



**CAROLINA**  
A RESEARCH UNIVERSITY

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THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL

## NIH Mission

NIH's mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to **enhance health, lengthen life, and reduce illness and disability.**

The goals of the agency are:

- to foster fundamental creative discoveries, innovative research strategies, and their applications as a basis for ultimately protecting and improving health;
- to develop, maintain, and renew scientific human and physical resources that will ensure the Nation's capability to prevent disease;
- to expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research; and
- to exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

<http://www.nih.gov/about/mission.htm>



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## NIH Impact Statement

### Our Health

Over the years, our nation has made impressive gains in health and longevity. A driving force behind that progress has been medical research supported by NIH.



Thanks in large part to NIH research, [Americans are living nearly 30 years longer than they did in 1900](#). Not only have these gains in longevity enriched many lives, they have added an estimated \$3.2 trillion annually to the U.S. economy since 1970.

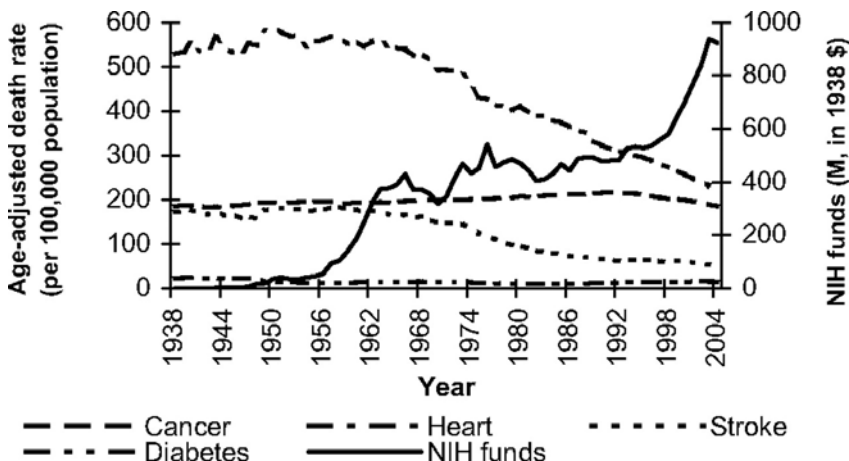
What's more, Americans are not just living longer, they are staying active longer. In the last 25 years, [the proportion of older people with chronic disabilities has dropped by nearly one-third](#).

Such progress is made possible by NIH's support of many different types of research focused on a wide range of conditions. Here's an overview of a few of the major health advances fueled by NIH-funded research.

<http://www.nih.gov/about/impact/health.htm>



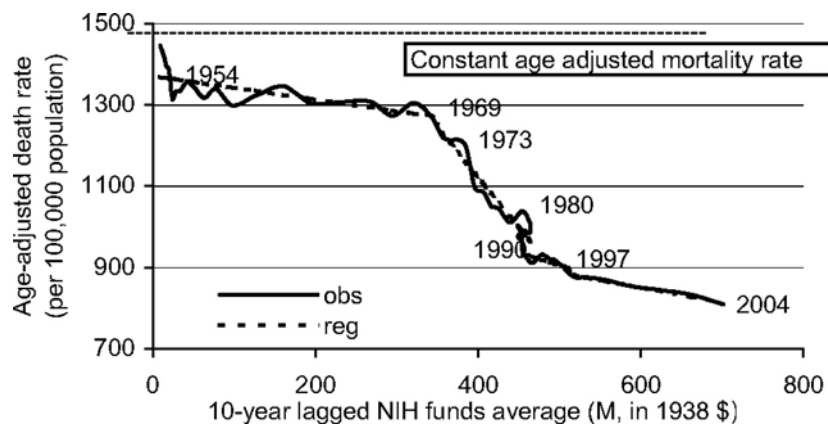
### Age adjusted death rate for multiple causes and NIH funds, United States, 1938–2004.



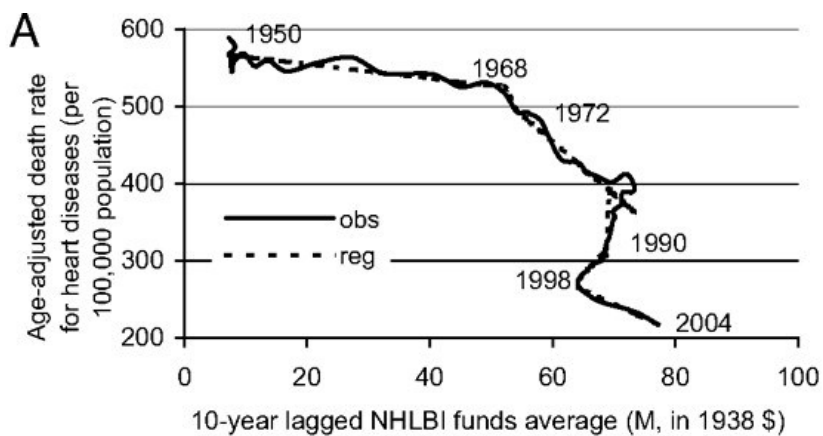
Manton K G et al. PNAS 2009;106:10981-10986



### Age-adjusted death rates as a function of 10-year lagged NIH funds average.

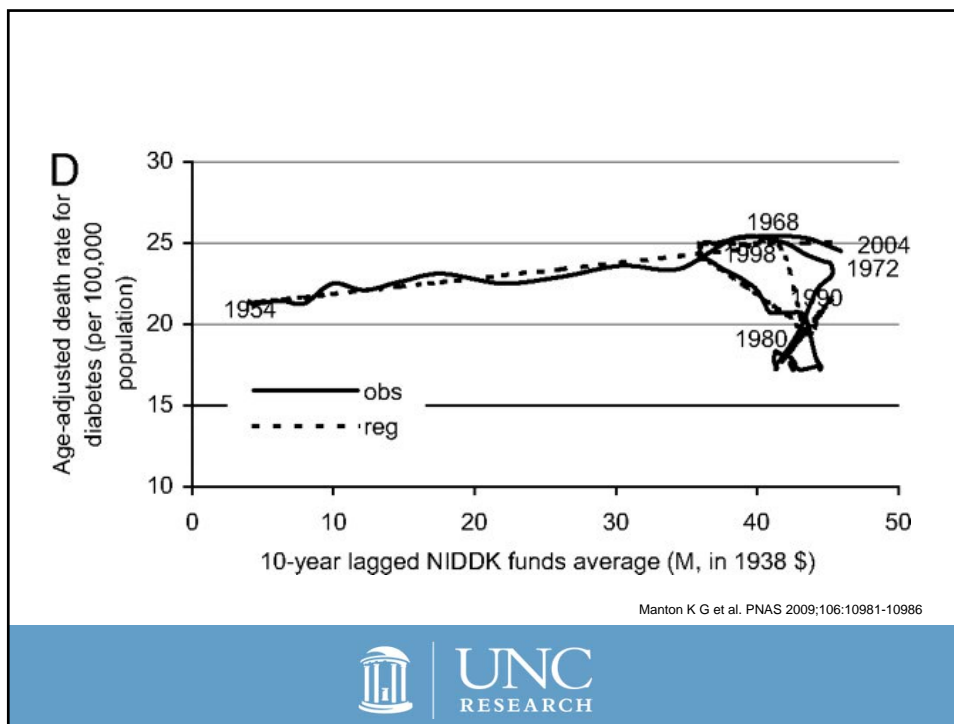


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### NIH funding trajectories and their correlations with US health dynamics, 1950-2004

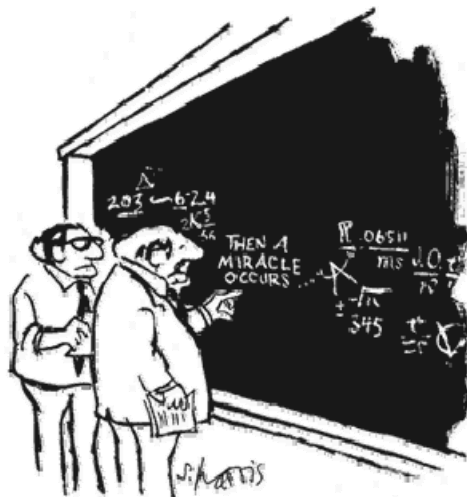
Deaths (million) avoided by NIH funding

Year	Observed	Avoided	
		Total	Annual
1950-1969*	47.3	1.2	0.06
1970-1989	47.5	14.2	0.71
1990-1997	19.2	9.4	1.18
1998-2004	17.0	10.3	1.47
1950-2004	130.9	35.2	0.64

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## The Impact of NIH Funding on Health and Longevity



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

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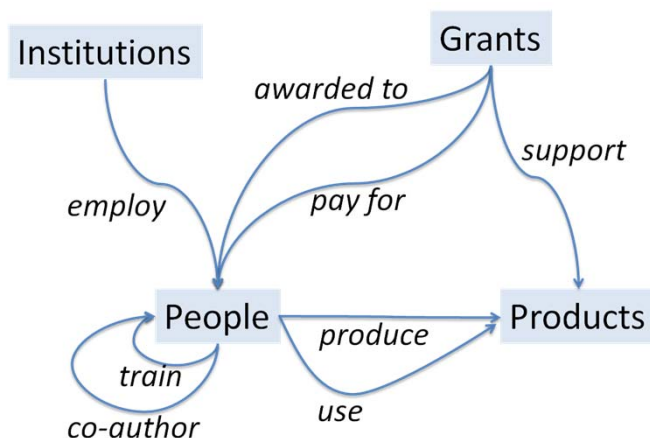
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## A People Centered Approach



Source: Ian Foster, University of Chicago



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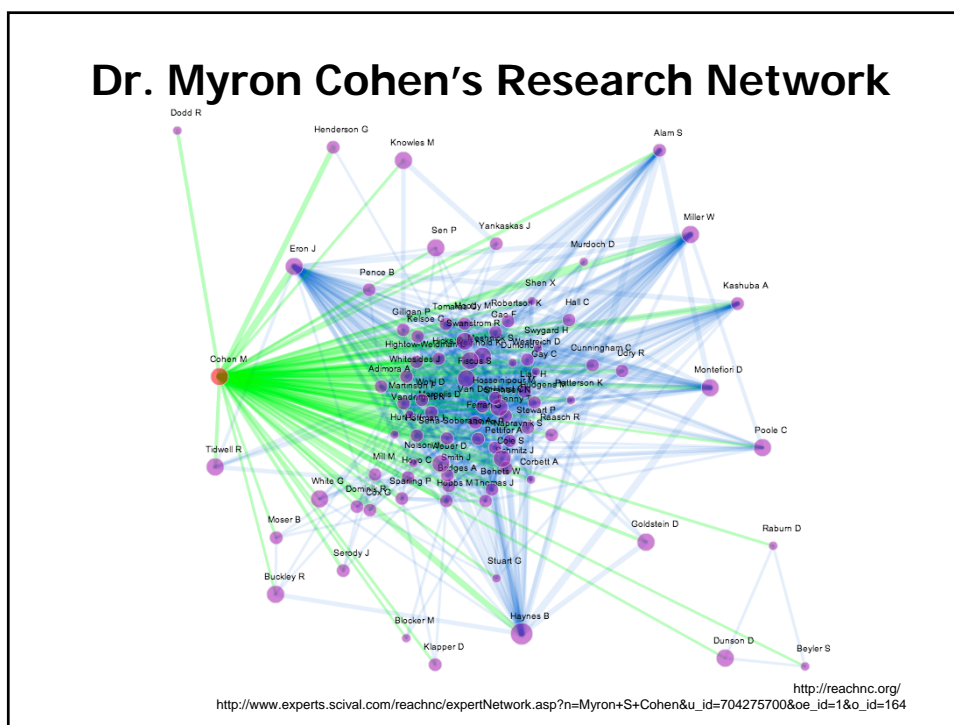
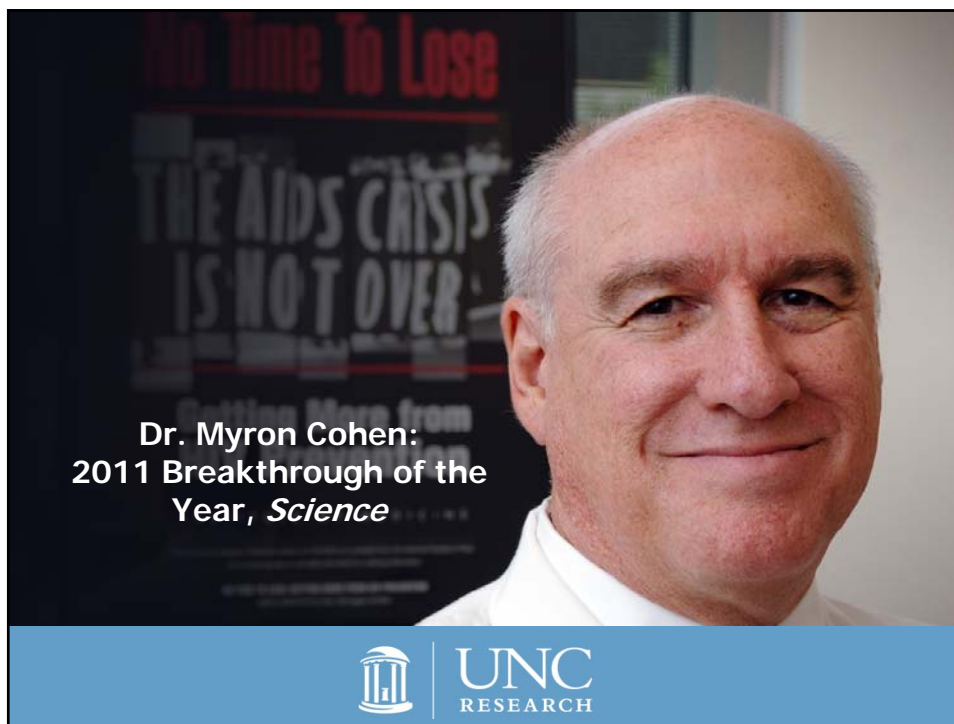
## Social Networks and the Creation, Dissemination, and Application of New Ideas

- Explicit project-based collaborations
- Flows of research materials
- Flows of students/postdocs
- Shared data sets
- Spatially organized "collisions"
- Overlapping panel membership
- Other personal contacts

Owen-Smith and Levenstein. 2013. "Assessing the Social and Economic Roles of Research Universities." Measuring the Results of Research Investments, University of Chicago.



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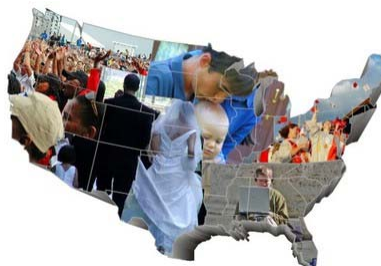


## National Longitudinal Study of Adolescent Health



**Add Health** *Social, Behavioral, and Biological Linkages Across the Life Course*

The National Longitudinal Study of Adolescent Health (Add Health) is a longitudinal study of a nationally representative sample of adolescents in grades 7-12 in the United States during the 1994-95 school year. The Add Health cohort has been followed into young adulthood with four in-home interviews, the most recent in 2008, when the sample was aged 24-32\*. Add Health combines longitudinal survey data on respondents' social, economic, psychological and physical well-being with contextual data on the family, neighborhood, community, school, friendships, peer groups, and romantic relationships, providing unique opportunities to study how social environments and behaviors in adolescence are linked to health and achievement outcomes in young adulthood. The fourth wave of interviews expanded the collection of biological data in Add Health to understand the social, behavioral, and biological linkages in health trajectories as the Add Health cohort ages through adulthood.



<http://www.cpc.unc.edu/projects/addhealth>



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## Add Health: Contribution to Science

Add Health has become a national and global data resource for over 10,000 Add Health researchers:

Funded research grants	600+
Referee publications	2000+
Books	19
Book chapters	75
Dissertation/Theses	450+

Source: Dr. Kathleen Mullan Harris, PI



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## Science of Science Policy Approach

- Need feasible, low cost and flexible approach, so use science to describe and to manage the scientific ecosystem.
- Conceptual framework: Science is done by scientists so focus on scientists and networks of scientists
- Empirical framework: New ways of collecting data so use new cybertools to capture information automatically
- Pragmatic Approach: New ways of presenting information to visualize information so public can see results of research



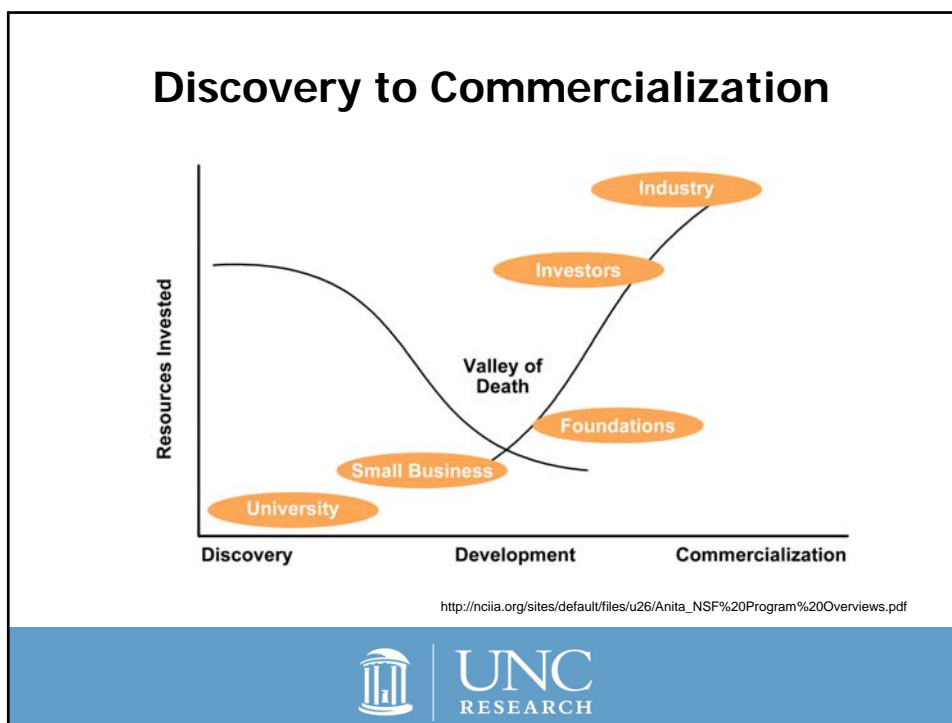
## The Next Step: Discovery to Impact

Dissemination: Get the message out to those who need to know.

Implementation: Transform policy, programs, practice

Commercialization: Create commercially viable drugs, devices, diagnostics





## Concluding Remarks

Measuring the impact of NIH investments on improved live expectancy is challenging

- Complex linkage between funding and health outcomes

Linking funding to projects

Linking projects to discovery:

- Projects compliment and build on each other over time
- Constructed around networks of faculty, students, postdocs, staff
- Discovery can be the product of a decade or more of work

Importance of shared infrastructure:

- Data are an important product of research
- They can be used and reused, combined and recombined over time
- Joint use creates networks of faculty, students, postdocs, staff

## Concluding Remarks

Linking discovery to projects:

- Knowledge builds
- Discovery can draw from disparate sources
- Can involve other non-NIH sources of funds

Linking discovery to health impact:

- Going beyond the bench
- A "hand-off" to industry, commercial interests, policy-makers, practioners, population
- Complex set of linkages, some of which are beyond NIH purview
- Takes time

Overall, need a scientific approach.



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