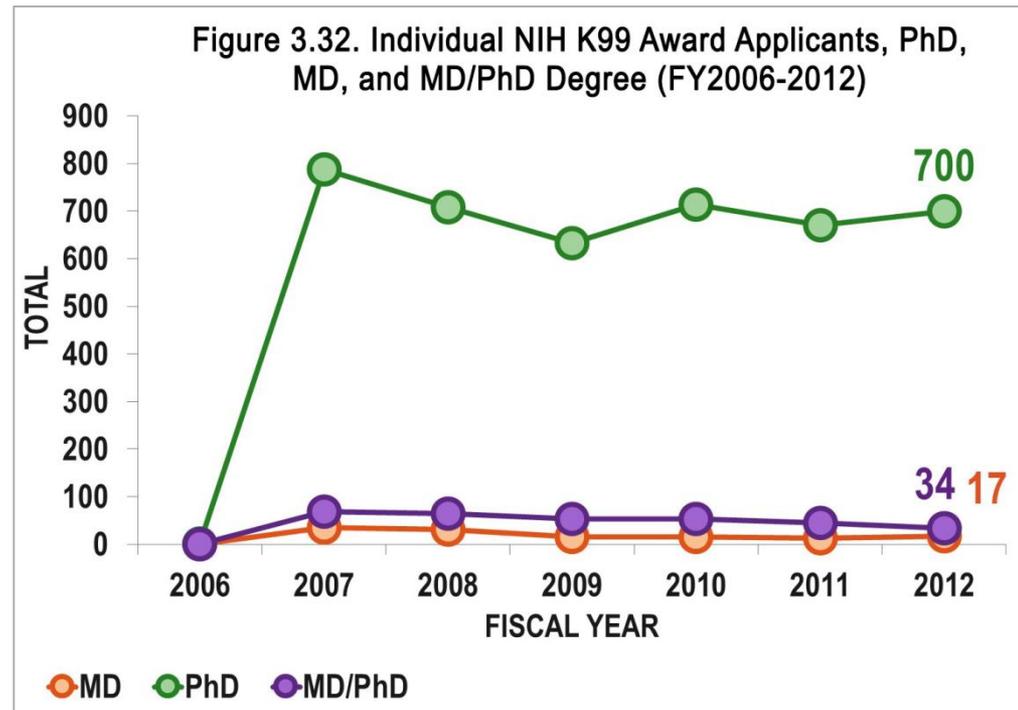
# #5: Establish PS-Specific K99/R00-Equivalent Granting Mechanism

## 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

PSW-WG Finding:

Of 5303 LRP awardees (2003-2008)

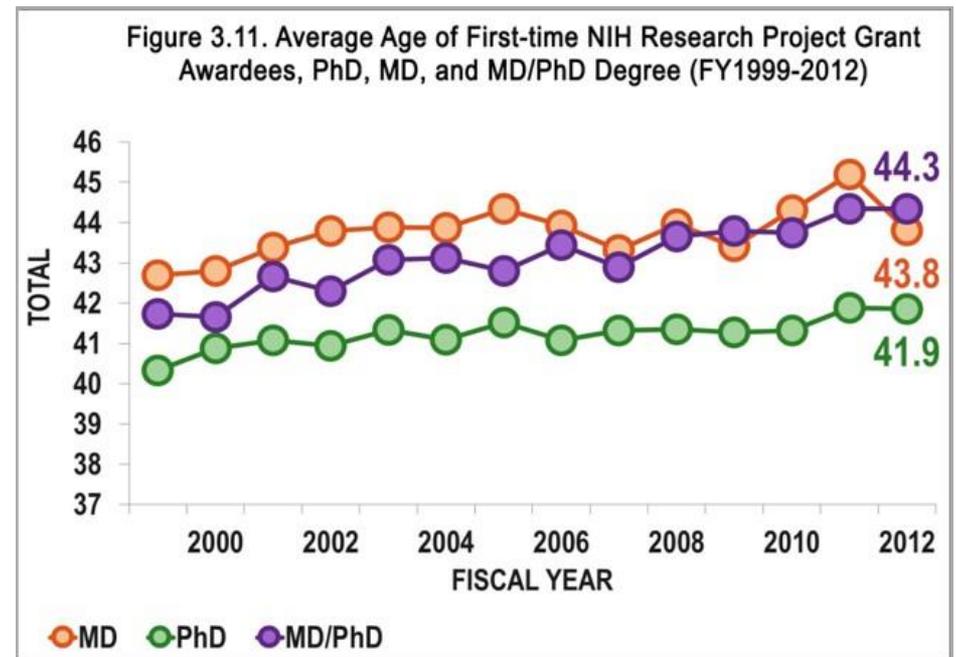
- 2637 (49.7%) applied for RPGs
- Award rate was 47.0%
- Current limit is \$35,000 per annum

**Expand program to all students pursuing physician-scientist research careers regardless of research area or clinical specialty**

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

Average age of first-time RPG awardees (2012)

- **MDs:** 43.8
- **MD/PhDs:** 44.3
- **PhDs:** 41.9



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

- Perpetual deficiencies with regards to diversity
- Focused effort needed to address equity across many domains:
  - Age
  - Gender
  - Race/ethnicity
  - Disability
  - Others

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

- Is this resource being optimally utilized?
- Require rigorous trainee reporting and tracking
- Encourage testing of innovative pilot programs
- Extend to non-MD components of the PSW

## Future Considerations (1)

- How to attract optimal candidates to enter the PSW?
- How to incentivize mentorship?
- How will the Affordable Care Act 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
- Can robust data sharing be established among the major organizations collecting PSW data?

## 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>

*Thank you!*

