

NEXT GENERATION RESEARCHERS INITIATIVE

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My background:

Ph.D. in Biochemistry

Summer Physiology course at MBL, Woods Hole

Baylor College of Medicine Houston:

Six months as a postdoc

Instructor, Assistant Professor and Associate Professor

Senior Scientist , Weis Center for Research, Geisinger Clinic,

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To evaluate:

- 1) legislative, administrative, educational and cultural barriers that prospective researchers encounter as they transition to independent research careers.
- 2) the effects of Federal budgets and Federal agency policies and procedures on the transition to independent research careers
- 3) the extent to which employers can facilitate smooth transitions for early career researchers into independent research careers.

Outline

- 1) Barriers to successful transition.
- 2) What we're doing and need to do better
- 3) Ways in which the Federal government is, and can, facilitate the transitions for early career researchers into their independent research careers.



Historical Perspective: Transition to Faculty or Industrial positions

This was mostly unguided.

Few student or postdoc supervisors provided guidance or preparation for the “next step”.

In Academics

A faculty hire was supposed to develop their research program and fit into the teaching profile of the department.

The ideal faculty member had an active research program, trained graduate students and postdocs, and taught in the undergraduate (or Medical School) curriculum....

Historical Perspective: Transition to Faculty or Industrial positions

Research oriented institutions were growing , jobs were available and NIH was funding a significant percentage of researcher initiated grants.

Have things changed?

The number of earned doctorates has continued to rise

	Male	Female
1970	2500	400
2008	3500	3500

SOURCE: NSF. 2008. *Survey of Earned Doctorates*. Available at <http://www.nsf.gov/statistics/srvydoctorates/>.

The Number of Tenured and Tenure-Track Faculty Positions Has Remained Constant

	Tenure Track Faculty	Tenured Faculty	Academic Postdocs	Other Academic
1981	8,000	22,000	5,000	9,000
2010	8,000	22,000	8,000	21,000

Changes in Employment Patterns

1973: **55%** of US doctorates in the biological sciences secured tenure-track positions within six years of completing their PhDs, and only 2% were in a postdoc or other untenured academic position.

2006: **15%** were in tenure-track positions six years after graduating

The Average Age of Funded Faculty has Risen

	Average Age All NIH PIs on RPGs	Average Age Faculty at US Medical Schools
1983	42.5	43
2015	51	49.5

AAMC faculty information from 1980 to 2010 were based on AAMC data drawn on 9/4/2011. AAMC faculty information from 2011 to 2013 were based on AAMC data drawn on 11/5/2014. All AAMC numbers are subjects to change.

Where are We Now

An aging faculty

Lower funding success rates overall

An aging funded faculty

Lower funding success rates for junior faculty*

*Increase in the age at which first grant is obtained

An aging faculty is leading to a shortage of teachers.

Increasing the pressure on new, junior faculty to teach.

Institutional Changes IN Support of Early Researchers

Recognize the needs of junior faculty

Working with the administration to provide for those needs

Tenure decisions
Financial support
Protected time

Institutional Changes IN Support of Early Researchers

Recognize the needs of junior faculty

Tenure decisions

Institutional Efforts IN Support of Early Researchers

Financial Support

Start-Up Packages

Why hire a candidate and not provide the tools
necessary for success?

Institutional Efforts IN Support of Early Researchers

Protected time

Institutional Changes IN Support of Early Researchers

IDP

Mentoring

Career Development

Research oriented:

grant writing

grant administration

compliance

Teaching oriented

lecture preparation

NIH Efforts IN Support of Early Researchers

Starting with PhD and Postdoctoral Training....

Preparation for the "Next" step

Structured programs that assist with pedagogical skill development and academic professional development.

Ongoing NIH Efforts IN Support of Early Researchers

New and Early Stage Investigators

A **New Investigator** has not previously competed successfully as PD/PI for a substantial NIH independent research award.

A **New Investigator** is considered an **Early Stage Investigator (ESI)** if he/she is within 10 years of completing his/her terminal research degree or is within 10 years of completing medical residency (or the equivalent).

Ongoing NIH Efforts IN Support of Early Researchers

Special Awards for New Investigators

Pathway to Independence Award (K99-R00/K22)*

NIH Director's [New Innovator Award](#) (DP2)

NIH Director's [Early Independence award](#) (DP5)

[RFA-GM-16-003 \(R35\)](#), the Maximizing Investigators' Research Award (MIRA) for New and Early Stage Investigators pilot program

* Other Mentored Research Career Development Awards, e.g. K08, K23

Proposed NIH Effort IN Support of Early Researchers: Funding

A new award for new faculty investigators

R02?

An “R00” type award for New Investigators in Academia who have not been awarded a K99/R00, K08,R03 or K22

But with a difference

Proposed NIH Effort IN Support of Early Researchers: R02 Funding

Criteria could include

- Salary guaranteed for three years by the sponsoring academic institution
- Significant start-up funds from the sponsoring academic institution
- A full-time faculty position with an unmodified title
- Required Mentoring program similar to *K99/R00 etc.*
- Required Individual Development Plan

K99/R00 and R02 Comparison

Requirements	R00	R02
Faculty Position	Required	Required
Protected Time	Required 75%	Required 80%
Mentoring	Required#	Required
IDP	Encouraged	Required, yearly
Apply Before Position Accepted	Yes	Yes

Budget Information	R00	R02
Salary	*	\$25,000/yr
Program-Related Expenses	\$249,000/yr*	Matching University to a total of \$400,000/3 yrs. \$30,000 supplies

*The total cost for the independent phase (R00) may not exceed \$249,000 per year. This amount includes salary, fringe benefits, research costs, and applicable F & A costs.

Proposed NIH Effort in Support of Early Researchers: Mentoring

Mentor

1 capitalized : a friend of Odysseus entrusted with the education of Odysseus' son Telemachus

2a : a trusted counselor or guide

b : tutor, coach

What is our definition of a mentor?

Proposed NIH Effort in Support of Early Researchers: Mentoring

K23 Mentor(s): The candidate must name a primary sponsor/mentor, who together with the candidate *is responsible for the planning, direction, and execution of the program.*

The mentor should be *recognized as an accomplished investigator in the proposed program and have a track record of success in training similar investigators.*

The mentor should have sufficient independent support to cover the costs of the proposed project in excess of the allowable costs of this award.

Candidates may also nominate co-mentors as appropriate to the goals of the program. Where feasible, women, individuals from diverse racial and ethnic groups, and individuals with disabilities should be involved as mentors to serve as role models.

Proposed NIH Effort IN Support of Early Researchers: Mentoring

Mentor/Mentoring

Where does it start?

What is their degree of commitment?

How do we select mentors for junior researchers.

Do we need to train mentors

Generational gaps in expectations

life vs. work

Generational gaps in world view

Incentives?

