Welcome to 2011: A New Politics?

On January 5, the 112\textsuperscript{th} Congress convened with its new Republican majority in the House asserting its 49 seat advantage with plans for repealing health care reform, investigating the Obama Administration, and curtailing federal spending. The Senate with its reduced, 53 to 47, Democratic majority also assembled hoping to provide a bulwark against some of the House’s plans. A contentious 2011 looked inevitable.

On January 8, the attempted assassination of a member of Congress, Rep. Gabrielle Giffords (D-AZ), amidst the tragedy in Tucson gave everyone pause. The House cancelled legislative action for the week of January 10. Calls for more civility in Congress again rang in our ears.

Will this change the ball game? Uncivil voices may be muted, but the deep divisions on issues and...
the desire for radical changes among some new House members will keep the pot stirring.

New Leadership for Science and Spending Panels

Rep. John Boehner (R-OH) was sworn in as Speaker and his new leadership team that includes Rep. Eric Cantor (R-VA) as Majority Leader and Rep. Kevin McCarthy (R-CA) as Majority Whip will help him rule the House. House Committee and Subcommittee leaders have been chosen in some areas and are still missing in others.

What used to be the House Science Committee, then became the House Science and Technology Committee, will now become the House Science, Space, and Technology panel. Rep. Ralph Hall (R-TX) will chair and Rep. Eddie Bernice Johnson (D-TX) will lead the Democratic minority. Both Texans have an interest in NASA and hence the name change. No leader of the Research and Science Education Subcommittee has been selected.

Rep. Fred Upton (R-MI) will lead the Energy and Commerce Committee, which has jurisdiction over the authorization of the National Institutes of Health. Rep. Joe Pitts (R-PA) will lead the panel's Subcommittee on Health. Rep. Darrell Issa (R-CA) takes the reins of the Oversight and Government Reform Committee vowing to investigate thoroughly, according to the new chairman, "one of the most corrupt Administrations in history." Rep. Lamar Smith (R-TX) will head the Judiciary Committee, with Rep. F. James Sensenbrenner (R-WI) chairing the Subcommittee on Crime. The House Agriculture Committee will have Rep. Frank Lucas (R-OK) as its chairman.

Rep. Harold Rogers (R-KY) will chair the House Appropriations Committee. In his first act as leader, Rogers convinced the House to cut the panel's allocation for staff and other activities by nine percent. Rep. Frank Wolf (R-VA) will head the Commerce, Justice, Science Subcommittee, which has jurisdiction over funding for the National Science Foundation, the Census Bureau, the Bureau of Economic Analysis, the National Institute of Justice, and the Bureau of Justice Statistics.

Rep. Denny Rehberg (R-MT) has been selected to head the Labor, Health and Human Services, Education Subcommittee, which has jurisdiction for the budgets of the NIH, the Centers for Disease Control and Prevention, the Department of Education, and the Bureau of Labor Statistics.

The Agriculture Appropriations Subcommittee will have Rep. Jack Kingston (R-GA) as its chairman; while Rep. Robert Aderholt (R-AL) will chair the Homeland Security Appropriations Subcommittee. Rep. Tom Latham (R-IA) will chair the Subcommittee that funds the Transportation and Housing and Urban Development Departments.

Of course, these new leaders have been charged with finding ways to cut spending. The first effort will come soon as the Continuing Resolution currently funding the government expires on March 4. The Republican leadership will allow Rep. Paul Ryan (R-OH), the new Chair of the Budget Committee to establish overall funding levels for the FY 2011 appropriations. Ryan has vowed to fulfill the pledge to reduce funding for non-defense, non-homeland security, non-Veterans' programs to their FY 2008 levels. Before all this occurs, President Obama will release his FY 2012 proposed budget on February 14.

The Republican majority has also revived the idea of a "lockbox" (some of you may remember this from the Gore Presidential campaign in 2000). All savings from floor amendments to cut spending would be used to reduce the deficit rather than allocating the funds to other programs.

How the Senate and the Obama Administration reacts to these House actions will set the tone for how much change the new GOP majority will deliver to its supporters. In addition, a vote to increase the limit on the Federal debt, necessary for the U.S. to meet its financial obligations, will also occur sometime soon, again testing the new House majority and its promises to its supporters.

The 111th Congress Denouement
When we left you in mid-December, Senate Appropriations Committee Chairman Daniel Inouye (D-HI) was working with some Republicans on the panel to produce an Omnibus Appropriations Act that would have rolled all the FY 2011 spending bills into one massive piece of legislation. It also would have allowed for the funding increases for agencies like the National Science Foundation (NSF), National Institutes of Health, National Institute of Justice and others provided by their respective Subcommittees during consideration of the spending bills during 2010. It all fell apart and instead the Continuing Resolution keeping agencies at their FY 2010 funding levels was simply extended into March. The Census Bureau was an exception receiving funding almost at the FY 2011 level, which was much reduced from FY 2010.

The death of the Omnibus was followed by the resurrection of the America COMPETES legislation, which included a reauthorization of the NSF among other provisions. This came as a surprise since the Senate had not acted on the bill or produced a committee report following a markup in the Senate Commerce, Science, and Transportation panel in mid-July. Yet, Senators pushed to enact the bill and give retiring House Science Committee Chairman Bart Gordon (D-TN), the prime advocate for COMPETES, a going away present.

The Senate also confirmed a number of Obama Administration appointees including Sean 'Jack' Buckley as the new Commissioner of Education Statistics (for Buckley's background see Update, July 26, 2010 Jack Buckley to Return to NCES as Commissioner). Also confirmed were nominees to the National Board for Education Sciences, including COSSA Board member Kris Gutierrez of the University of Colorado, Anthony Bryk, President of the Carnegie Foundation for the Advancement of Teaching, and Robert Underwood, a former member of Congress who is now the President of the University of Guam.

Missing from the list of confirmed nominees was Cora Marrett selected by President Obama as NSF Deputy Director. With the end of the 111th Congress, Marrett's nomination was returned to the White House. On January 5, the President again nominated Marrett as NSF's Deputy Director.

**NSF Director Suresh Speaks at PCAST Meeting**

Holding its first meeting of 2011, on January 7, the President's Council of Advisors on Science and Technology (PCAST) heard from National Science Foundation (NSF) director Subra Suresh. PCAST is co-chaired by John Holdren, the President's Science Adviser and director of the White House Office of Science and Technology, and Eric Lander, President of the Broad Institute of Harvard and MIT.

President Obama nominated Suresh, the former Dean of Engineering at MIT, on June 8, 2010 and the Senate confirmed him on September 29, 2010. He told PCAST that his goal is to maintain the Foundation's role as the "U.S. innovation engine" through "proactive leadership." In the past few months, he has met with the staffs of NSF's Directorates and Offices, led a retreat of senior staff, and started to develop his priorities.

So far, these include: how to foster moving basic research into marketable products, where appropriate; how to improve Science, Technology, Engineering and Mathematics (STEM) Education, which includes broadening participation considerations as well as international comparison activities; and identifying opportunities for new investments and ways of doing NSF's business.

He continually noted that NSF supports "every branch of science and engineering" and specifically mentioned the transformative contributions of behavioral economics in his litany of research accomplishments supported by NSF. Suresh declared: "NSF's mission mandates attention to the entire spectrum of science. Emphasizing some sciences at the expense of others handicaps discovery and compromises innovation."
The director elaborated on this during the Q&A from PCAST members. Responding to Rosina Bierbaum, Dean of the University of Michigan's School of Natural Resources and Environment, Suresh agreed that the social, behavioral and economic sciences' (SBE) "intellectual horsepower" is important to NSF's interdisciplinary initiatives such as Science, Engineering, and Education for Sustainability (SEES) (see other story) and Cyber-enabled Discovery and Innovation (CDI). He again mentioned behavioral economics as well as social networking, and techniques of data mining as areas where SBE research is providing important contributions.

Ernest Moniz, a former MIT colleague of Suresh and Cecil & Ida Green Distinguished Professor and Professor of Physics, also stressed the importance of the SBE sciences. He called attention to the recent PCAST report on energy technology innovation (see Update December 13, 2010, PCAST Report on Energy Includes Calls for More Social Science Research at DOE) that included the recommendation that the Department of Energy (DOE) along with the NSF "should initiate a multidisciplinary social science research program to examine the U.S. energy technology innovation ecosystem, including its actors, functions, processes, and outcomes." Suresh indicated that he and DOE's Undersecretary for Science Steve Koonin have already had discussions about this recommendation.

Asserting the importance of interdisciplinary research to investigate global challenges, while acknowledging that NSF remains organized around traditional disciplines, Suresh suggested: "The research problems presented by these challenges are complex, but in my own research work, I have found that multi-disciplinary approaches are most effective. So, one of my goals is to find ways to foster greater interdisciplinary work both within NSF and in the NSF-grantee community, in order to exploit the untapped opportunities to which silo-based research can be blind."

The new director also indicated that another strategy for NSF is to collaborate with other federal agencies to support research on the complex problems facing the country, for example energy. Maxine Savitz, Vice President of the National Academy of Engineering, raised NSF's 1970s Research According to National Needs (RANN) program and suggested it provided a useful model for investigating the grand challenges NSF wants to support.

Acknowledging the always-present tension at NSF between large science and individual investigator initiated research, Suresh suggested that sometimes this is highly field-specific; e.g. Astronomy's need for large telescopes. He also emphasized that as a basic research agency, NSF must take the long-term perspective about its successes. What is "not fashionable today" is not an indication of the research necessary for tomorrow, he counseled.

PCAST members expressed concern about the average size of NSF grants and the need to provide more NSF grants to young investigators. There were also questions about the "brain drain" of U.S. researchers who are lured to foreign research institutes by big money and the situation of foreign students who are also finding more interesting opportunities outside the U.S. As a person who grew up and received his undergraduate degree in India, who came to the U.S. for graduate study and stayed, Suresh indicated he was very familiar with these changes.

Finally, Ed Penhoet, Director of Alta Partners and Professor Emeritus of Biochemistry and Public Health at UC Berkeley, reminded Suresh that NSF has a "remarkably positive" story to tell and that marketing and popularizing its activities to the American people should become a significant part of the new director's activities.

NSF Explains Sustainability Initiative

The National Science Foundation (NSF) in a Dear Colleague letter from its leadership to the scientific community lays out its Science, Engineering, and Education for Sustainability (SEES) initiative unveiled in the FY 2011 budget proposal. All eleven NSF Directorates and Offices have joined together to support the "investment area."
According to NSF, “Achieving a sustainable human future in the face of both gradual and abrupt environmental change is one of the most significant challenges facing humanity. NSF will contribute to addressing this challenge by supporting the science and engineering research needed to understand and overcome the barriers to sustainable human well-being.”

Explaining further: “Through SEES, NSF seeks to enable the discoveries needed to inform actions that lead to environmental, energy and societal sustainability. SEES will include the conceptual, theoretical, empirical, and computational research needed to further develop the basic science, engineering, education, and policy knowledge base relevant to sustainability. Additionally, it will support projects at multiple scales, from the individual to the system level, and will stimulate innovations in education and learning research and practice.”

NSF expects SEES “to be a multi-year effort that will address challenges in climate and energy research and education using a systems-based approach to understanding, predicting, and reacting to change in the linked natural, social, and built environment.” The initial efforts in 2010 focused on a suite of research and education programs at the intersection of climate and environment, with specific attention to incorporating human dimensions. The Foundation released solicitations that addressed ocean acidification, water sustainability and climate, dimensions of biodiversity, earth systems modeling, and climate change education (see Update, April 5, 2010, NSF Expands Activity on Climate, Energy, and Sustainability). NSF plans to continue these competitions under the SEES portfolio. Future efforts, NSF notes, will support research and education that builds connections between current projects, creates new nodes of activity, engages the public, and develops the personnel needed to understand the complexity of sustainability issues.

In FY 2011, NSF plans to encourage interdisciplinary research and education on energy sustainability, with a particular emphasis on the socioeconomic and environmental implications. Potential areas of emphases include the development of sustainable energy technologies, development of techniques for effective and efficient use of water resources, and research in transportation technology. NSF will also continue to focus on creating the necessary workforce to address sustainability challenges and connecting elements of the SEES portfolio. Specific efforts will support postdoctoral researchers and early career scientists at the interfaces between social sciences and other science and engineering disciplines.

The SEES Portfolio will support research and education projects that span all eleven NSF Directorates and Offices, including:

- Research at the energy-environment-society nexus;
- Novel energy production, harvesting, storage, transmission, and distribution technologies, and their intelligent control that minimizes environmental impact and corresponding adoption, socioeconomic, and policy issues;
- Innovative computational science and engineering methods and systems for monitoring, understanding and optimizing life-cycle energy costs and carbon footprints of natural, social and built systems (including it systems themselves);
- Data analysis, modeling, simulation, visualization, and intelligent decision-making facilitated by advanced computation to understand impacts of climate change and to analyze mitigation strategies;
- Study of societal factors such as vulnerability and resilience, and sensitivity to regional change;
- Short and long term research enabled by a new generation of experimental and observational networks;
- Support for interdisciplinary education/learning science research, development, and professional capacity-building related to sustainability science and engineering;
- Creation of research and education partnerships around forefront developments in sustainability science and engineering, both nationally and internationally;
- Development of the workforce required to understand the complexities of environmental, energy, and societal sustainability;
- Engaging the public to understand issues in sustainability and energy;
- Development of the cyberinfrastructure and research instrumentation needed to enable sustainability science and engineering; and
- Support the physical, cyber, and human infrastructure necessary to achieve SEES goals.

Researchers who are interested in SEES-related topics are encouraged to consider the following near term activities, as well as periodically check the SEES web page (http://www.nsf.gov/sees) for specific guidance on future research funding opportunities:

- The Dynamics of Coupled Natural and Human Systems (CNH) program is encouraging submission of projects related to SEES themes for its FY 2011 competition (NSF 10-612). CNH is jointly managed by the Biological Sciences; Geosciences; and Social, Behavioral, and Economic Sciences, while other NSF units (including the Directorate for Engineering, the Directorate for Education and Human Resources, the Office of International Science and Engineering, and the Office of Polar Programs) participate in evaluation of proposals and, when appropriate, in funding awards. The CNH program is one of many standing programs contributing to the NSF portfolio of investments for SEES.

- The Catalyzing New International Collaborations program (NSF 11-508) provides support for the early phase of developing and coordinating research and education activities with foreign partner(s). These activities include, but are not limited to: planning visits, small workshops, initial data gathering activities, and the development of research coordination networks.

- The Research Coordination Networks program (NSF 10-566) supports planning activities that bring together novel groupings of researchers (including education researchers and experts in public engagement) and the development of innovative methods for networking investigators working on topics related to SEES.

- Where appropriate, NSF encourages researchers to include support for postdoctoral researchers within new proposal submissions, especially those SEES-related projects providing opportunities to integrate the social and natural sciences.

- Also encouraged are interdisciplinary workshops that would help inform the development of SEES activities over the coming years. Investigators should discuss their ideas with Program Officers in the most relevant NSF core program(s) to determine the saliency of their concepts with SEES goals.

For specific questions about SEES related activities, please see the list of SEES points of contact posted at http://www.nsf.gov/sbe/sees/sees_contacts.jsp.

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**President Names Former BLS Commissioner Katharine Abraham to CEA**

On January 7, while touring the Thompson Creek Manufacturing Plant in Landover, MD President Obama announced that he is nominating former Bureau of Labor Statistics (BLS) Commissioner Katharine Abraham to the Council of Economic Advisers (CEA). The Senate must confirm her appointment.

In announcing Abraham's nomination, the President declared: “I am confident that she is going to provide the kind of unbiased, unvarnished advice that will help us craft the best policies to strengthen this economy in the years to come.”

Abraham is currently a Professor in the Joint Program in Survey Methodology.
at the University of Maryland as well as a Faculty Associate at the Maryland Population Research Center. She served as the head of BLS from 1993-2001 during the Clinton Administration. Prior to that appointment, she was a Professor of Economics at the University of Maryland, a Research Associate at the Brookings Institution, and on the faculty at MIT's Sloan School of Management.

From 2002-2004, she chaired a National Academy of Sciences panel on accounting for non-market activity. Its report, *Beyond the Market* was published in 2005. In recent years, Abraham's research has focused on analyzing data from the American Time Use Survey, which provides nationally representative estimates of how, where, and with whom Americans spend their time, and is the only federal survey providing data on the full range of non-market activities, from childcare to volunteering.

She is currently the Chair of the American Economic Association's (AEA) Committee on Government Relations after previously leading the AEA's Committee on Economic Statistics. In 2010, she received the Roger Herriot Award for Innovation in Federal Statistics. Eight years earlier she won the Julius Shiskin Memorial Award for Economic Statistics.

Abraham has a Ph.D. in Economics from Harvard University and a B.S. in Economics, with a minor in Statistics from Iowa State University. She received a NSF Graduate Fellowship.

The CEA, an agency within the Executive Office of the President, is charged with offering the President objective economic advice on the formulation of both domestic and international economic policy. The Council bases its recommendations and analysis on economic research and empirical evidence, using the best data available to support the President in setting our nation's economic policy. Established in 1946, its current Chairman is Austin Goolsbee, on leave from the University of Chicago's Booth School of Business, and its other member is Celia Rouse, on leave from Princeton University.

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**Measuring American Well-Being: SSRC's Human Development Project Issues Report**

The search for better ways of measuring the vitality and well-being of American life beyond the simple indicator of economic success known as the Gross Domestic Product (GDP) has led to a number of activities. One was the commission created by French President Nicolas Sarkozy, headed by Nobel Prize winning economists Joseph Stiglitz and Amartya Sen, which produced alternative ways of thinking about economic and social well-being. Another is the State of the USA effort to create national indicators led by Chris Hoenig and whose Executive Governors include current COSSA President Ken Prewitt and former COSSA President Janet Norwood. Responding to this effort, Congress enacted legislation to create a Key National Indicators Commission, which includes Princeton Sociologist Marta Tienda and University of Chicago Public Policy Professor Thomas Phillipson.

The Social Science Research Council (SSRC), led by Craig Calhoun, has also joined in this activity with its American Human Development Project. Under the authorship of Kristen Lewis and Sarah Burd-Sharps it has released *The Measure of America 2010-2011: Mapping Risks and Resilience*. The significant contribution of this document is that it provides its data by Congressional District. The report provides data in three areas: health, education, and income.

In the health arena, the most important finding is that: "The unprecedented attention to the nation's health care structure over the past two years overlooked the country's most alarming health problem: huge disparities in health outcomes for different population groups." Two data points illustrate this: "Whites in Washington, DC live, on average, twelve years longer than African Americans in the same city," and "Life expectancy in Virginia's Eighth Congressional District, in suburban Washington, DC, is a decade longer than life expectancy in West Virginia's Third Congressional District, in the rural southern part of the state."
For education, the data indicate that: “In a knowledge economy, education provides a bulwark against economic downturn and disruptions, is a key factor in expanding opportunity, and remains a long-term source of resilience in the face of adversity.” Where you live also affects educational attainment. In the Thirtieth Congressional District of CA (Hollywood, Beverly Hills, Santa Monica, and Malibu) nearly three in five adult residents are college graduates and more than 25 percent have advanced degrees. A few blocks away in Downtown Los Angeles’ 34th Congressional District, only three percent of residents have advanced degrees.

With regard to income median income has risen from $23,000 in the mid-1970s to nearly $30,000 today. However, the report notes, as others have done, that “the rise has been anything but even across diverse populations.” Female earnings doubled in constant dollars, while male earnings rose by only $2,500. According to the report, the wealthiest congressional district in the US is NY-14 on Manhattan’s East Side, with median earnings of $60,000, while the poorest is NY-16 “a few subway stops away in the Bronx,” with median earnings of $18,000.

In summarizing how to advance human development, the report notes that while the remedies for the problems “may be complex and perhaps incompletely understood, they are not abject mysteries.” To improve health outcomes, the report pronounces: “We must address the ‘Fatal Four’ - the risk factors that are the most significant contributions to premature death, namely, smoking, poor diet, physical inactivity, and drinking to excess.”

In education, the report declares, “Providing universal access to quality preschool should be a national goal.” It also calls for addressing the high school dropout crisis, investing in the education of immigrant children, ensuring that all children have good teachers, and deflating ballooning college tuition costs.

Protecting young children from the risks of extreme poverty is a major priority to provide opportunity for increased income, according to the report. Research has demonstrated that extreme poverty imperils the cognitive, social, physical and emotional development of young children causing harm that reverberates across the life course of individuals and triggers high costs to society in the long run (see UPDATE, July 26, 2010, Impact of Recession on American Families Discussed at Congressional Briefing). The report also calls for incentives like creating automatic savings accounts for children at birth so that low-income people can build assets.

For the full report go to: http://www.measureofamerica.org/

### NSTC Sponsors Workshop on the Science of Science Measurement

The increasing national and international focus on the value of science and technology (S&T) for advancing innovation has increased pressure on Federal S&T agencies to make, and account for, wise investments. Recognizing that “wise management depends on priority setting, resource management and evaluation on the part of agency science programs,” the National Science and Technology Council (NSTC) seeks to respond to the “clear urgency to link what has been learned from frontier research with the practical applications of the measurement of S&T outcomes in a way that can be immediately used.”

Accordingly, on December 2-3, 2010, the NSTC sponsored the Workshop on the Science of Science Measurement designed to connect science agencies with “the frontier of current research on science measurement.” The goal of the workshop was to inform science policy practitioners about "very practical issues" including how to: 1) Manage scientific portfolios in a more scientific manner; 2) Develop performance and outcome metrics; 3) Measure the return on investment; and 4) Use science to identify emerging trends in the U.S. scientific enterprise. The four workshop topic areas were: economic benefits, science and technology workforce development, technology development and deployment, and social, health and environmental benefits.
The Workshop was designed to build on the 2009 Science of Science Policy Roadmap (http://scienceofsciencepolicy.net/blogs/sosp/pages/sosroadmap.aspx). The science of science policy (SoSP) is an emerging field of interdisciplinary research, "the goal of which is to provide a scientifically rigorous, quantitative basis from which policy makers and researchers can assess the impacts of the Nation's scientific and engineering enterprise, improve their understanding of its dynamics, and assess the likely outcomes."

**Measuring the Value of Scientific Investment 'A Difficult and Complicated Issue'**

White House Chief Technology Officer Aneesh Chopra welcomed participants and emphasized that he is "appreciative of the work" the workshop participants are doing. Chopra made three observations. His first was that in September 2009 President Obama unveiled a strategy for American innovation that looks forward over the next decade and beyond which thinks about how the investment we have in policies today can produce the jobs and economic outputs of the future. That strategy, said Chopra, reflects in large part the priorities that this President has placed on not just getting the economy out of the current recession but ensuring that the decisions made impact the future. He admitted that it was a "difficult balance."

Chopra explained that he been at this issue of innovation since his days as Virginia's Secretary of Technology under then-Governor Tim Kaine where he "grappled" with the issue that everybody understood the power of our scientific investments. The "difficult and complicated issue" they dealt with, he observed, was "always how to measure the value." While he made it a priority, he couldn't figure out how to do it. He acknowledged his excitement upon hearing that former U.S. Secretary of Commerce Carlos Miguel Gutierrez was establishing a program on innovation measurement. It is an issue that continues to need "thoughtful and creative approaches to get that measurement and that evidence base correct. More broadly, not just innovation but to measure the work you are doing," investing in our scientific assets, said Chopra. That is his "very firm belief, then and now," he stressed, and is "hopefully reflected" in the Administration's policy and memoranda. He shared he had an opportunity to meet with Julia Lane (National Science Foundation) and co-chair of the Science of Science Policy Workgroup, within days of his Senate confirmation and immediately "grabbed on the work that she was doing in the Science of Science Policy" initiative. Chopra noted that he believes that it is "absolutely critical to not only accurately reflecting what is happening in the world,... but for it to also serve as the foundation/base so that we can be more effective in turning the assets in our economy for the benefit of our broader population," he added. The ability for folks who produce the kind of output measures called for at the Workshop, from any methodologies discussed, if in the hands of the right people, could actually have a catalytic effect, he argued.

Chopra's second observation was that workshop participants' activities were also a very important factor in the Administration's commitment to open government. The President has encouraged the agencies to think about how they would "embody" his philosophy of a more transparent, participatory, and collaborative government. "The publication of scientific data and the ability to map that to other outputs is very, very important," he continued.

His final observation was more of a question: He asked participants to consider to what extent do you assess what you do, the decisions that you make, related to sustaining economic prospects of the American economy?

'Science ...Protection against Our Preconceptions, Our Self-Certainty, and Our Self-Deception'

Rep. Rush Holt (R-NJ), a physicist by training, made remarks on day two of the workshop after listening to a presentation by Julia Lane and Stefano Bertuzzi (National Institutes of Health) on The STAR METRICS Project: Current and Future Uses for S & E Workforce Data. The goal of the
program, according to Lane is to create a data infrastructure that will permit the analysis of the impact of science investments using administrative records as well as other electronic sources of data. The interagency Consortium is led by the National Institutes of Health, the National Science Foundation and the Office of Science and Technology Policy. Phase I of the STAR Metrics framework identifies how many scientists, including graduate students, undergraduate students and research staff, are supported by federal science funding. Phase II of the program is intended to describe their scientific activities, their mobility, and their employment and earning trajectories.

Holt began by emphasizing that he is a "strong supporter" of science and is "vitally interested in the workshop proceedings." Noting that he was "delighted to see the conference taking place, he added that he would confirm participants' "suspicions that Congressional decisions are not made scientifically." Holt told workshop participants that what they "are doing will prove to be very important to [Congress]." Accordingly, he was there to "praise," and "encourage" and ask "them to continue to move at warp speed."

"Some of us," said Holt, "are very sure that science helps the society and the economy." By science, he explained that he always looks back to Louis Thomas' definition, "wonderfully simple, but rich... Science is the shrewdest maneuver for understanding how the world works." It has been "unquestionably successful" in doing so and "providing reliable knowledge. But what use has it been in quality of life and economics and so forth, he asked?

Holt argued that we have mined the investments that have been made decades ago without replanting the seed corn, thus allowing some of those investments to wither. The current state of our scientific enterprise as defined by the National Academies' Rising Above the Gathering Storm report, as do other reports, provide "sketchy metrics," Holt suggested. There are "certainly troubling signs and other countries are investing in many of the changes suggested here five years ago, while we continue to hedge and debate," the Congressman observed. We are "clearly losing our leadership edge in global innovation, maybe economically," he continued, explaining that we "don't really have the metrics that are needed there, so it is so important what you are doing here."

Holt pointed out he and others argued for the $22 billion of new investments made in the American Recovery and Reinvestment Act (ARRA). He argued to then-Speaker Nancy Pelosi (D-CA) about the short-term and long-term benefits of ARRA. It is not clear that kind of investment will continue, he noted. Sustainable economic growth will require sustained investment, Holt stressed. He acknowledged that "we are facing budget pressures brought about for political reasons" Some plans suggest cutting 10 to 30 percent in scientific agency budgets. "Anyone should know that cutting federal funds [for science] will not balance our budgets, still, so the saying goes, everyone has to share in the burden."

But is research like street sweeping, equipping an army or other governmental activities? Is science a different animal, he asked? "Many of us suspect that it is, but we actually don't know if we are honest with ourselves," Holt answered. And that is why you are here he told workshop participants, stressing "It is really important that people from so many disciplines are here." You are taking seriously this responsibility to provide the hard facts," he added. Holt emphasized the need for participants to "understand that in decision-making anecdotes trump data, whether personal or Congressional." It is just the way humans make decisions, he contended. It happens in Committee meetings all the time. Whether it is good or bad, it is a fact, Holt stated. But anecdotes, he admitted, have to have some basis in fact and have to be intellectually honest.

You are building the infrastructure needed to answer science questions. He emphasized that he is sure that the $22 billion in ARRA funding is being spent in the national interest and is a good investment. That is his preconception, argued. "Science is supposed to be protection against our preconceptions, our self-certainty, and our self-deception. It is interesting, he noted, that science has not been studied scientifically and the effect of science -- economically, socially, and on the quality of our lives -has not been subjected to rigorous metrics.

Holt asserted our technological leadership, our manufacturing base, and whole industries that have
not yet been conceived, the whole foundation of our economy depend on it. He thinks that
investment in science is different than any other kind of investment. The great political problem
we face today, he contended, is that more than ever before, everyone is operating with his or her
own facts.

Holt quoted Judge Learned Hand who said: "The spirit of liberty is the spirit that is not too certain
that it is right." You have to approach things with an open mind, looking for evidence without
certitude, he explained. So right now when we are anguishing over the future, we should be asking
what kind of investment will lead to an improved quality of life, improved economic standing for
our country, we should be approaching it as scientists, he posited. We should have the evidence
and the willingness to accept the evidence to make the investments wisely. Holt concluded his
remarks telling workshop participants: "What you are doing here is central to where our county is
going. It is surprising that it has not been recognized or been done before."

"Top researchers" were invited to provide nontechnical summaries of relevant research and expert
rapporteurs provided operational syntheses. Researchers included: Julian Alston (University of
California Davis), Bruce Weinberg (Ohio State University), Subhra Saha (Cleveland State
University), Richard Freeman (Harvard University and National Bureau of Economic Research),
Andrew Wang (Harvard Law School and NBER), Jeffrey Fruman (Boston University and NBER)
Fiona Murray (MIT Sloan School), Scott Stern (Northwestern University and NBER), Jeff Smith
(University of Michigan), Heidi Williams (NBER), Diana Hicks and Susan Cozzens (Georgia
Institute of Technology), Kenneth Flamm (University of Texas at Austin), Tiffany Sargent (National
Science Foundation and Intel Corporation), Robert Sargent (Syracuse University), Richard Ellis
(Ellis Research Services), Sharon Levin (University of Missouri-StLouis), Paula Stephan (Georgia
State University), Connie L. McNeely and Laurie Schinterler (George Mason University), Michele
Snoeck (Universidad de la Republica, Uruguay), Erik Fisher (Arizona State University), Cindy
Yuan (University of Chicago), Robin Wagner (National Institutes of Health ), and Katy Borner
(Indiana University). Rapporteurs included: Nick Maynard (White House, Office of Science and
Technology Policy), Valentin Livada (MIT Sloan School of Management), Paula Stephan (Georgia
State University), and Lana Skirboll (The Zerhouni Group).

To view the webcast and/or to download copies of the papers presented see:

IOM Report Examines the Role of Measurement of Health Outcomes

According to a December 13, 2010, Institute of Medicine (IOM) report, For the Public's Health: The
Role of Measurement in Action and Accountability, "the United States lacks a coherent template for
population-health information that could be used to understand the health status of Americans and
to assess how well the nation's efforts and investments result in improved population health."

The IOM Committee on Public Health Strategies to Improve Health of the Board on Population
Health and Public Health Practice emphasized that while the "national preoccupation with the cost
of clinical care evident in the lead-up to the passage of the Affordable Care Act of 2010 is well
founded, and changes in the system's pricing, labor, processes, and technology are essential and
urgent,...improving the clinical-care delivery system's efficiency and effectiveness will probably
have only modest effects on the health of the population overall in the absence of an ecologic,
population-based approach to health improvement.

The committee views measures of health outcomes as serving three primary functions, to:

1. Provide transparent and easily understood information to members of communities and
the public and private entities that serve them about health and the stakeholders that
influence it locally and nationally.
2. Galvanize and promote participation and responsibility on part of the public and institutional stakeholders (businesses, employers, community members, and others) that have roles to play in improving population health.

3. Foster greater accountability for performance in health improvement on the part of government health agencies, other government entities whose portfolio have direct bearing on the health of Americans, and private-sector and nonprofit sector contributors to the health system.

The committee emphasized that "measurement of health outcomes and performance can spur change." "Measuring health outcomes and their determinants at the individual level and the community level in multiple sectors is an essential ingredient, with policy and resources, in motivating change, mobilizing action, measuring progress, and improving performance," it pronounced.

The committee contrasted the biomedical (or clinical) paradigm and the broader ecologic (or determinants-of-health) paradigm. "The two paradigms are complementary, and a balanced investment in both would create a health policy that produces improved health," according to the report. The committee points out that a "robust and expanding peer-reviewed literature addresses the associations between the upstream determinants of health - social, economic, and environmental - and poor health outcomes and between socioeconomic inequality and poor health."

The committee acknowledges that "altering root causes (the determinants of health) to create healthy communities is challenging because they are form or are woven in the very fabric of family, community, and societal structures." It points out that "unlike clinical interventions that focus on downstream factors, population-health interventions by public health agencies and their partners can address a broader spectrum of causation ranging from proximal conditions that lead to unhealthy behaviors and exposures in communities to sick people's need for services in the medical-care delivery system. Upstream strategies or those strategies designed to affect root causes or underlying issues before they lead to poor individual health outcomes downstream, include policies and interventions that affect the social and physical environments. The committee calls attention to a primary challenge in research on population-based interventions, the traditional gold standard technique of randomized controlled trials is not always feasible or appropriate in the public-health context.

Recommendations

The report contains seven recommendations.

**Recommendation 1:** The Secretary of Health and Human Services transform the mission of the National Center for Health Statistics to provide leadership to a renewed population-health information system through enhanced coordination, new capacities, and better integration of determinants of health.

The National Prevention, Health Promotion, and Public Health Council should include in its annual report to Congress on its national prevention and health-promotion strategy an update on the process of the National Center for Health Statistics transformation.

According to the committee, three types of measures that could support the information needs of policymakers, public health officials, health system partners, and communities, are lacking in the nation's population health statistics and information enterprise. These include: a standardized set of measures that can be used to assess the intrinsic health of communities in and of themselves; a standardized set of health outcomes indicators for national, state and local use; and a summary measure of population health that can be used to estimate and track Health-Adjusted Life Expectancy (HALE) for the U.S. The lack of a coordinated, standard set of true measures of a community health, that is measures of green space, the availability of healthy foods, of land use
and zoning practices that are supportive of health, safety, social capital and social cohesion, among many other determinants of health is also pointed out in the report.

**Recommendation 2:** The Department of Health and Human Services (HHS) should support and implement the following to integrate, align, and standardize health data and health-outcomes measurement at all geographic levels:

- A core, standardized set of indicators that can be used to assess the health of communities.
- A core, standardized set of health-outcomes indicators for national, state and local use.
- A summary measure of population health that can be used to estimate and track Health-Adjusted Life Expectancy for the United States.

The committee notes that despite broad recognition in health circles of the vital importance of nonclinical determinants of health in shaping population health, there is not a "centralized, federal, comprehensive annual report that highlights and tracks progress on the root causes of poor health at the population level.

**Recommendation 3:** HHS should produce an annual report to inform policy makers, all health-system sectors, and the public about the important trends and disparities in social and environmental determinants that affect health.

**Recommendation 4:** Governmental public-health agencies should partner with medical-care organizations and providers in their jurisdictions to share information derived from clinical-data sources, when appropriate, to inform relevant population-health priorities. Such information will support core health indicators that are otherwise unavailable at some or all geographic levels.

**Recommendation 5:** State and local public-health agencies in each state should collaborate with clinical care delivery stems to assure that the public has greater awareness of the appropriateness, quality, safety, and efficiency of clinical-care services delivered in their state and community.

**Recommendation 6:** HHS should coordinate the development and evaluation as well as advance the use of predictive and system-based simulation models to understand the health consequences of underlying determinants of health. HHS should also use modeling to assess intended and unintended outcomes associated with policy, funding, investment, and resource options.

**Recommendation 7:** HHS should work with relevant federal, state, and local public- and private-sector partners and stakeholders to: 1) facilitate the development of a performance-measurement system that promotes accountability among governmental and private-sector organizations that have responsibilities for protecting and improving population health at local, state and national levels; and support the implementation of the performance measurement system.

The report is result of a request by the Robert Wood Johnson Foundation which asked the IOM to examine three topics in relation to public health: 1) measurement, 2) the law, and 3) funding.

### New NHGRI ELSI Funding Opportunities

The National Human Genome Research Institute (NHGRI) at the National Institutes of Health (NIH), through its Ethical, Legal, and Social Implications (ELSI) Research Program, has issued three new funding opportunity announcements (FOAs) aimed at investigators interested in conducting research on the ethical, legal, and social implications of returning research results to participants in genomics research.

The first FOA, *Development of a Preliminary Evidence Base to Inform Decision-making about Returning Research Results to Participants in Genomic Studies* (RFA-HG-11-003) is designed to stimulate empirical research to develop a preliminary evidence base to inform decision-making
about whether, when, and how to offer to return individual research results to participants in genomic research studies (especially whole exome or whole genome sequencing studies) or to individuals who have provided samples or data for genomic repositories (such as biobanks or databases such as dbGaP). This announcement is aimed primarily at investigators who propose behavioral or social science research projects in which there is likely to be direct interaction with research participants or other stakeholders involved in current, ongoing genomics projects (especially whole exome or whole genome sequencing projects) or in genomic sample or data repositories.

NHGRI points out that genomic studies will produce "voluminous" amounts of information that will be comprehensive in scope. Inevitably, this research "will uncover a large number of incidental findings - findings that are apparently unrelated to the original research questions." Deciding what to do with these findings will present significant ethical challenges to researchers. These studies may also uncover new information --- not only about risk factors for the disease or trait that was the stated subject of the original study, but about the risks for other diseases and traits as well. These factors and others, in addition to limited resources typically available to researchers, can potentially make the prospect of offering to return all or even most individual results to the participants in genomic studies unwieldy, "and in some cases frankly unrealistic." Accordingly, deciding the appropriate course of action with respect to findings in these categories raises difficult ethical issues.

Given the lack of consensus in this area regarding the appropriate course of action, NHGRI stresses that there is "a pressing need...to develop rational and workable criteria to help guide decision-making by researchers, managers of sample and data repositories, and IRBS [institutional review boards] about what type of information can, should, or should not be offered to participants in genomics studies. Such criteria must be informed by solid empirical (behavioral and social science) evidence and by normative and legal considerations."

NHGRI reports that so far most studies that have examined the attitudes of the public and of potential research participants regarding the return of results suggest that people have an overwhelming preference for learning such information when the topic is introduced in the abstract. Conversely, responses become more equivocal when people are asked to consider the uncertainties and nuances associated with incidental findings, findings of unknown or uncertain significance, or findings the significance of which may change over time.

The announcement is directed particularly at studies that will investigate how participants in ongoing or planned genomics research projects understand, react to, and use individual research results when they are offered and returned. Studies that examine the actual psychosocial and behavioral impact of receiving or not receiving such results are especially invited.

Given the complexities of the information that participants may receive, NHGRI is also interested in issues of informed consent. What does it mean to inform people adequately about potential benefits and risks associated with the possible return of individual research results? What are the measures and their thresholds? Are there thresholds for numeracy, literacy, and health literacy, and if so, what are they? Is it necessary to educate participants about genomics during the informed consent process?

The announcement further invites research investigating the experiences of researchers, managers of biobanks and data repositories, and IRBs who have already begun to tackling issues related to the returns of results.

The primary goal of the announcement, however, is to stimulate highly innovative empirical research in which there is likely to be direct interaction with participants or other stakeholders in ongoing or planned genomics projects which are actually confronting (or plan to soon confront) these issues. Accordingly, priority will be given to research teams that involve active collaborations between researchers in the behavioral or social sciences and genomics researchers who are already conducting or have plans to conduct studies that are likely to generate actual
individual research results and incidental findings that are potentially clinical actionable.

For more information and/or to apply see http://grants.nih.gov/grants/guide/rfa-files/RFA-HG-11-003.html.

The second announcement, Ethical, Legal, and Social Implications of Returning Research Results to Genomic Research Participants (RFA-HG-11-004), is designed to stimulate analytical research on the normative and legal issues involved in deciding whether, when, and how to offer to return individual research results to participants in genomic research studies (especially whole exome or whole genome sequencing studies) or to individuals who have provided samples or data for genomic repositories (such as biobanks or databases such as dbGaP). This FOA is aimed primarily at sole investigators or small teams of investigators who propose modest legal and normative research projects.

Specific areas of research include, but are not limited to:

- Under what circumstances might an ethical or legal duty exist to offer to return individual (as distinct from aggregate) research results and incidental findings (i.e., is there an ethical or legal “duty to warn” or “duty to rescue” in the context of genomic research)?
- If an ethical or legal duty exists in some cases, what are its parameters and to whom does it extend (e.g., primary investigators in clinical studies, primary investigators in epidemiological studies, secondary investigators, institutions that manage biobanks or databases)?
- What is the relevance of the nature and size of the study, the characteristics of the study population (including whether the participants have alternate ways of accessing the information), and the nature and extent of the previous relationship with individual participants?
- If a duty exists, does it require that an investigator “mine” the research data for relevant information, or is the duty limited to information the investigator “stumbles upon”?
- Are there any temporal limits on the duty to offer to return results?
- What ethical and legal considerations apply in cases where the results in question relate to a disorder for which no preventive or therapeutic intervention exists, where the meaning of the results is indeterminate or may change over time, where the research participant was told that he or she would not be re-contacted, or where the research participant was unaware that his or her sample or data were being studied (i.e., by a secondary investigator)?
- What ethical or legal duties with respect to the return of results are owed to family members of research participants, including next-of-kin of deceased participants?
- What are the ethical and legal considerations with respect to the return of results where the research participant was a child at the time of the study and is now an adult?
- What circumstances might give rise to an ethical or legal duty to withhold individual research results or incidental findings?
- If a research participant has indicated that he or she does not want to receive any individual research results, is there ever a justification for overriding the participant’s expressed wishes?
- What theories of liability might apply to a failure to offer or a failure to withhold individual research results and incidental findings?
- In making decisions about the return of individual research results and incidental findings, what are the implications of:
  - current guidance regarding the definition of "human subjects research" under the Common Rule
  - existing approaches to informed consent
  - existing governance mechanisms for genomic biobanks and databases
• existing practices regarding de-identification of genomic samples and data
• existing medical records practices and related privacy protections, including HIPAA
• the requirement that individual research results be validated in a CLIA-certified laboratory
• possible intellectual property constraints on the sharing of research data?

What is the extent of the risk, if any, that policies favoring the return of results could lead to a conflation between research and clinical care (i.e., therapeutic or diagnostic misconception)? What approaches could help to minimize this risk?

To what extent should practical, logistical, or budgetary constraints enter into the calculus about which (if any) results to offer participants? When returning individual results would require the diversion of substantial resources from the research enterprise itself, how if at all should this factor into an assessment of the researcher's ethical or legal duties?

What is likely to be the long-term economic impact on the health care system of offering to return individual research results?

What novel legal and regulatory challenges will be raised by efforts to incorporate individual research results into participants' medical records?

For more information and/or to apply see http://grants1.nih.gov/grants/guide/rfa-files/RFA-HG-11-004.html.

The third FOA, Clinical Sequencing Exploratory Research (RFA-HG-10-017) invites applications for projects designed to generate, process, filter, and interpret data from whole exome or whole genome sequencing in the specific context of an active clinical setting, and to return--and investigate the psychosocial and behavioral implications of returning--genomic results in the clinical setting (as distinct from the traditional research setting.)

Approaches to clinical translation are likely to evolve during the next decade in response to changes in healthcare, developments in sequencing and informatics, a greater understanding of disease biology, and a more mature understanding of ethical, legal, and social issues. This program, through its collaborative and cooperative nature, is designed to facilitate the development and standardization of best practices and common approaches to clinical translation.

NHGRI plans to organize a consortium of investigators that includes the principal ELSI investigators and relevant key personnel funded under all three FOAs; this consortium will address common issues, explore opportunities for synergy among studies, and identify areas of possible consensus that can form the basis for policy recommendations in this area.

For more information see http://grants1.nih.gov/grants/guide/rfa-files/RFA-HG-10-017.html.

Informational Teleconference Planned

An informational teleconference for prospective applicants to these RFAs will be held on January 28, 2011, 12:00 - 4:00 p.m. Eastern Time. More information about this teleconference meeting is available at: http://grants.nih.gov/grants/guide/notice-files/NOT-HG-11-007.html.

For additional information about these FOAs or the informational meeting, or for general information about funding opportunities available through the NHGRI ELSI Research Program, contact: Jean E. McEwen, Program Director, Ethical, Legal, and Social Implications Program. NHGRI, NIH, (301) 496-7531 (phone), (301) 402-1950 (FAX), or jean.mcewen@nih.hhs.gov, http://www.genome.gov/10001618.

Research on Alcohol-Related Public Policies

The adverse consequences of alcohol consumption on health, social, and economic outcomes are "large in magnitude and diverse in character." These effects encompass a wide variety of health
The National Institute on Alcohol Abuse and Alcoholism and the National Institutes of Health's (NIH) Office of Behavioral and Social Sciences Research (OBSSR) are seeking grant applications to conduct research on the effects of alcohol-related public policies on health, economic, and social behaviors and outcomes. The purpose of the funding opportunity announcement (FOA), Research on Alcohol-Related Public Policies such as Those Detailed in the Alcohol Policy Information System (PA-11-087), is to advance the understanding of public policy pertaining to alcohol as a tool for improving public health and welfare.

The specific objectives of the announcement are to provide support for (a) studies of the effects of alcohol-related public policies on specific health, economic, or social behaviors and outcomes; (b) evaluations of policy measures as means of improving health outcomes; (c) analyses to elucidate the behavioral linkages through which alcohol-related policies affect intervening attitudes or behaviors that ultimately affect health-related behavior or outcomes; and (d) research to advance methods and measurement used in studying relationships between alcohol-related public policies and health-related behaviors and outcomes.


**ASPE Seeking Comments on Comparative Effectiveness Research Inventory**

The Department of Health and Human Services (HHS) Office of the Assistant Secretary for Planning and Evaluation (ASPE) is seeking approval by the Office of Management and Budget (OMB) for the collection of information submitted by content users directly to a web-based inventory of comparative effectiveness research (CER).

According to the Federal Register notice, the CER inventory will categorize and catalogue Federal and non-Federal CER outputs across research, human scientific capital (e.g., training/education, methods development), data infrastructure, and dissemination and translation. The inventory will serve as a tool for researchers, providers, patients, and policymakers, among others.

The inventory will consist of primary data sources, including PubMed, HSRProj, ClinicalTrials.gov, and NIH RePorter. The Federal Coordinating Council for CER's definition of CER and strategic framework, selection criteria and tools will be used to identify, select and extract the appropriate subsets of identified databases for inclusion. Recognizing that some candidate CER records are not suitable for submission to these databases, there is an alternative method that allows for direct submission to the CER inventory will be available to content users.

Interested persons are invited to send comments regarding the burden estimate of collecting this information, including any of the following subjects:

1. The necessity and utility of the proposed information collection for the proper performance of the agency's functions;
2. The accuracy of the estimated burden;
3. Ways to enhance the quality, utility, and clarity of the information to be collected; and
4. The use of automated collection techniques or other forms of information technology to minimize the information collection burden.

To obtain copies of the supporting statement and any related forms for the proposed paperwork collections referenced above, e-mail your request, including your address, phone number, OMB number and OS document identifier (OS-990), to Sherette.funncoleman@hhs.gov, or call the Reports Clearance Office on (202) 690-6162. Comments and recommendations are due within 60-days.
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The Consortium of Social Science Associations (COSSA) is an advocacy organization promoting attention to and federal support for the social and behavioral sciences.

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