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Administration Announces Big Data Initiative

On March 29, the Obama Administration, through its White House Office of Science and Technology Policy (OSTP), announced a "Big Data Research and Development Initiative." The aim of the initiative is to improve the ability to extract knowledge and insights from large and complex collections of digital data in order to solve some the Nation's most pressing challenges.

At the announcement held at the AAAS auditorium, Presidential Science Adviser and OSTP Director John Holdren orchestrated the appearance of the leaders of the National Science Foundation (NSF), the National Institutes of Health (NIH), the U.S. Geological Survey, the Department of Defense's Director of Research and Engineering, the Defense Advanced Research Projects Agency (DARPA), and the Office of Science at the Department of Energy, to explain how their agencies intend to spend more than \$200 million in new commitments that, "together, promise to greatly improve the tools and techniques needed to access, organize, and glean discoveries from huge volumes of digital

data." When asked why the National Oceanographic and Atmospheric Administration and NASA, two large digital data collection agencies, were absent from the briefing, Holdren suggested the table wasn't big enough.

According to OSTP, the Administration created the new initiative in response to recommendations by the President's Council of Advisors on Science and Technology, whose December 2010 report, Information Technology, stated that the Federal Government is under-investing in technologies related to Big Data.

The major thrusts of the new initiative are to:

- Advance state-of-the-art core technologies needed to collect, store, preserve, manage, analyze, and share huge quantities of data;
- Harness these technologies to accelerate the pace of discovery in science and engineering, strengthen our national security, and transform teaching and learning; and
- Expand the workforce needed to develop and use Big Data technologies.

NSF and NIH Joint Solicitation

NSF and NIH have issued a joint solicitation "that will advance the core scientific and technological means of managing, analyzing, visualizing, and extracting useful information from large and diverse data sets. This will accelerate scientific discovery and lead to new fields of inquiry that would otherwise not be possible. NIH is particularly interested in imaging, molecular, cellular, electrophysiological, chemical, behavioral, epidemiological, clinical, and other data sets related to health and disease." Go to http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504767 for the solicitation.

NSF Director Subra Suresh also announced that the Foundation is set to implement a comprehensive, long-term strategy that includes new methods to derive knowledge from data; infrastructure to manage, curate, and serve data to communities; and new approaches to education and workforce development. Specifically, NSF is:

- Encouraging research universities to develop interdisciplinary graduate programs to prepare the next generation of data scientists and engineers;
- Funding a \$10 million Expeditions in Computing project based at the University of California, Berkeley, that will integrate three powerful approaches for turning data into information machine learning, cloud computing, and crowd sourcing;
- Providing the first round of grants to support "EarthCube" a system that will allow geoscientists to access, analyze, and share information about our planet;
- Issuing a \$2 million award for a research training group that will support teaching undergraduates to use graphical and visualization techniques for complex data.
- Providing \$1.4 million in support for a focused research group of statisticians and biologists to determine protein structures and biological pathways; and
- Convening researchers across disciplines to determine how Big Data can transform teaching and learning.

Suresh also pointed out that complementary data-intensive research funding opportunities currently exist at NSF including: Building Community and Capacity for Data-Intensive Research in the Social, Behavioral, and Economic Sciences, whose latest funding deadline is May 22. 2012. For more information go to:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504747&org=NSF&sel_org=XCUT&from=fund.

In addition, anticipated cross-disciplinary efforts at NSF include encouraging data citation to increase opportunities for the use and analysis of data sets; participation in an Ideas Lab to explore ways to use big data to enhance teaching and learning effectiveness; and the use of NSF's Integrative Graduate Education and Research Traineeship, or IGERT, mechanism to educate and train researchers in data enabled science and engineering.

Francis Collins, NIH Director and former head of the National Human Genome Research Institute,

fittingly announced that the world's largest set of data on human genetic variation - produced by the international 1000 Genomes Project - would now become freely accessible to researchers from Amazon Web Services.

For DOD the emphasis is on "Data to Decisions." It will invest \$60 million for new research projects across the military departments in a series of programs that will: "harness and utilize massive data in new ways and bring together sensing, perception and decision support to make truly autonomous systems that can maneuver and make decisions on their own; and improve situational awareness to help warfighters and analysts and provide increased support to operations." The Department is seeking a 100-fold increase in the ability of analysts to extract information from texts in any language, and a similar increase in the number of objects, activities, and events that an analyst can observe.

House Passes FY 2013 Budget Resolution: Spending Cap Reduced

In a week where buying health insurance was equated with buying broccoli, the theater of the absurd that defines politics in Washington these days saw another new act. After threatening to allow a default on U.S. debt last year that was resolved at the last moment by an agreement that set discretionary spending caps for FY 2013 and included a threat of sequestration or across-the-board (ATB) cuts, the House of Representatives, led by its budget committee chairman Rep. Paul Ryan (R-OH), decided that deal was no longer operative.

The "Ryan Budget" (HConRes 112) passed the House on March 29, by a 228 to 191 vote. The resolution, which provides a guide to the Appropriations Committee regarding how to divvy up the federal budget, lays down the House Republican marker in the FY 2013 budget game. It provides an overall discretionary spending cap of \$1.028 trillion, \$19 billion below the agreed-upon level of \$1.047 trillion. In addition, the resolution replaces the ATB threat. It also eliminates the cuts to defense spending included in the sequestration threat and indicates that spending reductions will come from domestic spending and entitlement reforms.

With regard to Function 250, which includes recommendations for funding for the National Science Foundation, the resolution "preserves basic research, providing stable funding for NSF to conduct its authorized activities in science, space and technology basic research, development and STEM education." Presumably "stable" implies no increases since the recommended allocation for the function is cut by \$1 billion. This does not necessarily bind the Commerce, Justice, Science Appropriations Subcommittee, led by Rep. Frank Wolf (R-VA), but the overall spending reduction will make its job tougher.

Meanwhile, in what sometimes appears an alternate universe, the U.S. Senate, following President Obama, has decided it will stick with the \$1.047 trillion negotiated cap. The Senate has also decided not to waste time and energy producing a FY 2013 budget resolution. Nevertheless, Senate Majority Leader Harry Reid (D-NV) and Appropriations Committee Chairman Sen. Daniel Inouye (D-HA) announced that they will begin marking up FY 2013 spending bills when they return from the current two-week recess.

In the real world, most observers agree that completion of the FY 2013 spending process will not occur until after the presidential and congressional elections in the fall. The \$19 billion gap in the spending cap combined with expiring tax cuts and perhaps another debt-limit increase could provide another crisis-induced end-game.

NIH Makes Annual Appearance before House and Senate Appropriations Committees

House of Representatives: NCATS, NCS, IDeA, and Economics among Topics Discussed

On March 20, the National Institutes of Health (NIH) appeared before the House Appropriations Subcommittee on Labor, Health and Human Services, and Education to discuss the President's FY 2013 budget request. Subcommittee Chair Rep. Denny Rehberg (R-MT) opened the hearing by "thanking the Subcommittee for providing leadership that resulted in an increase in the fiscal year 2012 to support basic science." According to the Chair, the Subcommittee recognizes that the agency's mission is "to invest in basic biomedical research." The Subcommittee made "policy choices to support the pipeline of investigators, and the extramural basic biomedical infrastructure across the nation." The FY 2012 Appropriations Act included a "number of important items and statements of managers' provisions... And [he] expect[s the] NIH will ensure that both the letter and the spirit of the language is followed," said Rehberg. He was specifically referring to the Subcommittee's efforts to provide "a much-needed base increase in specific language" for the Clinical and Translational Science Awards and the Institutional Development Awards (IDeA) programs.

Rehberg also pointed out the Subcommittee's support for the National Children's Study (NCS) and noted that he and Ranking Member Rep. Rosa DeLauro (D-CT) are co-founders of the Baby Caucus. Thus, he noted that the FY 2013 budget request provides "vaguely described changes to the study, and an unanticipated reduction in the cost. A transparent discussion is needed to ensure the proposed changes do not undermine the scientific value of this study," maintained Rehberg. He underscored that "it is important to finally gather a large body of large scientific data, which in the future, can improve the health and well-being of our children."

Rehberg stated that he agreed with the President's FY 2013 budget request for basic research and suggested that the NIH "develop a governance process" to support the historical level of 55 percent of NIH resources going towards basic science. He expressed concern, however, with what he described as "incremental decreases that continue to divert funds from the extramural to the intramural science programs and suggested that the NIH also find a "governance process to resume the historical balance of 10 percent for the intramural programs."

He concluded his opening comments by noting that he could not "imagine supporting NIH's request to reduce the IDeA program below the level of fiscal year 2012. This program supports diversity, capacity building, basic science, and developing new investigators in 23 states for less than one percent of the NIH's budget," he insisted.

In her opening comments, Ranking Member DeLauro noted that "what the NIH does, and the research it supports at universities, hospitals, and institutes across the country is unquestionably important to each of us." She noted that medical research at NIH and elsewhere has led to, among other things, dramatic reductions in death rates from heart disease and stroke, more effective treatments for HIV/AIDS, improved survival rates for cancer and better ways of managing diabetes. DeLauro also emphasized that NIH's work provides "substantial economic benefits." "Every dollar in spending is estimated to result in more than two dollars of business activity and economic impact," she stated. She argued that despite these benefits, recent budget choices have shrunk the NIH. "Total funding of the NIH is now \$86 million less than it was just two years ago and that is without considering inflation - meaning that those same dollars are able to support even less research." She further pointed out that the "NIH appropriation has lost five percent of its purchasing power since 2010 and 16 percent since 2003. Accordingly, the agency estimates that it will be able to support 767 fewer research project grants in 2012 than it did in 2010 and 2700 fewer grants than in 2004," explained the Ranking Member.

According to DeLauro, the 2013 budget resolution walks away from the multiyear agreement negotiated last summer and, instead, reduces the limits on overall appropriations down to roughly the level of 2011. She argued that if the allocation available to the subcommittee is reduced, it is hard to imagine that the support for NIH will not shrink along with the total. The NIH is one-fifth of the panel's bill, she pointed out.

The focus of the House hearing was the new National Center for Advancing Translational Science (NCATS). Witnesses were also asked to address issues of possible overlay and duplication with the

work of private industry. NIH director Francis Collins was accompanied by Acting NCATS and National Institute of Mental Health (NIMH) director Tom Insel, National Cancer Institute and former NIH director Harold Varmus, and National Institute of Allergy and Infectious Diseases (NIAID) director Tony Fauci.

In his testimony, Collins highlighted the NIH's contributions to the nation's health and its economy. NIH funded research has prevented untold human suffering by enabling Americans to live longer, healthier and more productive lives, Collins testified. He also observed that 84 percent of the NIH's budget goes out in grants to researchers located in all 50 states. In addition, the agency supports approximately 432,000 high-quality American jobs-factoring in the private sector, this number rises to more than eight million jobs. Addressing the Chair's concern regarding basic research, Collins emphasized that there is "no competition" between basic and applied research at NIH.

Rehberg pointed out that it is no secret that he did not like the way NCATS came about. He asked Collins to convince him that he had a plan that is going to protect NIH extramural activities and maintain the 55 percent support for basic research.

Collins apologized that the plan for NCATS did not have the number of details normally seen during a regular budget process. He admitted to "being an impatient physician researcher." Answering the Chair's question about the 55 percent for basic research, Collins responded that it is actually 54 percent and in some years it has been 53 percent. Over the last 20 and 30 years that percentage, defined as basic versus applied research, has remained essentially constant. He emphasized that he did not expect the percentage to change in any significant way in the coming years because, as the Chair pointed out, NIH is the main supporter of basic biomedical research.

Collins explained that most of the translational science that goes on at NIH is not going to be at NCATS. "That research is in the 27 institutes," he noted. NCATS is about identifying the pipeline as the problem and how to engineer that in a way that would break down these bottlenecks. Insel interjected that the funding for NCATS is not new money. "What we are doing is building a new adjacency so they are now sitting next to each other, interacting," Insel added. He noted the one exception, the two percent of NCATS' budget that goes to the Cures Acceleration Network (CAN), is a new \$10 million program.

Rehberg: 'Why is the NIH Involved in Economics Research?'

Rehberg questioned the NIH's support of the Common Fund's Health Economics initiative and remarked that the NIH had provided \$2.5 million to support the initiative. Noting that the Subcommittee is having "this whole conversation about basic science and all the various grants," Rehberg shared that he asked his staff "of the \$2.5 million that was given in 2011 for economic studies, how many grants would that equate into?" The answer they came up with was "six additional grants." He questioned why NIH is "even involved... in the economics?" He focused on two areas of this research. One, which Rehberg indicated that he has been intimately involved in, is the CLASS [Community Living Assistance Services and Supports] Act." Another is titled, "Integrating Comparative Effectiveness, Research Funding into Care Delivery through Economic Incentives." Rehberg suggested that NIH was duplicating economics research conducted by "hundreds of federal agencies."

Collins explained that the Common Fund is designed to research that no single institute would be able to do. Rehberg replied, "But this isn't research, this is an economics study" (our emphasis). Collins once again noted that it is research trying to understand "particularly what are the economic benefits of the research we conduct. We are asked oftentimes, including by the Congress, what are you doing in terms of being able to support the economy, jobs and so on. And we have not always been confident we had sophisticated answers to that. And this is part of a program to try to figure out whether in fact what we are doing is maximizing the taxpayers' investment."

Rehberg maintained that there were \$2.5 million worth of grants given in 2011 and that he "would like an explanation because it is something that [he] is going to be looking at as chairman." He

declared he would be looking to see "whether that's an appropriate role for the NIH as opposed to others looking into the same issue."

Rep. Michael Simpson (R-ID) later quipped in response to the discussion: "...the reason we study economics and the reason we have economists is to make astrology look respectable."

Cut for the IDeA Program?

Rep. Rodney Alexander (R-LA) asked Collins about the IDeA program and why it seemed to be a low priority as evidenced by the \$52 million cut recommended for the program in the NIH budget. The NIH director responded that the agency is "enthusiastic about the IDeA program." Collins stated that the NIH is "grateful for the additional increment of funds" for the program in the FY 2012 budget and is using the funds to fund two new centers for translational research, as well as an additional set of eight COBRE [Centers of Biomedical Research Excellence] centers. The program supports thematic multidisciplinary centers. He explained that the NIH's understanding is that this was a much-needed, one-time boost. Accordingly, the funds for IDeA have been reduced roughly back to where they were in FY 2011. Rehberg interrupted to say that it was not the Subcommittee's intent to have the funds be a onetime allocation.

Rep. Cynthia M. Lummis (R-WY) also inquired about the IDeA program. Lummis noted that she used to sit on Wyoming's EPSCOR committee and that the proposals that were vetted by the committee and those referred to NIH were "truly remarkable at the University of Wyoming." She asked Collins if he had ever visited one of the IDeA programs at a land grant school. She noted the \$50 million reduction in the program "in order to fund other research priorities." What are those other priorities that would be higher research priorities than the ones you are receiving through the IDeA program, she asked. She directed the NIH director's attention to the budget request for \$64 million for NCATS, which is a new program and \$40 million for CAN, another new program.

He answered that he had not personally visited a program since becoming NIH director but did as director of the National Human Genome Research Institute. He cautioned her regarding seeing a direct connection between what decisions were made in the President's budget about the IDeA program and about NCATS. Those are not the same dollars that just got moved from one box to the other, Collins explained. This is part of a big overall plan to try to figure out where the scientific opportunities are most pressing.

Direct Support for Community-based Organizations

Rep. Lucille Roybal-Allard (D-CA) noted that as more community-based organizations (CBOs) enter into research partnerships with NIH-funded academic institutions, and initiate and conduct research, there is an increased need for NIH to provide them with direct support for research capacity-building and research infrastructure. She noted that the current funding mechanisms and peer-review processes at NIH are designed to support academic institutions, even if technically, CBOs are among the organizations eligible to submit applications. She wanted to know how NIH will directly support research capacity-building and research infrastructure needed in CBOs. Collins responded that the Clinical and Translational Science Awards (CTSAs) include community outreach as a component of their activities. He pointed out that the CTSAs have moved to NCATS. Insel added that they are increasingly attempting to get CBOs in at the front end to help define the research problems, and to bring these organizations in as full partners.

Senate: Sequestration, IDeA, National Children's Study and No PPHF for Alzheimer's Research

Eight days after appearing before the House Appropriations Subcommittee on Labor, Health and Human Services, and Education, National Institutes of Health (NIH) director Francis Collins testified before the Senate Subcommittee chaired by Senator Tom Harkin (D-IA). Collins was joined by a small subset of the NIH directors: Harold Varmus (National Cancer Institute (NCI)), Tony Fauci (National Institute of Allergy and Infectious Diseases), Griffin Rodgers (National Institute of Diabetes and Digestive and Kidney Diseases), Richard Hodes (National Institute on Aging) and Tom Insel (National Institute of Mental Health and acting director of the National Center for Advancing

Translational Sciences).

Harkin welcomed the NIH contingent and noted his "personal and professional thanks" to them and "the hundreds of thousands of people who are supported by NIH funding...America is a world leader in biomedical research" as a result, he maintained. Harkin questioned how long America would maintain that status, a growing concern, given the "loom[ing]" threat of sequestration. The Congressional Budget Office, according to the Chair, "has estimated that most non-defense discretionary programs such as NIH will be cut by about 7.8 percent next January if Congress does not enact a plan before that time," he explained.

Harkin warned that the budget plan proposed at the time of the hearing and subsequently passed in the House is "worse." In FY 2013, the Ryan Plan, as it is known, would "cut nondefense spending by five percent and 19 percent in FY 2014. If that cut were applied equally across the government, the number of new NIH grants for promising research projects would shrink by more than 1,600 in 2014 and by more than 16,000 over the next decade." He characterized the Plan as "a classic case of penny-wise and pound foolish thinking especially when China, India, and Europe are spending more, not less, on medical research." He lamented that even in the best-case scenario the budget for NIH is likely to remain tight for the immediate future.

Ranking Member Senator Richard Shelby (R-AL) welcomed the NIH directors and stressed that a "continued commitment to NIH is essential to addressing our nation's growing health concerns and to spurring medial innovation for the next generation of treatment and cures." The NIH budget request for FY 2013 abandons that commitment, said Shelby, noting that the request did not provide "level funding from FY 2012" as it claims, because it does not take into account the additional funding the Department of Health and Human Services requested for the department-wide evaluation activities. "If this so-called evaluation tab is agreed to, it will reduce the NIH budget by \$215 million bringing the budget request below the 2012 level," Shelby pointed out. He went on to say that he did not agree with the funding level proposed by the administration, which he noted would not keep pace with biomedical inflation. With inflation factored in, NIH is 17 percent below where they were 10 years ago, he contended. "I believe that the NIH funding should be a priority and that its benefits extend well beyond its research discoveries."

Shelby expressed several concerns, including proposals to cap inflationary costs and reduce the average award of competing research projects below the FY 2012 funding level. He also called for "more out-of-the-box thinking to stimulate the research community in imaginative ways." He highlighted NCI's approach and the new program started by director Varmus to "answer the provocative questions in cancer research" (see Update, February 7, 2011). The program focuses scientists on 24 unanswered perhaps non-obvious questions as defined by the research community. Shelby concluded his opening remarks by noting that "as Congress faces unprecedented challenges to reduce government spending, we must all face the consequences of tough choices...I believe biomedical research is a necessary and worthy investment, and the health of our people, and the vitality of our communities."

Harkin began the question and answer portion of the hearing by asking about the threat of sequestration in the Budget Control Act. He asked for a "thumbnail sketch of what that would mean for NIH?" Collins responded that the agency has also heard the estimate from CBO and that if the sequestration kicks in on January 2013 that the NIH would expect to lose 7.8 percent of its budget, about \$2.4 billion, three months into the fiscal year. This would result in roughly 2,300 grants that the agency would not be able to award in FY 2013, representing almost a quarter of the agency's new and competing grants.

Furthermore, Collins related, it would be devastating for many investigators who are seeking to continue programs that they have had funded in the past and are back for their competing renewal or who are starting things that are entirely new. According to the NIH director, the burden would be particularly heavy upon first time investigators who are seeking to get their program up and going. It would have across the board implications in terms of both basic and clinical science. There is no question that such things as an influenza vaccine would be slowed down, along with

efforts in cancer research, and that in the common fund the agency would not be able to fund new programs "such as the one focused on how to bring together cell phone technology and prevention in health which is a very exciting new area."

Answering the question of what the agency has done to respond to tight budgets, Collins noted that the NIH had done several things including: looking at grants that get lower priority scores to see if their grants would meet certain high priority topics to make sure those get funded, and reorganizing the agency's clinical trials in cooperative groups to be sure they "operate effectively and are answering deep scientific questions." He also cited NCI's provocative question initiative highlighted by Shelby.

Shelby noted that more than one-third of U.S. adults are obese. He pointed out that the Deep South, his area of the country, has the highest obesity rate with six out of seven states having an obese population higher than 30 percent. Obesity is most prevalent in racial and ethnic minorities, low-income populations, and those who live in rural areas, Shelby reflected. Noting that currently there are a limited number of the most high-risk populations involved in clinical trials and other NIH-funded research, he asked Collins how the NIH could ensure the involvement of the communities most affected by obesity.

Collins answered that it is a question that the NIH is concerned about as the agency looks at those curves showing increasing longevity for our population. We worry that they might flatten out and actually go the wrong way if we are not able to get control of this epidemic of obesity and diabetes. Rodgers, NIDDK's director, added that as the Shelby pointed out, this "is really a complex problem and a problem that one solution will clearly not be issued." Rodgers noted that the NIH just published about a year ago, a strategic plan directed to obesity aiming at prevention in local communities, including the "hardest" affected. NIH brought into the planning process, researchers who were not previously involved, such as urban planners. The agency has "enlisted a number of behaviorists to work on the problem," he announced. Responding to Shelby's follow-up question as how do you get people to eat apples instead of a cheeseburger, Rodgers replied that the Senator had raised an interesting point "that people have described as nudge. Sometimes if you make the default value something that is healthy, you can achieve your objective." Many in the food industry are beginning to consider these types of approaches, Rodgers indicated.

IDeA

Similar to the House session, there was a lengthy discussion about the Institutional Development Awards (IDeA) program. Shelby noted that the State of Alabama is a "significant recipient" of NIH funding mainly due to research grants received by one institution, the University of Alabama, Birmingham (UAB). He expressed concern that UAB's success put other institutions in Alabama and elsewhere at a competitive disadvantage. He noted that despite the goal of the program, which is to broaden the geographic distribution of NIH funding to institutions that have a historically low success rate, many institutions that could benefit are unable to compete for this funding because the state they reside in is ineligible due to the success of just one institution. He asked Collins for an update of the progress the NIH had made in response to language in the FY 2012 bill in support of revising current eligibility criteria. Collins explained that as he understood it, Congress defines the IDeA program and the eligible states. The NIH is aware that the IDeA program is not entirely in sync with the National Science Foundation's EPSCoR program but has a similar intention and a slightly different definition, Collins asserted.

Harkin remarked that Iowa was not one those states. "But I am not clamoring for it to be one because what I understand the interest of states is to find funding for a lot of different things." The Chairman continued: "We're not in the business of just spreading money around. We're in the business of trying to take the limited budget that we have and reward the best science out there" and we count on the NIH and its advisory board "to tell us what that best science is."

National Children's Study: Will it Include a Representative Group of Children?

Senator Sherrod Brown (D-OH) expressed interest in the National Children's Study (NCS). He shared that Case Medical School in Cleveland is a Vanguard Center to research children in Lorain and Cuyahoga Counties, two urban industrial counties that have diverse population and "pretty widespread poverty." It had been brought to his attention that NIH has found the study's geographic approach too expensive. His understanding, said the Senator, is that the seven original sites conducting this research are opposed to making that change. He asked Collins to explain the NIH's decision.

Collins responded that the NIH is "very much invested in the success of the National Children study as a critical way of assessing environmental and genetic risk factors. The agency, he explained, has conducted over the last three-four years a series of vanguard studies to try to assess what is the best way to ascertain such a large number of individuals. What they have learned through that process as well as the evolution of the way in which science is being conducted and the way in which health care is now possible to deliver, that there may be ways to do this study which are actually, at least as effective and considerably more efficient." Accordingly, he noted that the study might be focused in a different way than originally proposed. Knocking on doors is "very expensive" and it is also difficult to ascertain the sufficient number of cases. The NIH is currently proposing to work through "geographically distributed providers," providing the agency a better opportunity to conduct the study "in a fashion which can actually save taxpayers' dollars," Collins continued. He added that NIH is "very sensitive to the issue" raised by Brown. "There needs to be a study of children in this nation that does not leave out those who, at the present time don't have much in the way of health coverage."

Collins informed the Senator that the NCS Main Study is still in the process of having its design worked out and will have some serious attention paid to that issue so that we have a representative group of children, not necessarily ascertained in the original way, but a group that "gives us the information we need to know about genetics, about environment in multiple different groups across socio-economic status." He encouraged those who are concerned about the change to become part of the process that is going forward, including a major meeting of the NCS Advisory Group next month to ensure they "design a study that is going to give the answer that the nation needs."

Harkin: No Money for Alzheimer's from the Prevention and Public Health Fund

Harkin highlighted the fact that the President's budget includes \$80 million for research specifically for Alzheimer's. Where is he getting the money, asked Harkin? He is taking it from the Prevention and Public Health Trust Fund that we put in the Affordable Care Act. Underscoring the "friendly atmosphere" of the hearing, Harkin informed Collins that "that is not is going to happen. I will make absolutely certain that not one more nickel is taken out of that Prevention and Public Trust Fund for anything outside than what it was intended for, just as I will not go after NIH to get money for the Prevention and Public Health Fund." He acknowledged that he is a strong supporter of Alzheimer's research but this \$80 million isn't happening. NIH, said the chairman, has the flexibility to direct a larger share of its funding to Alzheimer's research within its own budget assuming two things: (1) there are enough scientific opportunities to warrant an increase; and (2) researchers submit enough high quality applications.

He later clarified his remarks regarding not taking money from the Prevention Fund to give NIH, indicating that it depends on for what purpose the money will be spent. He cited the NIH fund for the diabetes prevention program and pointed out that it included \$10 million from PPHF because that is a proven intervention to prevent and to delay the onset of type-2 diabetes. He also noted that the research for that, however, was funded both by NIH and the Centers for Disease Control and Prevention (CDC) collaboratively. So once the agency has funded the research that has been determined a proven intervention, Harkin stated that he "is more than happy to get money out of PPHF for the prevention aspects."

On March 21 the House Appropriations Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies held a hearing on FY 2013 Appropriations for Research, Education, and Economics (REE) within the U.S. Department of Agriculture (USDA). Present as witnesses were: Catherine E. Woteki, REE Undersecretary; Edward Knipling, Agricultural Research Service (ARS) Administrator; Chavonda Jacobs-Young, Acting Administrator of the National Institute of Food and Agriculture (NIFA); Mary Bohman, Administrator of the Economic Research Service (ERS); Cynthia Clark, National Agricultural Statistics Service (NASS) Administrator; and Michael Young, Department of Agriculture Budget Officer.

The hearing commenced with Chairman Jack Kingston (R-GA) noting that the FY 2013 President's request includes a slight increase overall for REE. Subcommittee Ranking Member Rep. Sam Farr (D-CA) immediately came out in support of research, noting that the U.S. stays ahead of the curve by being smarter than the rest of the world and that agriculture will always be a vital part of our society.

Rep. Cynthia Lummis (R-WY) began the combative portion of the hearing by bringing up the "redundant collection of data at USDA" and questioning the witnesses about how the Department could consolidate its data collection activities. Rep. Alan Nunnelee (R-MS) echoed her concerns noting that farmers and ranchers in northern Mississippi "spend an inordinate amount of time filling out forms giving the exact same information to various levels within the USDA," meaning they don't then "have the time to do what they are in business to do, and that is to farm and ranch."

With this implication that the collection of data hampers farmers from feeding America, Lummis continued. She ominously announced that the officials could expect her to offer language or a floor amendment to streamline data collection. "I'm apt to propose some amendments to the budget that will reduce funding for the collection of ag statistics and consolidate the collection of ag statistics," Lummis divulged. She then requested the witness' guidance on the best way to streamline collection, taking care to note that she was not an expert and, while she wanted the most efficient process possible, she had no intention to compromise the usefulness of the data collected. She went on: "I am going to do it, and whether I do it right or wrong is sort of contingent on whether you give me some guidance or not."

After Lummis' remarks, Clark attempted to explain the reasoning behind the various types of data collected by NASS and how NASS is unique. Clark stressed that while several USDA agencies may collect similar information, it is used for different things and on different occasions. After Lummis asked whether NASS should collect crop and farm information, or leave the task to the Farm Service Agency, which handles farm support programs and loans, Clark explained that NASS provides forecasts in season which aren't supplied by administrative agencies. Clark also pointed out that NASS cannot share data it collects for specific programs and regulations with other agencies because the information is confidential. But she did note that NASS is working to reduce the number of times it contacts people for information and that NASS, the Risk Management Agency, Natural Resources Conservation Service, and Farm Service Agency, are already working together to develop a shared reporting system where possible. Woteki agreed that her agencies would work with Lummis.

In a moment of theatrics, Chairman Kingston pulled out a NASS questionnaire that had been sent to his home in suburban Georgia. As Kingston does not own farmland or farm in any way, he questioned the witnesses as to why it had been sent to him, implying that it was a clear indicator that the Department was wasting funds. Clark said he most likely received it as part of a survey done before the agricultural census is executed later this year. The survey is used to determine the accuracy of the census list the agency compiles from agriculture groups and government sources such as the IRS. Clark indicated that Kingston and anyone else who felt they did not qualify for the census should simply send the questionnaire back indicating as much. While it was highlighted that this actually saves resources, Kingston seemed to remain unsatisfied.

Lummis' next targeted Agriculture sustainability programs. She noted that while NIFA has proposed

a state matching program, there are already "two pages" of programs in existence to make Agriculture more sustainable. Woteki declared that while agriculture constantly faces new issues, we have not had meaningful inquiries into support for programs in roughly two decades. Young also defended the program, noting that we've seen growth in small farms recently and the program would help reach those people and help them become sustainable agriculture producers.

To see copies of written testimonies submitted by the witnesses, please visit the Committee's website <u>here</u>.

Health and Retirement Study Now Provides Genetic Data for Analysis

The National Institute on Aging, led by Richard Hodes, has announced that the Health and Retirement Study (HRS) has added genetic information from consenting participants to its massive database. The HRS is a 20-year nationwide survey of the health, economic and social status of older Americans led by David Weir and a team of scientists at the University of Michigan. It is the premier database for studying retirement and the baby boom generation and has been the subject of two COSSA congressional briefings.

Launched in 1992, the HRS today follows more than 35,000 people over the age of 50. It collects data every two years, from pre-retirement to advanced age, during extensive interviews with participants, who are asked detailed questions about their health, economic status, social factors, cognitive ability and life circumstances. The interviews also include a set of physical performance tests, body measurements, blood and saliva samples and a psychosocial questionnaire.

On March 15, genetic data from approximately 13,000 individuals were posted to dbGAP, the NIH's online genetics database. The data are comprised of approximately 2.5 million genetic markers from each person and are immediately available for analysis by qualified researchers. Data were obtained from saliva samples collected from HRS participants since 2006. Specific information on the data can be found at:

http://www.ncbi.nlm.nih.gov/projects/gap/cgi-bin/study.cgi?study_id=phs000428.v1.p1.

The new detailed information on genetic background, combined with the wealth of data on important aspects of the lives of older people, will allow researchers to more effectively describe the spectrum of behavioral and environmental risk factors for disease and disability as well as those that may protect our health, according to Hodes.

NIA will post data from a total of 20,000 HRS participants to the database by the end of 2013, enabling researchers to conduct genome-wide association studies (GWAS). The GWAS technology will allow studies of survivorship, longevity and genetic determinants of aging, along with studies of complex disease traits, physiological measures and functions, biomarkers and physical performance. The longitudinal design of the HRS greatly enhances the power to detect genetic effects and to study determinants of age-dependent changes in health and function.

Richard Suzman, director of NIA's Division of Behavioral and Social Research and a co-founder of the study, hailed the new information, asserting that: "Adding genetic data to this longitudinal study has the potential to revolutionize behavioral and social research."

The NIA renewed its support of the HRS in December 2011. The cooperative agreement between the NIA and the University of Michigan was extended for six years. HRS also receives additional funding from the Social Security Administration. The renewal builds on the current HRS study by allowing in-person and mail interviews to continue and by adding links to other databases maintained by the Social Security Administration, the Centers for Medicare and Medicaid Services (CMS) and the National Death Index. The study will now expand links to CMS to include Medicaid, home health services and nursing home data. It will also will also expand employer linkages and create a connection to Department of Veterans Affairs' data.

In addition, according to Suzman, "The HRS has also served as the model for similar studies in more

than 30 other countries, leading to cross-national comparisons of the health and well-being of older people." This has allowed for comparative analyses with global counterparts.

The HRS website, http://hrsonline.isr.umich.edu, provides more information on the study as well as an online bibliography of publications using the HRS data. The 2007 NIA publication, "Growing Older in America: The Health and Retirement Study," summarizes 15 years of HRS findings and is available at:

http://www.nia.nih.gov/health/publication/growing-older-america-health-and-retirement-study.

NSF Announces New I-Corps Grants

On March 19, the National Science Foundation (NSF) announced a new set of Innovation Corps grants. These grants, given as \$50,000 supplements to already-existing awards, are part of NSF's new opportunity to assess the readiness of emerging technology concepts for transitioning into valuable new products through a public-private partnership. The research teams receiving the award will obtain guidance from private- and public-sector experts, participate in a specially designed training curriculum, and begin assessing the commercial readiness of their technology concepts. Three of the awards are related to social/behavioral science.

Dan O'Hair, Professor of Communications at the University of Kentucky and a former COSSA Congressional Seminar speaker, will lead a team that will design how to commercialize ongoing research focused on tailored messaging systems involving severe weather events. According to the abstract, "Success rates of messaging systems have yielded disappointing rates in previous events due to a 'one size fits all' approach to broadcast strategies." Communication research has concluded that tailored messages have the best chance for influencing behavior and educating receivers. This effort investigates the potential to commercialize the research previously conducted to provide tailored communications. This is particularly useful in providing information during hurricanes to promote more protective decision-making thus, saving lives and property. There is now an opportunity to make these scientifically optimized systems available to the public.

Marshall Van Alstyne, Professor of Information Economics at MIT, and his team have studied the effects of knowledge markets on information sharing and worker productivity within firms. Empirical research suggests that provision of knowledge markets to workers can have large positive effects on their productivity. They have also created Barter, a prototype knowledge market that has been successfully used in classroom settings at several universities to enhance student learning. The I-Corps grant will allow them to validate the company business model in light of early customer feedback while completing a prototype commercial product based on the successful academic prototype.

Michael Tarr, Professor of Psychology at Carnegie Mellon, and his team will investigate the neural representation of affective valence during visual object perception. The objects used in these experiments will be consumer products that are currently under development by companies that the team will work with during this award. The experiments the team plans to conduct will rely on a combination of functional magnetic resonance imaging (fMRI) and behavioral psychophysics designed to develop strategies and analysis tools to most effectively predict, as well as understand why, which object-based products are most preferred by consumers. In doing so, the team will form a more neuro-psychologically-based model of how specific subcomponents of the visual system interact with both affective processing, and with the choice and decision-making systems. By applying neuro-scientific methods to consumer testing and product development, the team will be introducing well-grounded, cutting-edge science and technology to commercial sectors that have not typically employed such methods. The team plans to conduct workshops for any of their customers that wish to learn more about the brain and how it functions.

This year, the I-Corps program expects to select approximately 100 teams to assess the commercial viability of their proposed innovations, all of which are built upon a foundation of NSF-supported basic research. The program has begun accepting inquiries for the round of awards to begin in July

Smart Disclosure Focus of White House and NARA Summit

The White House and the National Archives and Records Administration (NARA) hosted a Summit on "Informing Consumers through Smart Disclosure" on March 30. Smart Disclosure means providing access to data in a machine readable format to support interactive tools that help consumers make informed decisions. Smart Disclosure is now used in a variety of consumer sectors, including health, education, personal finance, energy, transportation, and telecommunications. This was the first government-wide conference on Smart Disclosure with participants also coming from business, non-profits, philanthropy and academics.

The Sloan Foundation announced at the Summit a Smart Disclosure Research and Demonstration Competition. For more information on this funding opportunity, look here.

Smart disclosure is based on insights from social and behavioral science. Two of the lead speakers, Professor Richard Thaler, University of Chicago, and Cass Sunstein, head of the Office of Management and Budget's Office of Information and Regulatory Affairs, are co-authors of the bestselling book *Nudge* in which the concepts of behavioral economics are used to address many of society's problems. In his keynote talk to the summit, Thaler called the current model of government Smart Disclosure a "Field of Dreams" approach because the government assumes that the "Apps will come" if the data are there. He said the government is developing a better model in which the information helps the consumer use this past information to answer the key questions. He contrasted the torturous process of trying to find the best Prescription Drug Plan under Medicare Part D for his mother with one in which Medicare would predict the best plan for his mother based on her past medical history. He had a number of other examples of how humans are confounded by the growing complexity of decisions, how Smart Disclosure policies such as the Blue Button for medical care and the Green Button for energy use are already improving decisions, and how society could be transformed and dramatically improved by advances in Smart Disclosure technology.

Cass Sunstein drew an analogy between the transformation of managing in baseball described in the book and movie *Moneyball* and the transformation taking place in government through Smart Regulations. The Obama Administration had achieved a cumulative \$91.3 billion in net benefits from regulations in its first three years. The number of lives lost in traffic accidents reached its lowest level in sixty years. This had been achieved in part through periodic retrospective review of regulations. He described how changes in government regulations led to more informed choice on food (food plate versus food pyramid), automobiles (more informative labels on comparative energy use by new cars), education score cards (information on graduation rates and job placements for universities and colleges) and better Health Insurance disclosure. He talked about the innovative applications that were generated by data.gov, a database of almost 400,000 government data sets available online.

There were other informative talks - a keynote address by Tim O'Reilly CEA of O'Reilly Media, a panel discussion by pioneers of Smart Disclosure in the Departments of Energy, Labor, Education and Transportation, demonstrations of consumer tools using Smart Disclosure data, a summary of Smart Disclosure and the Administration's Consumer Privacy Bill of Rights, panels on promoting consumer choice through Smart Disclosure of Personal Data and the Design of Smart Disclosure Initiatives. The meeting closed with "Ignite Sessions," where participating agencies had the opportunity to informally pitch a Smart Disclosure idea and then workshop the concept in breakout groups.

The America COMPETES Act, not only changed the name of the Science, Resources, Statistics division of the National Science Foundation's Social, Behavioral, and Economic Science directorate, but gave it a broader mission. Now the National Center on Science and Engineering Statistics, the division was told to provide funding to support research on methodologies in areas related to the work of the Center and on the data it collects.

NCSES welcomes efforts by the research community to use its data for research on the science and technology enterprise, to develop improved survey methodologies for its surveys, to create and improve indicators of S&T activities and resources, and strengthen methodologies to analyze and disseminate S&T statistical data. NCSES also wants to enhance its efforts to support analytic and methodological research in support of its surveys, and to engage in the education and training of researchers in the use of large-scale nationally representative datasets.

To this end, NCSES seeks proposals for individual or multi-investigator research projects, doctoral dissertation improvement awards, workshops, experimental research, survey research and data collection and dissemination projects under its program for Research on the Science and Technology Enterprise: Statistics and Surveys.

The deadline for submission of proposals is June 6, 2012. NCSES anticipates making 7 to 12 awards with \$750,000 of funds that will hopefully be available.

For further information contact: Nirmala Kannankutty, (703) 292-7797, email: nkannank@nsf.gov.

NSF Seeks Proposals on Nanoscale Science, Including Social and Ethical Implications, for Undergraduate Engineering Education

The National Science Foundation (NSF) seeks proposals to fund projects that will introduce nanoscale science, engineering, and technology through a variety of interdisciplinary approaches into undergraduate engineering education. The focus of the competition is on nanoscale engineering education with relevance to devices and systems and/or on the societal, ethical, economic and/or environmental issues relevant to nanotechnology.

According to NSF, the proposed projects should enable individuals, departments, programs, or campuses to integrate research advancements into their curricula. Integration could take the form of a new course or courses, or modification of existing courses such that a substantial portion of the course content is based on nanoscale engineering. Integration could include a module or modules in courses that focus on issues of environmental or social change and new developments in nanoscale engineering, or a new course or series of courses that include those focus areas. The projects should be evidenced-based and grounded in what is known about student learning. International collaborations that advance and strengthen U.S. activities in these areas are encouraged.

Although NSF supports interdisciplinary teams for these projects, the lead PI must hold a faculty appointment within a College/Department of Engineering or College/Department of Engineering Technology within the submitting US academic institution.

Proposals are due on April 23, 2012. NSF expects to make 10 awards, with each award garnering up to a maximum of \$200,000 for two years.

For further information contact: Frederick M. Kronz in the Directorate for Social, Behavioral & Economic Sciences (703) 292-7283, or fronz@nsf.gov.

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