

Beyond the Stimulus: Assessing Your Federal Research Outlook for 2010



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Context: Science Funding in Federal Budget

- Federal Budget is \$3.6 trillion:
 - 61% is for entitlement programs (Social Security, Medicaid/Medicare, Interest on the debt, etc).
 - 21% is for defense.
 - 18% is non-defense programs.
- Of the total federal budget, 2.2% is for defense R&D and 1.9% is for non-defense R&D.
- Universities and Colleges perform 22% of federal R&D and 51% of federal basic research.

Where Are We on the Stimulus?

- The American Recovery and Reinvestment Act (ARRA) included \$18.4 billion in R&D funding – winners include NIH (\$10 billion), DOE Office of Science (\$1.6 billion), NSF (\$3 billion), and NIST (\$580 million).
- NIH and NSF funding decisions are near completion. DOE has issued solicitations, decisions on funding to be made over the next several months.
- Emphasis on “one-time” strategic investments- funding in stimulus not carried over in agency base budgets.
- Focus at the agencies has shifted to planning and execution for FY 2010 programs, FY 2011 funding, and development of FY 2012 budget.

Science Funding in FY 2010

- FY 2010 appropriation process almost complete.
- Good support from Congress for the science agencies, e.g. NSF and DOE Office of Science.
- NIH is supported but budget realities limit substantial growth.

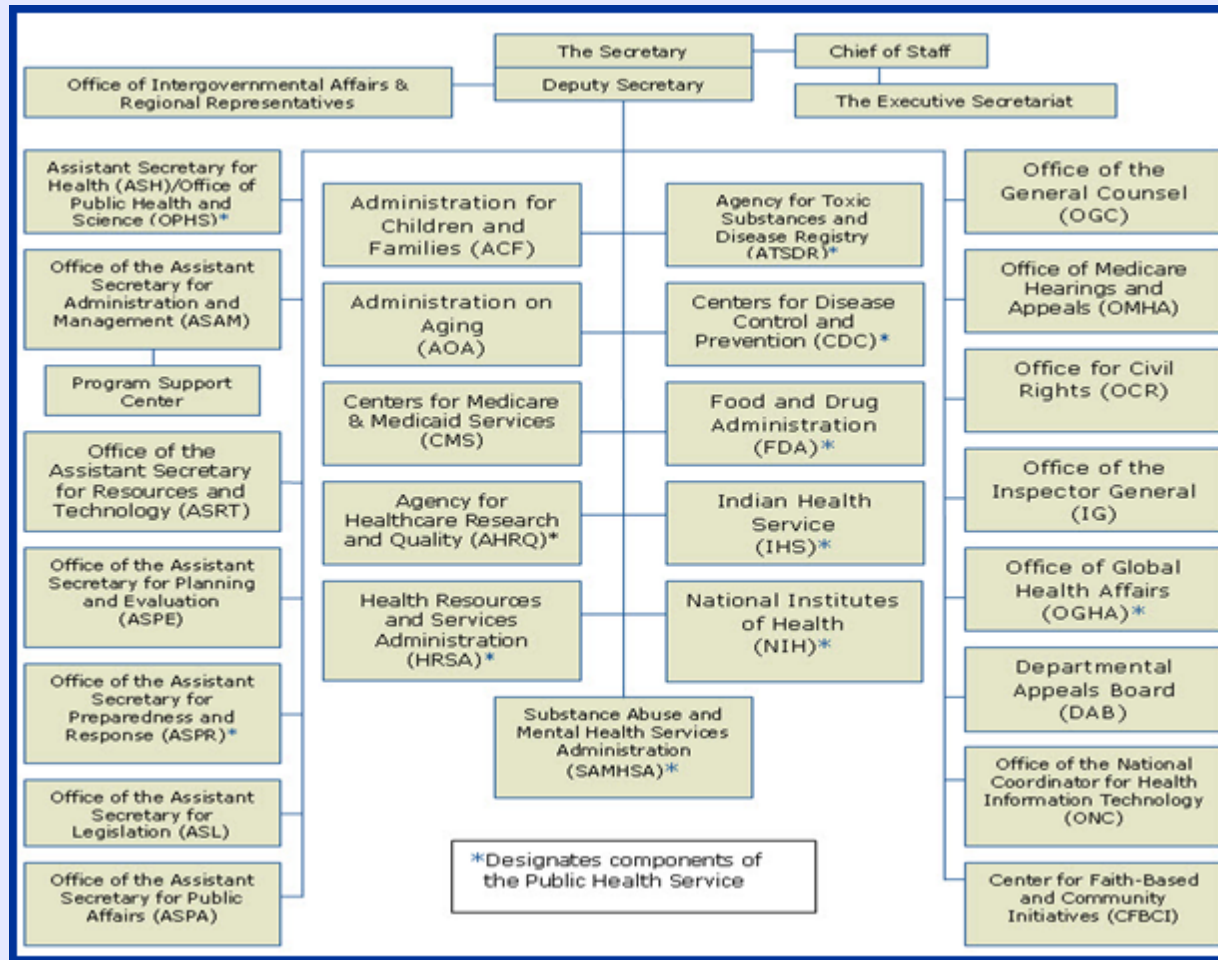
Looking Ahead- FY 2011 Budget

- Large deficits dictate spending constraints. Small increases for science in FY 2011 would be a victory.
- Some strategic increases expected, e.g. President's Innovation Agenda, energy and climate.
- Unclear what Congress will accept in the President's budget proposal.

Looking Ahead- Science Issues in FY 2011

- Obama focus on S&T as useful to policy issues- Health, Security, Energy/Climate, and Economy.
- NIH to play a greater role in improving health and healthcare delivery.
- War, Climate Change regulations, financial reform all expected to take money and time from Congress, as well as attention away from other programs.
- Research community will be justifying previous large investments to science, e.g. stimulus.

The Challenge for Agencies of the Dept. of Health and Human Services (DHHS)



Department of Health and Human Services

Agencies With a Primary Focus on Healthcare Delivery

- Agency for Children and Families (ACF)
- Health Resources and Services Administration (HRSA)
- Administration on Aging (AOA)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- Food and Drug Administration (FDA)

New roles emerging in healthcare reform and community-based activities.

Department of Health and Human Services

Agencies With a Primary Focus on Biomedical Research

- National Institutes of Health (NIH)
 - No dramatic budget increases in FY 2010
 - New leadership: Francis Collins
- Agency for Healthcare Research and Quality (AHRQ)
 - Leads comparative effectiveness efforts
 - Carolyn Clancy continues as leader
- Centers for Disease Control and Prevention (CDC)
 - Re-energizing efforts underway
 - New leadership: Thomas Frieden

Next Steps for NIH - Beyond Stimulus Funding

- President Obama at NIH on 30 September:
 - Recognized NIH's pivotal role in biomedical research leadership for the nation and the world.
 - Challenged NIH and its grantees to make the outcomes of research map more quickly to needs in healthcare.

President Obama's overall goal is 'better health outcomes at lower cost' and NIH is expected to do its part toward meeting that goal.

New NIH Director Francis Collins: His Five Main Priorities

1. Taking advantage of advances in high-throughput technologies to understand the fundamentals of biology and how specific diseases are activated.
2. Emphasizing the translation of research into medical practice.
3. Placing a greater focus on global health.

New NIH Director Francis Collins: His Five Main Priorities

4. Putting science to work for the benefit of health care reform through:
 - Comparative effectiveness research
 - Behavioral science
 - Health information technology
 - Health research economics
 - Research on health disparities

New NIH Director Francis Collins: His Five Main Priorities

5. Addressing the extramural research community's needs via:
 - Future budgets
 - Training
 - Peer review
 - Workforce diversity

Concepts from Stimulus Initiatives Will Continue in NIH programs FY 2010 and Beyond

- Groundbreaking, innovative, high impact, cross-cutting.
- Enhanced integration of activities in multiple laboratories.
- New and creative collaborative partnerships.
- Novel tools, technologies, services to overcome barriers.
- Accelerated multi-, trans- and interdisciplinary research.
- 15 'Challenge' topics are signpost of research needs and initiatives.

(http://grants.nih.gov/grants/funding/challenge_award/Omnibus.pdf)

Community Linked Infrastructure

- FY 2010 initiative in “building community-linked infrastructure to enable health science research”
 - \$30 million in stimulus dollars for 30 or more projects
 - All but 6 NIH institutes are participating
 - The most concrete trans-NIH program to date that attempts to link the work of academic health centers with community-based organizations

Roadmap Concept is a Permanent Part of NIH via Common Fund

- Themes remain as:
 - New Pathways to Discovery
 - Research Teams of the Future
 - Re-engineering the Clinical Research Enterprise
- But stimulus activities will inform NIH's rethinking of how best to approach the roadmap- transformative R01 program may be the mechanism.

Guide for the Future

What we can learn from:

- NIH's recent funding of
 - Transformative R01s
 - Pioneer Awards
 - New Innovator Awards
- Individual Institute strategic plans?

Agency for Healthcare Research and Quality (AHRQ)

- Federal lead for comparative effectiveness research with both regular programs and stimulus funding.
- Significant role in healthcare reform.
- Work on healthcare information technology continues.

Agency for Healthcare Research and Quality (AHRQ)

Activities currently underway:

- Clinical and health outcomes initiative in comparative effectiveness (CHOICE)
- Innovative adaptation and dissemination of AHRQ comparative effectiveness research products (ADAPT)

Agency for Healthcare Research and Quality (AHRQ)

Activities anticipated soon:

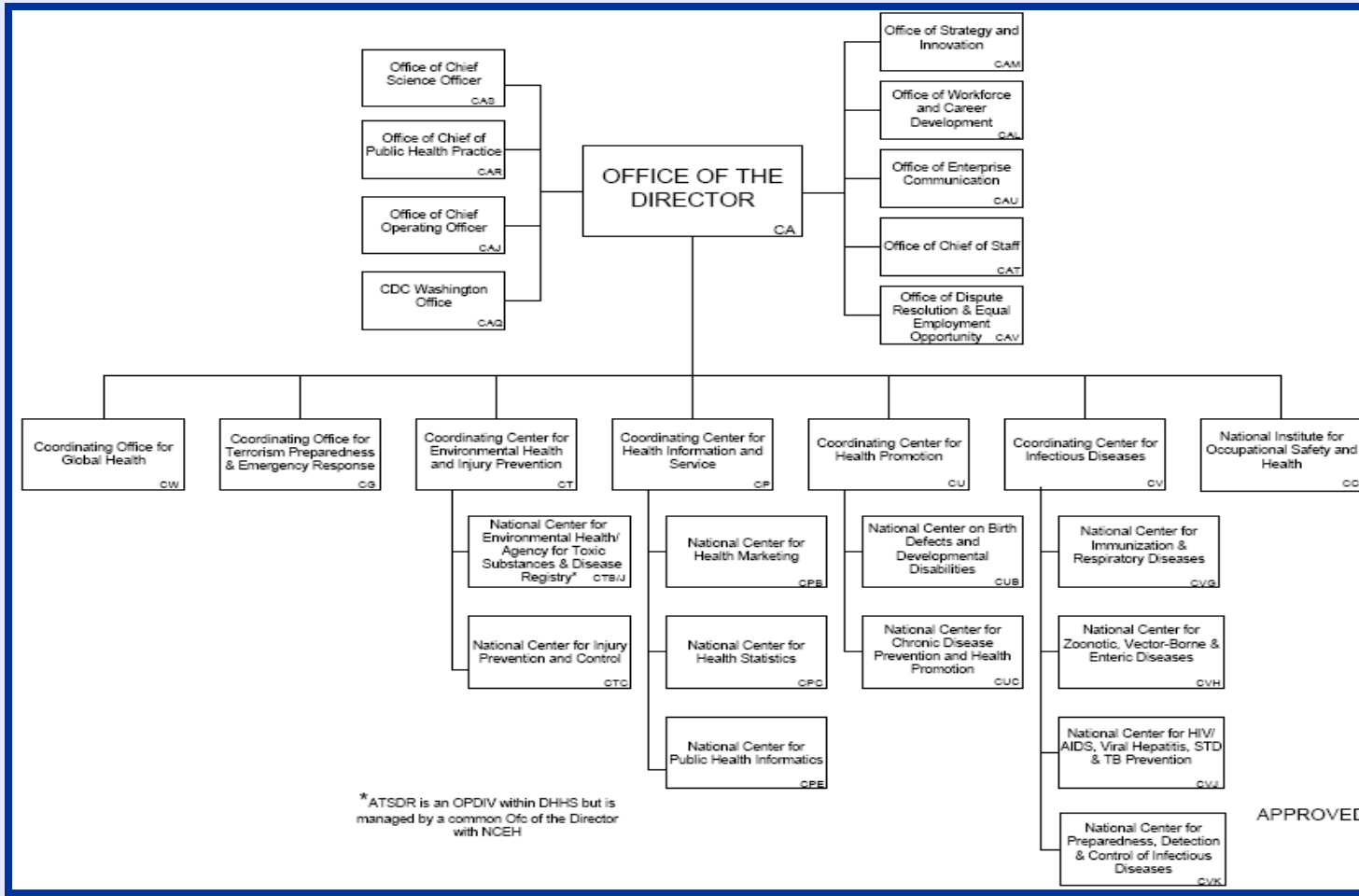
- Patient safety and medical liability reform demonstration projects
- Health information technology projects focused on providing integrated services to improve health and function in older adults

Centers for Disease Control and Prevention (CDC)

New Director Thomas Frieden:

- Comes with an intense background in public health and has a strong policy orientation.
- Is faced with re-energizing morale in this \$9 billion agency with 15,000 employees.
- Has primary focus on the H1N1 influenza epidemic.
- Must forge positive relationships with state and local health departments.

Centers for Disease Control and Prevention (CDC)



Approved 6/10/2008

Centers for Disease Control and Prevention (CDC)

- Environmental Health & Injury Prevention
- Health Information and Service
- Health Promotion
- Infectious Diseases
- Global Health
- Terrorism Preparedness & Emergency Response
- National Institute for Occupational Safety and Health

Department of Energy (DOE)

Major Player

- DOE is seen as a major part of the Obama Administration's plans on transformational science for energy and the environment (\$40 billion in stimulus).
- Labs still central to DOE mission and funding – Most of \$1.6 billion stimulus for DOE science laboratories for facilities or ongoing research programs.
- Emphasis in DOE Office of Science on overcoming barriers (3-5 years) to scale up renewable energy sources.
 - Examples: electrical energy storage for wind and solar; feedstocks and conversion processes for bioenergy; and improved efficiency (solid state lighting).

Department of Energy (DOE)

Trends

- Large Opportunities in Energy Efficiency and Renewable Energy are focused on industry-shared, cost-shared partnerships to commercialize energy technologies.
- Growing opportunities in Fossil Energy especially in Carbon Capture and Sequestration Technology.
- Growing opportunities in electricity and smart grid.
- ARPA-E: \$250 million still to be awarded.
- Workforce is a major emphasis (i.e. RE-ENERGYSE, Early Career Research, electric power training).

Department of Energy (DOE)

Spectrum of Centers

- DOE's Office of Science has moved toward establishing large research centers with many collaborators.
- Hub Confusion: Energy Innovation HUBS vs Clean Energy Innovation Centers vs Energy Discovery-Innovation Institutes (e-DIIs).
 - Bioenergy centers are a model
- EFRCs target specific barriers. DOE needs successes.
- Partnerships between DOE labs, universities, and industry – multidisciplinary.

National Science Foundation (NSF)

- FY 2009 Funding for NSF: \$6.49 billion. Expected FY 2010 increase of ~7% up to about \$6.9 billion.
- Emerging Initiatives:
 - Energy research – not explicit, but already permeating NSF programs.
 - Increased focus on computational science and engineering as a discipline.
- Proposed for FY 2010: climate change research and education initiatives, transformative research investment, STEM career pipeline (not K-12) programs.

National Science Foundation (NSF) Stimulus and FY 2011

- NSF received \$3 billion in ARRA.
 - Research funding spent (more than 4600 new awards). Raised success rates in ongoing competitions, focused on pipeline.
 - Additional awards for instrumentation, facility renovation, and professional science masters grants coming.
- Outlook for FY 2011: While ten-year doubling is proposed, expected increase in FY 2011 is 3%.

National Science Foundation (NSF) Obama Admin. Areas of Interest

- Innovation – Basic research investment should stimulate the economy and improve our quality of life.
- Information technology – Next generation of IT and communications infrastructure to increase productivity and tackle big science questions.
- Workforce – STEM careers, clean energy jobs, better math and science teachers.
- International – Science diplomacy.

Department of Defense (DOD)

- FY 2009 funding included healthy increases for DOD basic research (6.1), which included an additional \$400 million over the next five years to support basic research at academic institutions.
- Less support/emphasis in FY 2010. Cautious hope that Secretary Gates will re-engage in FY 2011, but concern that he is sole champion within DOD.
- Example areas of importance to DOD: alternative fuels and energy sources; traumatic brain injury and casualty care; information technology.
- Key issue going forward: How will Regina Dugan reshape DARPA?

Department of Homeland Security (DHS)

- DHS is a mission agency, so DHS S&T sees its role as supporting R&D...
 - ... that is relevant to homeland security or emergency response AND
 - ... that no other agency would do.
- DHS S&T needs to demonstrate its impact on homeland security, so its focus is on development.
- University funding opportunities are small (approximately \$50 million in FY 2009) and not individual PI-focused.
- Interest in workforce issues.

National Oceanic and Atmospheric Administration (NOAA)

- NOAA Administrator, Jane Lubchenco (first woman, first marine ecologist to lead NOAA), part of President Obama's science team.
 - She is expected to re-establish NOAA as a major research agency.
- Increase of 5-9% expected for FY 2010; current budget is about \$4.3 billion.
 - Aside from small plus-ups in specific areas, the bulk of new money is slated for ongoing satellite acquisition costs.
- Stimulus funding (\$300 million) used for internal NOAA infrastructure and coastal habitat restoration projects.
- NOAA in the future – "climate services."

Environmental/Climate Change R&D

- Climate change or “carbon pollution” reduction is a major domestic priority of President Obama and Democrats in Congress.
 - But, additional funding has yet to materialize; instead, programs are refocusing, realigning and preparing for future changes.
- Mitigation and adaption are among the centerpieces of the Administration and Congress’s climate change goals.
- Interagency activities – U.S. Global Change Research Program refocused on adaptation.
- Agencies are positioning themselves for new focus and future investments.
- Other environmental issues could ride the climate change coattails.

Positioning for Climate and Environmental Activities Across the Federal Government

NSF	<ul style="list-style-type: none">• Climate change education programs – training focus
NOAA	<ul style="list-style-type: none">• Positioning for climate services
NASA	<ul style="list-style-type: none">• Satellites and data management
DOE	<ul style="list-style-type: none">• Looking to lead climate modeling – including regional
EPA	<ul style="list-style-type: none">• Finalizing rules to control GHG emissions
USDA	<ul style="list-style-type: none">• Biofuels development
Interior	<ul style="list-style-type: none">• Secretarial order re: Climate Change Response Council/ Regional Climate Change Response Centers
HHS/NIH	<ul style="list-style-type: none">• Infectious/emerging diseases
State	<ul style="list-style-type: none">• International diplomacy
CIA	<ul style="list-style-type: none">• Center on Climate Change and National Security
OSTP	<ul style="list-style-type: none">• Taking stock of current assets/strengths• USGCRP – Reinvigorate/refocus

National Endowment for the Humanities (NEH)

- NEH Chairman Jim Leach recently confirmed, former Republican Representative from IA. Supporter in Congress for increased funding to NEH. Chairman Leach expected to have a “signature” initiative. Expected to continue Digital Humanities initiative.
- FY 2010 budget decreased funding for We the People program, provided small increases for core programs.
- Modest growth in FY 2010. NEH budget expected to continue to grow in FY 2011.

National Endowment for the Arts (NEA)

- Rocco Landesman, former Broadway producer, recently confirmed as NEA Chairman. Landesman wants to reinstate grants for individual artists.
- White House focused on the arts and outreach. NEA received \$50 million in ARRA to retain and preserve jobs within the arts.
- Congress expected to continue to fund NEH and NEA at the same funding levels and provide healthy increases for both Endowments.

Institute of Museum and Library Services (IMLS)

- Anne-Imelda M. Radice, a former museum professional and administrator continues to be IMLS Director. Her term ends March, 2010. Next Director will be a Librarian.
- IMLS continuously earmarked. Lost key champion in the former First Lady.
- FY 2010 funding includes increases to state library grants, but other programmatic funding remains flat.

Department of Justice (DOJ)

- DOJ funds competitive research under the National Institute of Justice (NIJ).
- NIJ funds research, development, and evaluation in the field of criminal justice. Focus of research solicitations varies from year to year based on research priorities and available funding.
- Flat funding for last several years.
- John Laub, Ph.D (UMD-College Park) nominated in October to become NIJ Director; confirmation is pending. NIJ Director establishes NIJ's objectives.
- National Academies still assessing the NIJ Research Program, report expected in Spring 2010.

Department of Labor (DOL)

- The Employment and Training Administration (ETA) oversees workforce training and development programs
 - One-Stop Centers
 - WIRED (future unclear)
- ETA is focused on labor-education collaboration through community colleges and workforce training
 - New ETA Assistant Secretary Jane Oates, experience with both labor and education
- Workforce Investment Act of 1998 (WIA)
 - High priority for Obama Administration and Congress
 - Focus on High Growth and Emerging Industries, including Health Care and “Green Jobs”
 - Reauthorization likely early in 2010, currently on hold because of overarching desire, led by Chairman Miller (D-CA), for innovative new programs

Department of Education (Dept. of Ed.)

- Institute of Education Sciences (IES)- continued funding increases for statewide longitudinal data systems, and focus on metrics for assessment.
- Priorities for Secretary Duncan: implementing standards and assessments; improving teacher effectiveness and achieving equity in teacher distribution; improving collection and use of data; and supporting struggling K-12 schools.
- Department emphasizing matching requirements in grant programs. Want programs to be sustainable.
- Increased focus on K-12, community colleges, and community outreach, e.g. new programs like Promise Neighborhoods.

National Aeronautics and Space Administration (NASA)

- Augustine Panel states that \$3 billion more per year is needed to have meaningful human space exploration.
- Very large science missions continue to grow in cost and complexity.
- Obama Administration prioritizes Earth science.
- NASA's role in global climate change seen as important but not a driver of debate.

National Aeronautics and Space Administration (NASA)

- Role of commercial sector will be enhanced.
- Stimulus and Beyond: Further soliciting for Science and Aeronautics grant proposals in accordance with applicable Program Plans.
- Aeronautics roadmap priorities (i.e. activities to design and fabricate instrumented blades for use in tilt-rotor aeroelastics research) receiving funding.

Department of Transportation (DOT)

- Highway Reauthorization bill to be debated by Congress but likely not enacted until 2011.
- Need for research/policy input before major expenditures will not necessarily be sought for highways – critical for FAA.
- Connections to state and local governments are as important as ever (CA to have major role).
- Role of green infrastructure will be expanded (including university campuses).
- Environmental protections will be in tension with large number of infrastructure needs.

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