What is the return on the American people’s investment in the National Institutes of Health?

What has the NIH budget doubling accomplished?

What is the NIH strategy for the future?
Coronary Heart Disease

- 63% decrease in Mortality
- ~ 1 million early deaths averted per year
- $2.6 trillion in economic return
- New, effective treatments and prevention strategies
- New discoveries being developed with industry
Coronary Heart Disease

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- 1 million early deaths averted per year
- $2.6 trillion in economic return
- New, effective treatments and prevention strategies
- New discoveries being developed with industry

Average investment per American:

≈ $3.70 per year

30-year investment per American:

≈ $110 Total

Per American:

≈ $110

Year

Deaths per 100,000

50 55 60 65 70 75 80 85 90 95 00

~ 514,000 Actual Deaths in 2000

~ 1,329,000 Projected Deaths in 2000
For the first time in recorded history, annual cancer deaths in the United States have fallen:

10 million survivors

Improved effectiveness of early detection and screening

Thanks to the doubling, new targeted, minimally invasive treatments for cancer multiplied

New drugs developed for cancer prevention
Cancer

- For the first time in recorded history, annual cancer deaths in the United States have fallen.
- Improved effectiveness of early detection and screening.
- Thanks to the doubling, new minimally invasive treatments for cancer multiplied.
- New drugs developed for cancer prevention.

Average investment per American: \(~$8.60\) per year

30-year investment per American: \(~$260\) Total
New Discoveries Make it Possible to “Personalize” Cancer Treatment

Identified 16 informative genes

Test tumor samples for mutations in these genes

Impact:

70,000 breast cancer patients per year may not have to undergo chemotherapy

Predict which patients need chemotherapy
A World Without a Strong NIH

How would we face new threats?
Doubling the Budget Allowed NIH to Expand the Scope of its Mission

- **New Biodefense Mission**
  - Multiple countermeasures

- **New Vaccine Research Center**
  - Over 14 new vaccines

- **HHS Pandemic Flu Preparedness**
  - H5N1 Vaccines and Drugs

- **New fields of research:**
  - Genomics
  - Bioinformatics
  - Institute of Biomedical Imaging and Bioengineering
Human Genome Project and HapMap:
The Foundation of a New Medical Era

- New powerful DNA sequencing technologies
- 2007 Genes, Environment, and Health Initiative
  - Identify roots of 10 most common diseases within 3 years
  - Devise new ways of monitoring personal environmental exposures
  - Guide new treatments
Broadening the NIH Vision

**FY 2004**
- NIH Roadmap for Medical Research
  - Involves entire NIH

**FY 2005**
- NIH Strategic Plan for Obesity Research
  - Involves 19 Institutes and Centers

**FY 2006**
- NIH Neuroscience Blueprint
  - Involves 15 Institutes and Centers

*Image © Time magazine, June 2004*
Example of Interdisciplinary Research:
Deep Brain Stimulation Treatment for Parkinson’s Disease

Without “Brain Pacemaker” Stimulation
Example of Interdisciplinary Research:

Deep Brain Stimulation Treatment for Parkinson’s Disease

With “Brain Pacemaker” Stimulation
Example of Interdisciplinary Research:
Deep Brain Stimulation Treatment for Parkinson’s Disease
3,114 New Technologies Brought to Market
Funding to Develop Technologies Provided by Both US Government and Private Industry

4,543 New Companies Formed
2,671 Companies Still in Operation as of 12/2004

With Doubling, NIH Expands Funding Across U.S.
America Is Living Longer
And Healthier

- Improvements in:
  - Recovery from heart disease, stroke
  - Deafness
  - Vision impairment
  - Osteoporosis

- Bone and joint health
  - New, more effective classes of drugs for arthritis
  - Improvements in joint replacement technology
America Is Living Longer

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  - New, more effective classes of drugs for arthritis
  - Improvements in joint replacement technology

Since 1982, disability rate for elderly Americans declined by 30%

In past 30 years, American life expectancy increased by ~6 years
Facing the Rising Challenge

U.S. Health Expenditures per capita

The Future Paradigm: Transform Medicine from Curative to Preemptive

Predictive ↔ Personalized ↔ Preemptive
NIH
Transforming medicine through discovery