Physician Scientist Workforce Modeling at NIH (…and much more)

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Rationale for Workforce Modeling

• Purpose of modeling
  – Projection of workforce size and demographics
  – Effects of policy changes

• Questions to answer
  – What will be the size and characteristics of the science workforce in the future?
  – How will NIH funding policies affect the workforce?
E1: Sudden doubling of R funds in year 10

NIH-funded Scientists (% in each stage)

- Trainees
- Young or Early
- Middle
- Senior or Emeritus

Year
Baseline Inputs

Age of NIH-funded Scientist

Year

Average Age

E1: Double Rs in year 10

Age of NIH-funded Scientist

Skill of NIH Scientist

Year

Average Skill

5.5

5

4.5

4

3.5

3
E1: Double Rs in year 10

Gradually double Rs, yr 10-yr 19
E1: Double Rs in year 10

Age of NIH-funded Scientist

Skill of NIH Scientist

E4: Double Rs yr 10 (w/ Fs, Ks)

Age of NIH-funded Scientist

Skill of NIH Scientist
Other Projects

- Modeling Predicted Change of Women’s Representation in Independent Investigator Awards
  - Will women’s representation reach parity without policy intervention?
Women’s Future Representation in NIH RPG Grants

Proportion of Women in NIH Grant Awardees

Source of data: NIH IMPAC II data: 1980–2015
Share of Women in RPG Awardees for Cohort 2015

Women’s Future Representation in NIH RPG Grants
Other Projects

• Modeling Predicted Change of Women’s Representation in Independent Investigator Awards
  – Will women gradually reach parity without policy intervention?

• Impact of Intense, High Quality Training on Future Career Outcomes (Yellow Beret Project)
  – Using Vietnam lottery draft as an instrument to measure impact
Lots more to do!

- Modeling the impact of changing NIH’s focus from grants to people
- Identifying which NIH processes are potential barriers to maximizing innovation in the scientific work space
- Can we improve or advance our understanding of how workforce composition affects productivity and innovation?
- Is it possible to identify how, in a time of hyper competition, we can get closer to a healthier level of competition within scientific funding – are there things NIH could do in program or policy to help get us back to healthy competition?
- Modeling the effects or potential impacts of changes to salary and/or benefits structure for PIs, postdocs, and graduate students
- Generating a model of understanding incentives and interactions between NIH funding models and how biomedical research institutions do business. How do we develop NIH grant mechanisms that support healthy, slow and steady growth of the workforce?