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Analysis of the President's FY 2016 Budget Request for Federal Research, Health and Education Programs

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February 2, 2015

Government Relations for Research & Education

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Executive Summary

President Obama released his FY 2016 budget request on February 2nd, a submission to Congress which contains many bipartisan ideas but also requires significant changes in top level spending caps to be realized.

The budget request presents a mostly positive agenda for research and education organizations, both by proposing increases for core funding agencies and by launching new initiatives and emphasis areas, such as an increase in the maximum Pell grant award and programs in the food-energy-water nexus, precision medicine and infectious diseases, agricultural research, and disaster resilience. Moreover, several of the biggest topics for investment and opportunity reflect areas of bipartisan support, such as cybersecurity and exascale computing, advanced manufacturing, and neuroscience. The President has also re-proposed a major new investment in public infrastructure, building on successful programs used in the economic stimulus legislation five years ago to enable states and local communities to derive new capital for major infrastructure needs. Initiatives such as this, an emphasis on expanded trade authority for the Asia-Pacific region, and proposed changes to higher education financing come in a year when Congress is expected to consider related legislation, increasing the likelihood that some of these proposals will be accepted.

In parallel, the request continues to place pressure on the performance of institutions through previous proposals to make substantial cuts to provider payments such as indirect medical education in favor of new policies associated with health care delivery, the request would squeeze defense basic research accounts in favor of more applied or translational initiatives, and the request continues to emphasize college access and completion as part of changes proposed for higher education.

In contrast to the last two years in which Congress and the President had adhered to overall defense and domestic discretionary spending levels, the FY 2016 budget request is being presented to a Congress which has not yet decided how to account for budgetary caps agreed to in a bipartisan 2011 budget deal. The existing caps, along with sequester levels, would disallow substantial new funding as proposed by the President above FY 2015 levels. Reflecting a tone set by the President in his most recent State of the Union speech, the Obama Administration's budget request reflects funding thresholds that assume sequestration is largely offset by changes in tax policy and other savings requiring congressional approval. These changes requested by the White House are meant to alleviate overall budget pressures and foster an environment for new legislation by Congress to increase the existing spending limits. While the Congress may disagree with several of his proposed savings, the debate over the overall spending levels is expected to occur early in 2016 and will have significant implications on how many of the proposed increases Congress can provide for individual agencies, accounts, or programs in the annual appropriations process.

Regardless, the annual budget request reflects months of planning and negotiations by the White House and provides a telling window into forthcoming plans and priorities. The proposed increases for research, education, and infrastructure reflect areas of emphasis for the remaining two years of the Obama Administration and benchmarks for which congressional champions will advocate throughout the appropriations process.

Department of Education

The President's FY 2016 budget request includes $70.7 billion for the Department of Education (ED), which is an increase of $3.6 billion or 5.4 percent above the FY 2015 enacted level.

- The FY 2016 budget request continues the Obama Administration's push to increase college access, completion, and outcomes by focusing on quality and affordability; an increase in the maximum Pell-grant award; expanding early childhood education across the U.S.; expanding science, technology, engineering, and mathematics (STEM) education across K-12; providing support for teacher development and training; and increasing support for the Investing in Innovation (i3) program.
- The FY 2016 budget request supports President Obama's proposal to make postsecondary education universal by providing qualified students with two free years of community college. This includes funding for states to waive tuition and fees in exchange for providing matching state funds. While the President's college ratings proposal remains a priority for the 2015-2016 academic year, there is no mention of the plan in the FY 2016 budget request.
- The ED budget request proposes several policy provisions that would need to be included in authorization legislation, either the *Higher Education Act* (HEA) or *the Elementary and Secondary Act* (ESEA), both of which Congress plans to address in this session. However, the Republican-led Congress is unlikely to reach consensus with the Administration on many of its priorities. Due to these anticipated obstacles, the Administration is expected to continue to use executive action to influence higher education reform.

New and Signature Initiatives

Teacher Preparation
The budget request includes $138.8 million for a new **Teacher and Principal Pathways program**, which would be formed by the consolidation of Transition to Teaching, Teacher Quality Partnership and School Leadership programs. The goal of the new program would be to bring more graduates into teacher and school leadership positions. The available grants would reward institutions of higher education that work closely with school districts to prepare teachers and school leaders. In keeping with the Administration's focus on Science, Technology, Engineering, and Math (STEM) priorities, $100 million of the $138.8 million would be allocated to support STEM teacher preparation programs. The budget request also provides a 33 percent increase for the **Math and Science Partnerships program** to leverage local resources and assets and encourage comprehensive STEM education reform.

College Access and Completion
The new **America's College Promise** initiative is the centerpiece of the Administration's FY 2016 efforts to increase access to higher education. This initiative is intended to encourage more students to obtain two-year degrees and eventually enter into the skilled-workforce pipeline. According to the budget request, this plan, which would offer two years of free community college to students who meet defined criteria, would cost $1.4 billion dollars for FY 2016 and up to $60 billion over the next 10 years.

The budget request also includes a dramatic increase of 233.3 percent over the FY 2015 enacted level for the **First in the World** program. This program would fund new and innovative projects to improve college completion and access, particularly those focused on low-income students.

The Administration continues to expand programs to support student loan borrowers. The FY 2016 budget request includes an expansion of the **Pay As You Earn (PAYE)** program, which caps monthly payments at 10 percent of discretionary income. To simplify borrowing, PAYE would become the only income-driven repayment plan for student borrowers who obtain their first loans after July 1, 2016. The Administration plans to use savings from this proposal to expand college access. Similar to last year's request, President Obama proposes restructuring Campus-based Aid Programs, including the **Supplemental Educational Opportunity Grants (SEOG)** and **Federal Work Study** programs, to better aid institutions that enroll and graduate significant numbers of Pell-eligible students. The request also proposes a new **Unsubsidized Perkins Loan program**, which would provide an increased volume of loans (from $1 billion to $8.5 billion) and result in savings to extend the indexing of Pell Grants to inflation beyond 2017. ED, rather than the institutions, would service these new Perkins Loans. The current Federal Perkins Loan Program is in its last year, and no new awards will be made after September 30, 2015. The budget request proposes a decrease of 39.3 percent from the FY 2015 enacted level as the program winds-down.

Innovation and Improvement
The Administration is doubling-down on its innovation and improvement programs. For example, the request includes a 163.2 percent increase for the **Promise Neighborhoods** program above the FY 2015 enacted level. Congress has provided level funding for Promise Neighborhoods for the past three years, despite the Administration's ambitious requests. The signature **i3** program would receive an increase of 150 percent above the FY 2015 appropriation. The request includes funding for the **Advanced Research Projects Agency for Education (ARPA-ED)** for innovative technological breakthroughs relating to teaching and learning. While ARPA-ED has been proposed in previous budget requests, Congress has never provided funding.

Support for Hispanic Serving Institutions (HSIs)
The FY 2016 budget request includes level funding for the **Developing HSIs program**, to expand educational quality and capacity, as well as fiscal stability. The request also provides a request for new awards under the **HSI STEM and Articulation program**, which seeks to expand opportunities for underrepresented groups in STEM fields.

Proposed Reductions and Terminations

Race to the Top (RttT)
In contrast to the FY 2015 request of $300 million for a new RttT competition, the FY 2016 request does not include any new funding or competitions for the once-signature program.

National Institute on Disability and Rehabilitation Research (NIDRR)
The President signed the *Workforce Innovation and Opportunity Act* (*WIOA*) into law in 2014. This law transfers NIDRR from ED to the Department of Health and Human Services (HHS). The program no longer receives funding from ED.

Ongoing Areas of Interest

Access for Low-Income and First Generation Students
The FY 2016 budget request includes increases and changes to the federal student aid programs, which advance the Administration's policy priorities of increasing access, completion, and outcomes. The request would fund the **Pell Grant** program at a maximum individual award level of $5,915, an increase of 2.4 percent from the FY 2015 maximum award level. This level of funding per student would be indexed to inflation until 2017, after which congressional approval would be required to extend inflationary increases. The budget request would include a small increase (2.4 percent) for **TRIO** programs to provide increased funding opportunities for existing grantees to implement and evaluate access and success strategies with the eventual goal of scaling-up best practices program-wide.

Title VI International Education and Foreign Language Studies
The FY 2016 budget proposal would provide a 5.5 percent increase for the Title VI programs. The increase is intended to help the United States meet national security needs by increasing expertise in foreign languages and international studies.

Institute of Education Sciences (IES)
The FY 2016 budget request would provide an increase of 17.8 percent above the FY 2015 enacted level for **IES**. This increase would allow the Institute to award over $60 million in additional grants in FY 2016 for research focused on early learning through postsecondary education, including research on adult education and issues relating to students with disabilities. The budget request also includes increased funding to support the **Research, Development, and Dissemination program,** which would create three new grant competitions focused on improving education practice; pathways to research; and low-cost, quick-turnaround, randomized control trials.

Source: ED's FY 2016 Blue Book can be viewed at:
http://www2.ed.gov/about/overview/budget/budget16/summary/16summary.pdf.

Department of Education

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
ED, Total	**67,135,576**	**70,747,119**	**3,611,543 (5.4%)**
Elementary and Secondary Education	23,280,503	26,027,895	2,747,392 (11.8%)
Title I Funding	14,409,802	15,409,802	1,000,000 (6.9%)
School Improvement Grants	505,756	555,756	50,000 (9.9)
Innovation and Improvement			
Teacher and Principal Pathways	70,660	138,762	68,102 (96.4%)
Investing in Innovation	120,000	300,000	180,000 (150.0%)
ARPA-ED	0	50,000	50,000 (100%)
School Leadership	16,368	0	-16,368 (100%)

Promise Neighborhoods	56,740	150,000	93,260 (164.4%)
Office of Special Education and Rehabilitative Services			
Special Education Grants to States	2,214,465	2,389,465	175,000 (7.9%)
National Institute on Disability and Rehabilitation Research**	103,970	0	-103,970 (-100%)
Student Financial Assistance			
Pell Grant*	5,775	5,915	140 (2.4%)
Perkins Loan Program†	1,010,300	613,000	-397,300 (-39.3)
SEOG	733,130	733,130	--
Work-Study	989,728	989,728	--
Higher Education			
America's College Promise	0	1,364,842	1,364,842 (100.0%)
Title III Aid for Institutional Development	429,762	429,762	--
Title V Aid for HSIs	100,231	100,231	--
Title VI International Education and Foreign Language Studies	72,164	76,164	4,000 (5.5%)
FIPSE	67,775	200,000	132,225 (195.1%)
First in the World	60,000	200,000	140,000 (233.3%)
TRIO Programs	839,752	859,752	20,000 (2.4%)
GEAR UP	301,639	301,639	--
GAANN	29,293	29,293	--
Data/HEA Program Evaluation	0	30,000	30,000 (100%)
College Opportunity and Graduation Bonus	0	647,000	647,000 (100%)
Institute of Education Sciences	573,935	675,883	101,948 (17.8%)
Research, Development and Dissemination	179,860	202,273	22,413 (12.5%)
Research in Special Education	54,000	54,000	--
Regional Education Laboratories	54,423	54,423	--
Statewide Longitudinal Data Systems	34,539	70,000	35,461 (102.7%)

* The Pell Grant amount listed is the maximum grant award.
† Perkins funding is outside of the overall discretionary funding for the Department of Education. The FY 2016 proposal would change the allocation formula and shift funds from university based oversight to ED based oversight.

Department of Health and Human Services

<u>National Institutes of Health</u>
The President's FY 2016 budget request includes $31.3 billion for the National Institutes of Health (NIH), which is a $1 billion (3.3 percent) increase over the FY 2015 enacted level.

- In a change from previous years, the budget request would provide an increase of more than 1 percent, demonstrating the Administration's continued support for the agency and its willingness to provide additional funding for new initiatives that otherwise would cut into the base budget.
- As previewed by the White House over the past few weeks, the NIH budget request would direct funding to multi-agency biomedical initiatives, including $200 million for precision medicine and $461 million for antimicrobial resistance, which are outlined in greater detail in the interagency chapter of this report. Most of the research priorities highlighted in the budget request are continued from last year, such as the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, Big Data to Knowledge, and Alzheimer's disease.
- If the bipartisan popularity of the 21st Century Cures Initiative among House Energy and Commerce Committee members is an indication, Congress is likely to express support for biomedical and drug development priorities outlined in the budget request. However, because the additional funding proposed for NIH is made possible by exceeding the budget caps, the Republican-led Congress will have a difficult time providing actual increases for NIH programs in the final FY 2016 budget.

New and Signature Initiatives

The President's FY 2016 budget request highlights new and continuing NIH initiatives.

Precision Medicine
NIH would spend $200 million in FY 2016 as part of this interagency initiative, which was unveiled by President Obama on January 30. The initiative focuses on using genomics to develop treatments tailored to the individual characteristics of each patient. NIH's piece would include $70 million to expand cancer genomics research at the National Cancer Institute (NCI), and another $130 million would launch a national research cohort of 1 million or more individuals to build a database of their genetic information. More details are in the interagency section of this report. Congress has expressed interest in some type of precision medicine effort, but has not yet put forth details.

Vaccine Development
This new emphasis in the budget request would increase by $51 million NIH's investment in developing new or improved vaccines, particularly for HIV/AIDS and influenza. The additional funding would seek to accelerate ongoing clinical trials for promising HIV vaccine candidates and to develop a universal flu vaccine with the aim of ending the need for annual flu shots. This funding is part of a proposed nearly $200 million increase for the National Institute of Allergy and Infectious Diseases (NIAID), which would work with the Biological Advanced Research and Development Authority (BARDA) on this effort.

Antimicrobial Resistance

Also part of the increase for NIAID is $100 million in additional funding to support the Administration's National Strategy to Combat Antibiotic Resistant Bacteria. This results in a total of $461 million NIH would spend in this area to support the development of rapid diagnostics, a national database of genome sequence data of all reported infections with antimicrobial-resistant microorganisms, a large-scale effort to characterize drug resistance, and a rapid-response clinical trial network to test new antibiotics on individuals with highly resistant strains. More details are in the interagency section of this report.

Pediatric Research

Through the Gabriella Miller Kids First Research Act approved by Congress last year, NIH received $12.6 million in FY 2015 for pediatric research in the NIH Common Fund, and the same level is included in the budget request for FY 2016. The division within the Office of the Director that oversees the Common Fund is beginning to solicit ideas from NIH institutes and centers to identify where strategic investment can have the largest impact in pediatric research. This funding would be part of a $20 million increase in FY 2016 for the Common Fund, which oversees trans-NIH activities such as high-risk, high-reward research and big data.

BRAIN Initiative

The budget request would provide $135 million for the BRAIN Initiative, which is a $70 million increase over FY 2015. Launched in 2013, the multi-agency initiative aims to develop new technologies to produce a clearer picture of the brain. The additional funding would support a 10-year NIH strategy released last year that includes specific goals, milestones, and deliverables to pursue new therapies for neurological and psychiatric conditions and diseases.

Alzheimer's Disease

The NIH budget request would provide an additional $51 million for Alzheimer's disease research to the National Institute on Aging (NIA) for a total of $638 million in FY 2016. The initiative focuses on basic neuroscience research, epidemiological studies to identify risk and protective genes, clinical studies to identify biomarkers, and testing of interventions to treat and prevent Alzheimer's disease. NIH's efforts are part of HHS's National Plan to Address Alzheimer's Disease, which aims to prevent and effectively treat the disease by 2025.

Big Data to Knowledge

In FY 2016, NIH would direct $102 million to the Big Data to Knowledge (BD2K) program to develop systems and expertise to enable the optimum use of big data in biomedical research. This would be a $20 million increase over FY 2015 to help facilitate data sharing among researchers through a Data Commons, develop faster and more accurate software, enhance training, and establish Centers of Excellence.

Ongoing Areas of Interest

NIH estimates it would devote $17.2 billion (55 percent of its total budget) to 35,447 competitive **Research Project Grants (RPGs)** in FY 2016, which would be 1,241 more than FY 2015. NIH also

estimates it would support more than 10,000 new and competing RPGs, which would be an increase of more than 1,200 grants.

The National Center for Advancing Translational Sciences (NCATS) Congressional budget justification specifies that the **Clinical and Translational Science Awards (CTSA)** program within NCATS should receive at least $472.8 million, which is a $500,000 increase above the FY 2015 enacted level. Additionally, the budget request would direct $25.8 million to the **Cures Acceleration Network (CAN),** a $16 million increase for that program. As noted above, Congress has demonstrated an interest in accelerating drug development, which could result in more funding for CAN and its large grant awards that aim to address scientific and technical challenges that impede translational research.

The President's budget request would direct a total of $785 million to support training 15,735 scientists through the **Ruth L. Kirschstein National Research Service Awards** program. The budget also includes a 2 percent stipend increase for predoctoral and postdoctoral trainees in FY 2016.

The budget request includes $273.3 million for the **Institutional Development Award (IDeA) program**, which is the same level provided in FY 2015. This program is a priority for many Members of Congress from states where institutions are not typically as successful at acquiring NIH grants.

The budget request would retain the **salary cap for extramural grants at Executive Level II**, which is the same level as in FY 2015. The decrease from Executive Level I was first enacted in the FY 2012 budget.

Source: The HHS Budget in Brief can be viewed at: http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf*; The NIH FY 2016 budget overview can be viewed at:* http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf*; The NCATS FY 2016 Congressional budget justification can be viewed at:* http://www.ncats.nih.gov/files/NCATS-FY16-justification.pdf*.*

National Institutes of Health

(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NIH total	30,311,349	31,311,349	1,000,000 (3.3%)
National Cancer Institute (NCI)	4,953,028	5,098,479	145,451 (2.9%)
National Heart, Lung, and Blood Institute (NHLBI)	2,995,865	3,071,906	76,041 (2.5%)
National Institute of Dental and Craniofacial Research (NIDCR)	397,700	406,746	9,046 (2.3%)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)	1,899,140	1,938,133	38,993 (2.1%)
National Institute of Neurological Disorders and Stroke (NINDS)	1,604,607	1,660,375	55,768 (3.5%)

National Institute of Allergy and Infectious Diseases (NIAID)	4,417,558	4,614,779	197,221 (4.5%)
National Institute of General Medical Sciences (NIGMS)	2,372,301	2,433,780	61,479 (2.6%)
Institutional Development Award (IDeA)	273,325,000	273,325,000	--
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)	1,286,869	1,318,061	31,192 (2.4%)
National Eye Institute (NEI)	676,764	695,154	18,390 (2.7%)
National Institute of Environmental Health Sciences (NIEHS)	744,682	759,131	14,449 (1.9%)
National Institute on Aging (NIA)	1,197,523	1,267,078	69,555 (5.8%)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)	521,528	533,232	11,704 (2.2%)
National Institute on Deafness and Other Communications Disorders (NIDCD)	405,207	416,241	11,034 (2.7%)
National Institute of Mental Health (NIMH)	1,433,651	1,489,417	55,766 (3.9%)
National Institute on Drug Abuse (NIDA)	1,015,705	1,047,397	31,692 (3.1%)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)	447,153	459,833	12,680 (2.8%)
National Institute of Nursing Research (NINR)	140,852	144,515	3,663 (2.6%)
National Human Genome Research Institute (NHGRI)	498,677	515,491	16,814 (3.4%)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)	327,243	337,314	10,071 (3.1%)
National Institute on Minority Health and Health Disparities (NIMHD)	270,969	281,549	10,580 (3.9%)
National Center for Complementary and Integrative Health (NCCIH)	124,062	127,521	3,459 (2.8%)
National Center for Advancing Translational Sciences (NCATS)	632,710	660,131	27,421 (4.3%)
Cures Acceleration Network (CAN)	9,835	25,835	16,000 (162.7%)
John E. Fogarty International Center (FIC)	67,634	69,505	1,871 (2.8%)
National Library of Medicine (NLM)	337,324	394,090	56,766 (16.8%)
Office of the Director (OD)*	1,413,734	1,442,628	28,894 (2.0%)
Common Fund	545,639	565,639	20,000 (3.7%)
Building and Facilities	128,863	128,863	--

Other HHS Agencies and Priorities

The President's FY 2016 budget request would provide $78.36 billion in revised discretionary funding for the Department of Health and Human Services (HHS), a $2.86 billion increase above the FY 2015 level.

- The President's budget request would continue to fully support the implementation of the *Patient Protection and Affordable Care Act* (ACA) and increased access to coverage. However, Congressional Republicans are looking at developing alternatives to ACA, as well as a strategy should the Supreme Court rule this year that federal subsidies can only be used in state-run exchanges, of which there are currently only 14.

- On January 26, 2015 HHS announced goals and a timeline to move from reimbursing providers for volume to value by linking Medicare payments to alternative payment models. The President's budget request would build on these efforts by proposing that the Sustainable Growth Rate (SGR) be repealed and incentives be implemented to encourage physicians to participate in alternative payment models. This is in line with the bicameral/ bipartisan SGR efforts in the last Congress.

- The President's budget request would support using mandatory funding for a competitive graduate medical education (GME) grant program, similar to proposals in the FY 2015 budget request. Additionally, the budget continues to target indirect medical education (IME) payments for reductions.

- The budget request would continue the President's Now is the Time Initiative to improve access to mental and behavioral health services by increasing the investment in FY 2016.

New and Signature Initiatives

New Pilots and Demonstrations

The President's budget request would provide support for new pilots. For example, the Program for All-Inclusive Care for the Elderly (PACE) currently only supports adults over 55. A new, budget-neutral pilot in a limited number of states, would look at whether it can serve a younger population, qualifying low-income adults under age 55, without increasing costs.[1]

In addition, the President's budget request would establish a new Medicaid demonstration in conjunction with the Administration for Children and Families (ACF) focused on improving the health of children and youth in foster care. The demonstration would be aimed at reducing the reliance on psychotropic medications through evidence-based psychosocial interventions.

New Funding to Study Health Insurance

The budget request would provide $30 million out of the Public Health and Social Services Emergency Fund to support a new Effective Health Insurance Initiative. This project would be in

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[1] http://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/investing.pdf, Fiscal Year 2016 Budget of the U.S. Government, Investing in America Future, OMB, 2015

collaboration with the Agency for Healthcare Research and Quality (AHRQ) and the Office of the Assistant Secretary for Planning and Evaluation at HHS. "The goal of this study is to produce rigorous evidence about how the structure of health insurance can be modernized in a way that improves outcomes while controlling costs."[2] "This initiative will enable HHS to plan and initiate the study using state-of-the-art evaluation methods to address critical research questions that cannot be directly addressed through other means. The study will inform the development of health care models that work better for families and providers."[3] The study would be implemented through external research contracts.

New Diversity Program at the Health Resources and Services Administration (HRSA)
The President's budget request would provide $14 million at HRSA for a new workforce program to increase diversity in healthcare professions. "This new program will fund activities that create a career pipeline for health professions students that lead directly to service in underserved communities."[4] However, the Administration would eliminate funding for the Health Careers Opportunity Program (HCOP) program, which also provides support to individuals from socio-economically disadvantaged backgrounds. According HRSA's budget justification, "in FY 2015, programmatic changes are underway to focus on activities that have a more direct impact on expanding the primary care workforce. In order to accomplish the goal of the program, the HCOP redesign will direct grantees to focus on specific entry points along a shorter educational pipeline that begins in the latter years of high school."[5] The budget request would increase funding for other programs to support increasing diversity among health professions including the Centers of Excellence (COE), which would receive $25 million in FY 2016, an increase of 15 percent above the FY 2015 level.

Now Is the Time Initiative
The budget request would continue activities, which are part of the President's *Now is the Time Initiative*, to support improved access for mental and behavioral health services. The budget request would provide $151 million to the Substance Abuse and Mental Health Services Administration (SAMHSA) in FY 2016 for *Now Is the Time*-related activities, a 30 percent increase above the FY 2015 level. Increased funding would be used to expand the SAMHSA-HRSA Behavioral Health Workforce Education and Training (BHWET) grant program to support more grants in FY 2016, support the Peer Professional Workforce Development program, and create a new initiative called the Science of Changing Social Norms. The Science of Changing Social Norms focuses on evidence and messaging to improve attitudes toward mental and behavioral health. It also aims to encourage people to seek help when needed as well as to make behavioral health a priority.

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[2] http://www.ahrq.gov/cpi/about/mission/budget/2016/cj2016.pdf, Department of Health and Human Services Fiscal Year 2016, Agency for Healthcare Research and Quality, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (page 5)
[3] http://www.hhs.gov/budget/fy2016/fy2016-public-health-social-services-emergency-budget-justification.pdf, , Department of Health and Human Services Fiscal Year 2016, Public Health and Social Services Emergency Fund , Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 13)
[4] http://www.hrsa.gov/about/budget/budgetjustification2016.pdf, Department of Health and Human Services Fiscal Year 2016, Health Resources and Services Administration, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 12)
[5] http://www.hrsa.gov/about/budget/budgetjustification2016.pdf, Department of Health and Human Services Fiscal Year 2016, Health Resources and Services Administration, Justification of Estimates for Appropriations Committees, HHS, February 2, 2015 (Page 94)

Moving From Fee-For-Service to Alternative Payment Models
The budget request would support HHS's recent announcement outlining goals and a timeline to move to alternative payment models. According to HHS, the goals include tying 30 percent of traditional, or fee-for-service, Medicare payments to quality or value through alternative payment models such as Accountable Care Organizations (ACOs) by the end of 2016, and tying 50 percent of payments to these models by the end of 2018. In addition, HHS wants to link 85 percent of all traditional Medicare payments to quality or value by 2016 and 90 percent by 2018 through programs such as Hospital Value Based Purchasing program. [6] One way the President's budget request proposes aligning incentives to achieve this goal is by supporting Congressional efforts to repeal the SGR and implement incentives to encourage physicians to participate in alternative payment models.

New Investments to Address Prescription Drug and Opioid Misuse
The Administration would provide $99 million in new funding to the Centers for Disease Control and Prevention (CDC), SAMHSA, and the Office of the National Coordinator for Health IT (ONC) to address prescription drug and opioid misuse. CDC would receive $54 million to support activities including increasing support to states for prescription drug monitoring, and scaling up activities focused on developing and tracking pain management and opioid prescription quality measures.

SAMHSA would receive $25 million, which is a $13 million increase for the Targeted Capacity Expansion program to support a Medication Assisted Treatment (MAT) for Prescription Drug and Opioid Addiction program. "This funding is part of a joint effort by SAMHSA and the Agency for Healthcare Research and Quality (AHRQ) to improve access to MAT services for treating opioid use disorders, with a focus on heroin and prescription opioids. SAMHSA will use this funding to provide grants to states to support opioid MAT efforts in high-risk communities, to educate, and to provide technical assistance." In addition, $12 million in new funding would be provided to SAMHSA to support a new program called Grants to Prevent Prescription Drug/Opioid Overdose Related Deaths. Through this program, funding would go to 10 states to reduce the number of deaths related to opioid overdoses. In addition, ONC would receive $5 million to support integration of prescription drug monitoring programs with health information technology.[7]

Proposed Reductions and Terminations

Indirect Medical Education (IME)
The budget request would once again recommend reducing payments for IME by 10 percent starting in 2016, which would cut $16.3 billion from the program over 10 years. A similar measure was included in the President's FY 2015 budget request. In addition, the FY 2016 budget request would provide the

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[6] http://www.hhs.gov/news/press/2015pres/01/20150126a.html, Better, Smarter, Healthier: In historic announcement, HHS sets clear goals and timeline for shifting Medicare reimbursements from volume to value, Accessed February 2, 2015

[7] http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf, Fiscal Year 2016 Budget in Brief Strengthening Health and Opportunity for All Americans, Department of Health and Human Services, 2016 (Page 5)

Secretary of HHS the authority to set standards for GME payments at teaching hospitals to encourage primary care training.

Reductions to Hospital Bad Debt
In previous years, the President's budget request has recommended reducing Medicare payments to hospitals for their Medicare bad debt, an issue that arises when Medicare beneficiaries who cannot pay their required cost sharing, which is a serious concern for teaching hospitals. The budget request would reduce payments for Medicare bad debt from 65 percent to 25 percent over three years.

Area Health Education Centers (AHECs)
The President's request would again eliminate funding for AHECs, leaving it to Congress to restore funding as it has done in previous years.

Ongoing Areas of Interest

Graduate Medical Education (GME)
The President's budget request would support using mandatory funding for a competitive GME grant program, similar to proposals contained in the FY 2015 budget. The budget would provide $400 million in mandatory funding ($5.3 billion over 10 years) for the Targeted Support for Graduate Medical Education program. According to the Administration, the program would continue the Teaching Health Center Graduate Medical Education program and make funding available to entities focusing on primary and preventative care including children's hospitals, community-based consortia of teaching hospitals, and other entities.

At the same time, the budget request would reduce funding under the Children's Hospital Graduate Medical Education (CHGME) program to $100 million, a $165 million decrease below the FY 2015 enacted level. In recent years, the President's budget request has trended toward reducing funding for CHGME, but Congress has restored it through the annual appropriations process.

Office of the National Coordinator for Health IT
The President's budget request would include $92 million, a 53 percent increase above the FY 2015 enacted level, for ONC. According to HHS, "the focus of ONC's FY 2016 budget request is advancing the interoperability of health information technology so that electronic health information can be collected, shared, and used by consumers, providers and others to advance care and health." [8] This funding includes $5 million under the Administration's Precision Medicine Initiative (discussed above) to support big data analysis, interoperability standards, and requirements that help support the secure exchange of data across systems.

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[8]http://www.hhs.gov/budget/fy2016/fy2016-general-departmental-budget-justification.pdf, Department of Health and Human Services Fiscal Year 2016, General Departmental Management Office of Medicare Hearings and Appeals Office for Civil Rights National Coordinator for Health Information Technology Health Insurance Reform Implementation Fund Nonrecurring Expenses Fund Service and Supply Fund Retirement Pay & Medical Benefits for Commissioned Officers, Justification of Estimates for Appropriations Committees, Department of health and Human Services, February 2, 2015 (ONC Section, Page 8)

At the ONC Annual Meeting, which took place the same day the President's budget was released, Dr. Karen DeSalvo, the National Coordinator for Health IT, said that in 2014 ONC spent a majority of its time looking at how to unlock data. Following the release of the *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap Version 1.0,* Dr. DeSalvo said focus in 2015 will be on executing the ideas of the Roadmap as well as ONC's new strategic plan.

Sources: Budget materials for the Department of Health and Human Services can be viewed at: http://www.hhs.gov/budget/

Department of Health and Human Services
(In millions)

	FY 2015 Enacted	FY 2016 Request*	Request vs. FY 2015
HHS, total	**75,505**	**78,362**	**2,857 (3.8%)**
Health Resources and Services Administration (HRSA)	10,330	10,375	45 (.4%)
Title VII	254	237	-17 (6.7%)
Title VIII	231	231	--
Substance Abuse and Mental Health Services Administration (SAMHSA)	3,621	3,666	45 (1.2%)
Mental Health Services	1,070	1,077	7 (.7%)
Substance Abuse Treatment	2,181	2,140	-41 (1.9%)
Substance Abuse Prevention	175	210	35 (20.0%)
Agency for Healthcare Research and Quality (AHRQ)	465	479	14 (3.0%)
Food and Drug Administration (FDA)	4,505	4,930	425 (9.4%)
Centers for Disease Control and Prevention (CDC)	7,045	7,142	97 (1.4%)
Chronic Disease prevention and Health Promotion	1,198	1,058	-140 (11.7%)
National Institute for Occupational Safety and Health (NIOSH)	628	606	-22 (3.5%)
Environmental Health	179	178	-1 (.6%)

Indian Health Service (IHS)	5,906	6,392	486 (8.2%)
Administration on Community Living (ACL)	1,956	2,123	167 (8.5%)
Administration for Children and Families (ACF)	17,791	19,825	2,034 (11.4%)
Office of the National Coordinator for Health IT (ONC)	60	92	32 (53.3%)

Department of State/USAID

The President's FY 2016 budget request includes $50.3 billion for programs through the Department of State and the United States Agency for International Development (USAID), which would be an increase of 5.9 percent above the FY 2015 enacted level. This amount includes Overseas Contingency Operations (OCO) funding for ongoing operations in Afghanistan and Iraq and to combat the Islamic State.

- The President's FY 2016 budget request for the Department of State and USAID reflects the heightened importance that President Obama and Secretary of State John Kerry place on diplomacy and development as key tools of foreign policy.
- The President's FY 2016 budget request proposes to sustain focus on existing Administration priorities such as global health, combating global climate change, and enhancing global food security. Further, the President's FY 2016 international affairs request focuses on implementation of ongoing initiatives rather than proposing numerous new programs.
- USAID and State programs continue to receive support from many in Congress and are expected to be sustained during FY 2016.

New and Signature Initiatives

Reflecting the influence of departing USAID Administrator Rajiv Shah, President Obama proposes to amplify the use of science and innovation to enhance global development in his FY 2016 budget request. The President's request recommends continued funding for USAID's **U.S. Global Development Lab (USGDL)** to drive breakthrough solutions to extreme poverty. USGDL was created by Administrator Shah to serve as an umbrella for USAID science and technology programs, including Grand Challenges for Development, Development Innovation Ventures, and the Higher Education Solutions Network (HESN). USGDL programs will support many of the crosscutting USAID priorities discussed below. The President's request does not state whether USAID will compete another round of HESN in FY 2016.

President Obama continues to highlight education and science as strong tools for outreach to foreign partners. To that end, the President's FY 2016 budget request would provide $623.1 million for **Educational and Cultural Exchange (ECE)** programs through the Department of State. If approved, the figure would represent an increase of 5.6 percent above the enacted level. Within this amount, the President proposes to fund the **Fulbright Program**, the Department of State's signature educational exchange program, at the current level of $236 million.

Building on the existing Young African Leaders and Young Southeast Asian Leaders Initiatives, the President proposes a new **Young Leaders in the Americas Initiative**. Like the two existing programs, the Young Leaders in the Americas Initiative would engage public, private, and civil society leaders from a priority region for the Administration (Central and South America). Also within ECE, the President's FY 2016 budget request proposes a new **Exchanges Rapid Response (ERR)** program to support new public diplomacy activities in countries experiencing rapid political or social transition. It is unclear whether Congress will provide funding for the program in FY 2016.

In addition to a continued focus on a foreign policy rebalance to the Asia-Pacific, the President's FY 2016 request builds on the U.S. - African Leaders Summit hosted by the White House in August 2014 to propose and expand programs for the continent. In addition to ongoing initiatives such as the Power Africa Initiative, the President's FY 2016 budget request includes funding for two new initiatives announced at the Summit, the **African Peacekeeping Rapid Response Partnership** and **the Security Governance Initiative**. Africa is expected to be a continued focus for the Administration going forward.

Ongoing Areas of Interest

President Obama's FY 2016 budget request for international affairs continues support for many of the initiatives started earlier in his Administration, including Feed the Future, the Global Health Initiative, and programs to combat climate change and promote clean energy technologies in the developing world. Other areas of interest in the President's FY 2016 budget request for international affairs include encouraging civic participation, promoting opportunity for women and girls, and opening new markets in the developing world.

The President's request would fund **Global Health Programs (GHP)** at a total of $8.2 billion, a reduction of just over 3 percent from the current level. The President emphasizes that USAID and the Department of State should continue to focus on three priorities from FY 2015: Ending Preventable Child and Maternal Deaths (which would be funded at over $2 billion); Creating an AIDS-free Generation (which would be funded at $5.76 billion); and Protecting Communities from Infectious Diseases (which would be funded at $327.5 million).

The President's budget request also maintains global food security as a continued priority for FY 2016. The President proposes $900 million for the **Feed the Future program** through the Development Assistance title of his international affairs budget request. Finally, President Obama and Secretary Kerry continue to emphasize programs to support climate change mitigation and adaptation in the developing world.

Source: The President's FY 2016 budget request for the Department of State and USAID can be viewed at: http://www.state.gov/s/d/rm/c6112.htm.

International Affairs
(In thousands)*

	FY 2015 Enacted†	FY 2016 Request	Request vs. FY 2015
State and USAID, Total	**47,480,036**	**50,277,768**	**2,797,732 (5.9%)**
Diplomatic Engagement and Related Accounts	15,666,330	17,385,723	1,719,393 (11.0%)
Educational and Cultural Exchange Programs	589,900	623,079	33,179 (5.6%)
USAID, Operating Funds (Total)	1,216,300	1,425,000	208,700 (17.2%)

	FY 2015 Enacted†	FY 2016 Request	Request vs. FY 2015
Development Assistance	2,507,001	2,999,694	492,693 (19.7%)
Global Health Programs, Total	8,453,950	8,181,000	-272,950 (3.2%)

*Includes OCO funding levels for consistency in reporting.
† The FY 2015 enacted amounts do not include FY 2015 Ebola response funding.

Institute of Museum and Library Services

President Obama's FY 2016 budget request includes $237.4 million for the Institute of Museum and Library Services (IMLS). This would provide an increase of $9.6 million, or 4.2 percent, above the FY 2015 enacted level.

- IMLS's FY 2016 budget request would primarily focus on enhancing digital content and services at libraries and museums; providing professional education support for librarians and museum professionals; and encouraging makerspaces in small and rural institutions across the country.

New and Signature Initiatives

President Obama's FY 2016 budget request would provide $9.6 million over the agency's FY 2015 enacted level, of which $8.8 million would support the expansion and further development of a national digital platform through leadership grants to libraries and museums. The grants would support state and regional hubs that help libraries and museums provide better access to their resources through enhanced digital content and services. These services would help museums and libraries share their material resources electronically with other institutions and the public.

The FY 2016 budget request would also continue the Obama Administration's promotion of the "maker movement" by holding a national competition to support the establishment of makerspaces at rural and small libraries and museums across the country. Additionally, the agency would invest in the creation of new standards for skill-based professional development of librarians and curators. After the standards are created, IMLS plans to support grantees that propose innovative training modules.

Ongoing Areas of Interest

The FY 2016 budget request would continue the Sparks! Ignition grant program. This program, which began in 2013, provides small grants for high-risk, innovative projects that expand and test new library, archive, and museum practices. The program has been popular at IMLS because it allows program officers the opportunity to fund small grants directly through the submission of short white papers.

Source: IMLS's FY 2016 budget request can be viewed at:
http://www.imls.gov/assets/1/AssetManager/FY16_CJ.pdf.

Institute of Museum and Library Services
(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
IMLS, total	**227,860**	**237,428**	**9,568 (4.2%)**
Library Services	180,909	186,563	5,654 (3.1%)
National Leadership Grants: Libraries	12,200	17,500	5,300 (43.4%)

Museum Services	28,724	33,597	4,873 (16.9%)
Museums for America	20,200	21,457	1,257 (6.22%)
National Leadership Grants: Museums	7,600	11,168	3,568 (46.9%)

National Endowment for the Arts & National Endowment for the Humanities

The President's FY 2016 budget request includes $147.9 million for both the National Endowment for the Humanities (NEH) and the National Endowment for the Arts (NEA). These requested funding levels are $1.9 million, or 1.3 percent, above the FY 2015 enacted levels.

- While the NEH request increased 1.3 percent overall, the request demonstrates a significant shift in NEH programmatic priorities to support the new initiative titled, "**The Common Good: The Humanities in the Public Square**." As more resources are requested for the Common Good initiative, the NEH "**Bridging Cultures: Understanding the U.S. and the World**" initiative would be phased out. Additionally, many other longstanding NEH programs would see modest cuts in their requested budgets for FY 2016.
- NEA program divisions and offices would receive small funding increases in comparison to their FY 2015 amounts.

New and Signature Initiatives

National Endowment for the Humanities
The FY 2016 budget request would provide $5.5 million for a new initiative, **The Common Good: The Humanities in the Public Square**. This agency-wide initiative seeks "to demonstrate the critical role the humanities can play in our nation's public life."[9] This new initiative was introduced by NEH Chairman William "Bro" Adams in January 2015. Initial programs and activities planned for The Common Good include:

- Continued and expanded activities through the **Standing Together: The Humanities and the Experience of War** initiative launched last year, which supports humanities projects focusing on the experience of war and military service.
- The launch of the new **Public Scholar Program** to encourage engagement in humanities research and writing for the broader public.
- The creation of the **Humanities Open Book** program through a partnership with the Andrew W. Mellon Foundation to make out-of-print humanities books available for free.
- The creation of the **Our Common Heritage** program, which will support community efforts to digitize cultural heritage materials.

The budget request would also provide funding for NEH to continue to support additional projects and programs in the humanities, including those that bring the humanities to Americans in rural areas, urban neighborhoods, and suburban communities; research and scholarship; preservation and access of humanities resources; and humanities teaching and learning. Additionally, NEH's partnership with the National Science Foundation on projects that document endangered languages would continue to receive support in the FY 2016 request.

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[9] http://www.neh.gov/files/neh_request_fy2016.pdf, "Appropriations Request for Fiscal Year 2016," National Endowment for the Humanities, 2015.

National Endowment for the Arts

The Endowment's core grant programs, including **Our Town**, **Poetry Out Loud**, **The Big Read,** and **Shakespeare in American Communities,** comprise 80 percent of the FY 2016 budget request. Through these initiatives, NEA makes direct grants, as well as grants to state and regional partners.

NEA also continues to work on partnering closely with other federal agencies including the Department of Defense, U.S. Department of Agriculture, Department of Health and Human Services, Department of Housing and Urban Development, National Endowment for the Humanities, and the National Science Foundation.

Sources: NEH's FY 2016 budget request details can be viewed at:
http://www.neh.gov/files/neh_request_fy2016.pdf. NEA's FY 2016 budget request details can be viewed at: http://arts.gov/sites/default/files/nea-fy16-appropriations-request.pdf.

National Endowment for the Humanities & National Endowment for the Arts
(In thousands)

	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
NEH, total	**146,021**	**147,942**	**1,921 (1.3%)**
Special Initiative: The Common Good	0	5,500	5,500 (100%)
Bridging Cultures	3,500	0	-3,500 (100%)
Digital Humanities	4,400	4,480	80 (1.8%)
Education Programs	13,265	13,040	-225(1.7%)
Federal/State Partnerships	42,528	43,040	512 (1.2%)
Preservation and Access	15,460	15,200	-260 (1.7%)
Public Programs	13,684	13,454	-230 (1.7%)
Research Programs	14,784	14,536	-248 (1.7%)
Challenge Grants	8,500	8,500	--
NEA, total	**146,021**	**147,949**	**1,928 (1.3%)**
Direct Endowment Grants	69,980	71,020	1,040 (1.5%)
State and Regional Partnerships	46,653	47,346	693 (1.5%)

National Science Foundation

The President's FY 2016 budget request includes $7.724 billion for the National Science Foundation (NSF), which is an increase of $379.3 million or 5.2 percent over the FY 2015 enacted level.

- Fundamental research along with strategic investments in Administration priority areas such as neuroscience, resilience, clean energy and sustainability, and advanced manufacturing remain priorities for NSF.
- New initiatives including "Innovations at the Nexus of Food, Energy, and Waters Systems (INFEWS)" and "Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (NSF INCLUDES)" build on the outcomes of previous NSF investments to address urgent needs in national priority areas.
- While Congress remains supportive of the basic research supported by NSF, Congress is expected to challenge proposed funding increases for the Geosciences (GEO) and Social, Behavioral and Economics (SBE) Directorates. Additionally, concerns remain over issues of transparency and oversight.

New and Signature Initiatives

The President's budget request for NSF for FY 2016 continues to support cross-disciplinary research through NSF-wide activities and initiatives. The new and signature initiatives outlined below build on Administration priorities, linking fundamental research to societal needs.

Understanding the Brain (UtB)
The Understanding the Brain (UtB) initiative includes NSF supported cognitive science and neuroscience research as well as activities specifically focused on the Administration's Brain Research through Advancing Innovation and Neurotechnologies (BRAIN) initiative. UtB would be supported at $143.9 million in FY 2016, 35.2 percent above similar activities supported in FY 2015. Within this amount, $72 million would support the BRAIN Initiative. Priorities for UtB include the "development of innovative technologies, tools and instrumentation, computational infrastructure, theory, and models to understand the brain; increased understanding of relationships between neuronal activity, cognitive processes, and behavior; exploration of links between environment, behavior, and brain function; and training for the next generation of neuroscientists and neuroengineers."

Risk and Resilience
The Risk and Resilience initiative would be supported at $58 million in FY 2016, which is 190 percent above similar activities supported in FY 2015. The program aims to improve predictability and risk assessment and increase resilience to extreme events to ensure minimal impact on quality of life, society, and the economy. This initiative includes current investments in the Directorate for Engineering (ENG), such as "Critical Resilient Interdependent Infrastructure Systems and Processes" as well as new programs such as "Prediction of and Resilience against Extreme Events," led by the Directorate for Geosciences (GEO).

Innovations at the Nexus of Food, Energy, and Waters Systems (INFEWS)
The new INFEWS initiative would be supported at $75.0 million for FY 2016. INFEWS is an NSF-wide interdisciplinary initiative that aims to understand, design, and model the interconnected food, energy, and water systems. INFEWS builds on previous NSF investments such as the Science, Engineering, and Education for Sustainability (SEES) initiative, and includes all areas of science and engineering to address the relevant natural, social, and human-built factors. NSF expects to create a new INFEWS program as well as issue individual dear colleague letters in priority topic areas and emphasize the food-energy-water-theme in other NSF-wide programs. INFEWS will also be a priority research theme for the FY 2016 NSF Research Traineeship (NRT) competition.

Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science (NSF INCLUDES)
NSF INCLUDES is a new initiative for FY 2016 that would be supported at $15 million. NSF INCLUDES is planned to be a six year activity through FY 2020 and would support NSF-wide activities as well as domain specific efforts to increase the participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) fields. Efforts for FY 2016 will include the development of a new concept to focus collaborative action as well as the launch of two new pilot models for inclusion in professional and social networks and empowering youth through engagement in STEM. NSF INCLUDES builds on previous NSF investments of around $800 million in broadening participation.

Additional Priorities
The FY 2016 budget request also includes the following priorities and highlights:
- Synthetic Biology - $60 million to support the design and construction of new biological components as well as the redesign of existing biological systems.
- Urban Science - $7.5 million to support research and development for critical infrastructure and applications that address urban issues such as sustainability.
- U.S. Activities in the Antarctic - $18.5 million to increase operational efficiency.

Ongoing Areas of Interest

Clean Energy / Sustainability
The FY 2016 budget request includes $377.2 million, a 2 percent increase above FY 2015 levels, to support fundamental research and education on clean energy technologies including solar, wind, wave, and geothermal as well as alternative fuels (chemical and biofuels). Under the clean energy technology program, NSF also supports research into the collection, conversion, storage, and distribution of energy sources. The budget would also support the NSF-wide SEES initiative at $80.5 million for FY 2016, 42.1 percent below the FY 2015 level. This continued reduction of funding for SEES is in-line with original plans to complete the program by FY 2017. Successful outcomes of SEES projects have contributed to the development of the INFEWS and Risk and Resilience programs outlined above.

Advanced Manufacturing
NSF supports advanced manufacturing through its Cyber-Enabled Materials, Manufacturing, and Smart Systems (CEMMSS) program. In FY 2016, CEMMS would be funded at $257.0 million, an increase of 11 percent over FY 2015 levels. The CEMMS program supports research into materials, advanced manufacturing, robotics, and cyber-physical systems, and contributes to interagency priorities including the Materials Genome Initiative (MGI), the Advanced Manufacturing Partnership (AMP), and the

National Robotics Initiative (NRI). Within CEMMS, Advanced Manufacturing funding is proposed at $176.6 million, a 7.2 percent increase over FY 2015 funding. For FY 2016, NSF plans to build towards a cyber-manufacturing program and plans to support research in biomanufacturing as well as continuing ongoing efforts,

Cyberinfrastructure Framework for 21st Century Science, Engineering, and Education (CIF21)
The budget request includes $143.1 million to support the CIF21 initiative, 10.9 percent above FY 2015. CIF21 is intended to provide the advanced cyberinfrastructure and new computational capabilities that the NSF community needs to accelerate scientific discovery and innovation. Through CIF21, NSF will continue to support the BIG DATA solicitation, which would be broadened to address issues related to sustainability and long-term data management.

Innovation Corps (I-Corps™)
The Administration continues to support the NSF I-Corps program and would include $30 million in FY 2016, 14.4 percent above FY 2015 funding. Funding would support up to 20 I-Corps™ nodes and up to 220 I-Corps™ sites.

NSF Research Traineeship (NRT)
The NRT program would receive $62.0 million in its third year of operation, a slight increase of 0.7 percent above FY 2015 levels. The NRT program continues to identify priority research themes in areas of national need. For FY 2016, NSF plans to add UtB and INFEWS as priority areas to the existing emphasis on computation- and data-enabled science and engineering. NRT aims to support innovative approaches to graduate education in these areas as well as other areas of national need and emerging scientific priority.

Research at the Interface of Biological, Mathematical, and Physical Sciences (BioMaPS)
BioMaPS would receive $32.8 million, 12.1 percent above FY 2015 levels. BioMaPS is a collaboration between the Biological Sciences, Engineering, and Mathematical and Physical Sciences Directorates with the goal of advancing science at the interface of these disciplines.

Secure and Trustworthy Cyberspace (SaTC)
The SaTC program would be supported at $124.3 million in FY 2016, a slight increase of 1.2 percent above FY 2015. SaTC aims to lay the foundations of cybersecurity research for years to come and aligns with the four thrusts outlined in the *Trustworthy Cyberspace: Strategic Plan for the Federal Cybersecurity Research and Development Program*.[10] NSF plans to add a new Transition to Education mechanism in FY 2016 to support transition of research results to relevant curricula.

Science, Technology, Engineering, and Mathematics (STEM) Education
NSF's STEM education priorities, led by the Directorate for Education and Human Resources (EHR) remain focused on graduate and undergraduate education. The President's budget request would include $134.6 million for the Improving Undergraduate STEM Education (IUSE) umbrella, a 28 percent increase over FY 2015. Additionally, the Research Experiences for Undergraduates (REU) would be supported at $78 million. IUSE is an NSF-wide effort to improve undergraduate STEM education that includes individual programs in EHR and individual research directorates. FY 2016 increases are planned

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[10] http://www.whitehouse.gov/sites/default/files/microsites/ostp/fed_cybersecurity_rd_strategic_plan_2011.pdf

to support emphasis on scaling evidence-based instructional practices. EHR Core Research (ECR) remains a top priority for NSF and would be supported at $103.8 million in FY 2016, an increase of 47 percent. In contrast to previous budget requests, Advancing Informal STEM Learning (AISL) is proposed for a 9.1 percent increase rather than a funding reduction. Discovery Research K-12 is also proposed for a 9.7 percent increase.

Source: The full NSF FY 2016 Budget Request can be viewed at:
http://www.nsf.gov/about/budget/fy2016/toc.jsp.

National Science Foundation

(In thousands)

	FY 2015 Estimate	FY 2016 Request	FY 2016 Request vs. FY 2014
NSF, total	**7,344,210**	**7,723,550**	**379,340 (5.2%)**
Research and Related Activities	**5,933,650**	**6,186,300**	**252,660 (4.3%)**
Biological Sciences	731,030	747,920	16,890 (2.3%)
Computer and Information Science and Engineering	921,730	954,410	32,680 (3.5%)
Engineering	892,310	949,220	56,910 (6.4%)
Geosciences	1,304,390	1,365,410	61,020 (4.7%)
Mathematical and Physical Sciences	1,336,720	1,366,230	29,510 (2.2%)
Social, Behavioral, and Economic Sciences	272,200	291,460	19,260 (7.1%)
International and Integrative Activities	473,860	510,170	36,310 (7.7%)
US Arctic Research Commission	1,410	1,480	70 (5.0%)
Education and Human Resources	**866,000**	**962,570**	**96,570 (11.2%)**
Major Research Equipment and Facilities Construction	**200,760**	**200,310**	**-450 (0.2%)**
Agency Operation and Award Management	**325,000**	**354,840**	**29,840 (9.2%)**
National Science Board	**4,370**	**4,370**	**--**
Office of Inspector General	**14,430**	**15,160**	**730 (5.1%)**

Corporation for National and Community Service

The President's FY 2016 budget request includes $1.18 billion for the Corporation for National and Community Service (CNCS), which is approximately 12 percent above the FY 2015 enacted level.

The Corporation continues to be a priority for the Administration. Through service, volunteerism, and civic participation, the CNCS budget request would support the President's mission to bolster middle class economics and encourage citizens to solve community problems. CNCS focus areas include economic opportunity, education, environmental stewardship, disaster services, healthy futures, and veterans and military families.

The FY 2016 budget request would increase funding for the AmeriCorps program to support over 90,000 AmeriCorps members, including retired Americans and disconnected youth. Retired Americans would have the opportunity to continue to apply their skills and experiences through AmeriCorps with the goal of expanding individual opportunity and stability to live independently and ultimately further economic independence and healthy living. Similarly, summer programs for disconnected youth would provide opportunities to explore career paths, develop skills, and earn an educational award to contribute to postsecondary education, while giving back to communities.

The Social Innovation Fund (SIF) would continue to be a signature initiative, supporting communities through innovative solutions in three areas: economic opportunity, youth development, and healthy futures. Through the budget request 20 percent of SIF funds would be allocated to Pay for Success projects. Additionally, the budget request would support further oversight and accountability at CNCS by refining the Enterprise Risk Management (ERM) program and improving the efficiency and effectiveness of CNCS systems for grantees and institutions.

Source: The CNCS FY 2016 Congressional Budget Justification can be viewed at: http://www.nationalservice.gov/sites/default/files/page/CNCS_FY_2016_Budget_Congressional_Budget _Justification.pdf*; a quick reference budget chart can be viewed at:* http://www.nationalservice.gov/sites/default/files/page/CNCS_Budget_Chart_for_FY_2016.pdf*.*

Corporation for National and Community Service

(In thousands)	FY 2015 Enacted	FY 2016 Request	Request vs. FY 2015
CNCS, total	**1,054,954**	**1,184,461**	**129,507 (12.3%)**
Social Innovation Fund	70,000	70,000	--
AmeriCorps State and National	335,430	425,105	89,675 (26.7%)
AmeriCorps VISTA	92,364	96,885	4,521 (4.9%)
AmeriCorps NCCC	30,000	30,500	500 (1.7%)

Interagency Initiatives and Priorities

Antimicrobial Resistance

The President's FY 2016 budget would provide approximately $1.2 billion for multiple agencies to combat, detect, and prevent illness and death related to antibiotic-resistant bacteria, an increase of more than $550 million above the FY 2015 enacted level. The multi-agency budget request would advance the Administration's ongoing antimicrobial resistance initiatives centered on improving antibiotic stewardship; strengthening antibiotic resistance risk assessment, surveillance, and reporting capabilities; and promoting research innovation.

In September 2014, the White House coordinated the release of a President's Council of Advisors on Science and Technology (PCAST) report to the President, *Combating Antibiotic Resistance,*[11] with the National Strategy on Combating Antibiotic-Resistant Bacteria[12] and the Presidential Executive Order,[13] which established the Task Force for Combating Antibiotic-Resistant Bacteria (Task Force) and emphasized the urgency and significance of addressing this growing issue. Additionally, each of the reports and the Executive Order, as well as the budget request, recognize the importance of a "One Health" approach to reducing antimicrobial resistance, encouraging collaboration among all healthcare providers, veterinary professionals, biomedical researchers, environmental health investigators, food-animal producers, and others.

Though it is unclear whether funding streams for antimicrobial resistance are new or reprioritization of existing funding, federal agencies and departments would allocate significant investments to contribute to the national effort. The **Department of Health and Human Services (HHS)** would receive nearly $1 billion, including more than $461 million for the **National Institutes of Health (NIH)**, a $100 million increase from FY 2015. This funding would support the development of a national database of genomic sequence data on human infections with antibiotic-resistant microorganisms; basic research, surveillance, and epidemiology; the launch of large-scale effort to understand drug resistance; and the expansion of the Antibiotic Resistance Leadership Group to create a rapid response clinical trial network.

The **Biomedical Advanced Research and Development Authority (BARDA)** would receive $192 million, $108 million more than FY 2015, to develop nine new, broad-spectrum antibiotics in partnership with industry. Additionally, BARDA, together with NIH, would allocate at least $20 million for a competition to develop a transformative, affordable diagnostic at the point of patient care. The agencies are currently designing the competition and anticipate announcing a prize or prizes by the end of FY 2016.

Other agencies through HHS would also contribute resources to combating antibiotic-resistant bacteria, including the **Centers for Disease Control and Prevention (CDC)**, which would allocate more than $280 million for research and development, stewardship, antibiotic use and resistance monitoring, as well as outbreak surveillance. CDC would also expand and connect existing monitoring systems, including the

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[11] http://www.whitehouse.gov/sites/default/files/microsites/ostp/PCAST/pcast_carb_report_sept2014.pdf, Combating Antibiotic Resistance, President's Council of Advisors on Science and Technology, 2014.
[12] http://www.whitehouse.gov/sites/default/files/docs/carb_national_strategy.pdf, National Strategy for Combating Antibiotic-Resistant Bacteria, The White House, 2014.
[13] http://www.whitehouse.gov/the-press-office/2014/09/18/executive-order-combating-antibiotic-resistant-bacteria, Executive Order – Combating Antibiotic-Resistant Bacteria, The White House, 2014.

National Healthcare Safety Network (NHSN), the Emerging Infectious Disease Program (EIP), and the National Animal Health Monitoring System (NAHMS), among others, for surveillance purposes. Complementing CDC's effort to coordinate communication among healthcare providers, veterinary professionals, and others, the **Agency for Healthcare Research and Quality (AHRQ)** would invest $10 million to create and improve stewardship programs to reduce the inappropriate use of antibiotics. In addition, the **Food and Drug Administration (FDA)** would allocate $47 million to promote antibiotic stewardship in animal agriculture, in addition to supporting the evaluation of new antibacterial drugs for human treatments and rapid response clinical trials.

As previously emphasized through the Administration's efforts in 2014, the **U.S. Department of Agriculture (USDA)** is a vital stakeholder in the antibiotic resistance initiatives. The use of antibiotics in animal agriculture greatly affects human health and widespread response to antimicrobial resistance prevention and detection. USDA would receive $77 million for antibiotic research and surveillance.

The **Departments of Veterans Affairs (VA) and Defense (DOD)** would receive $85 million and $75 million, respectively. This funding would support addressing antibiotic resistance in healthcare settings, including enhancement of the VA Antimicrobial Stewardship Program, which fosters responsible use of antibiotics and communication among healthcare providers on antibiotic-resistant microorganisms.

Per the President's Executive Order, Combating Antibiotic Resistant Bacteria, the Task Force is required to submit a Five-Year National Action Plan to the President by February 15, 2015. The Task Force was directed to outline specific implementation actions, including goals and milestones for progress, and to address the implementation of the PCAST recommendations. The Action Plan will likely highlight opportunities for stakeholder collaboration and engagement.

Sources:
The White House Fact Sheet: President's 2016 Budget Proposes Historic Investment to Combat Antibiotic-Resistant Bacteria to Protect Public Health is can be viewed at: http://www.whitehouse.gov/the-press-office/2015/01/27/fact-sheet-president-s-2016-budget-proposes-historic-investment-combat-a.
The HHS Budget in Brief can be viewed at: http://www.hhs.gov/budget/fy2016/fy-2016-budget-in-brief.pdf.
The CDC Congressional Justification is can be viewed at:
http://www.cdc.gov/fmo/topic/Budget%20Information/index.html.
The NIH Budget Overview is can be viewed at:
http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf.

Neuroscience
The President's budget request for FY 2016 proposes over $300 million for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, originally introduced in 2014 at a level of $100 million. At the inception, three agencies took the lead in funding new opportunities to develop technologies to better study the brain and manipulate its function. Since then, several other agencies have committed to aligning some efforts with the Administration's priorities for the Initiative, including the Intelligence Advanced Research Projects Activity (IARPA), the Food and Drug Administration (FDA),

and the Department of Energy (DOE). However, all of these are in a more limited capacity compared to the agencies below.

The budget request includes the following proposed investments:

- **National Institutes of Health (NIH):** NIH intends to invest $135 million to continue expanding its portfolio of research that enables the development of tools for mapping the circuitry of the brain and further elucidating the relationship between cognition and behavior. This represents a doubling compared to NIH's investment of $65 million in FY 2015. The details for the NIH direction within the BRAIN Initiative are guided by the long-term scientific plan, "BRAIN 2025: A Scientific Vision," which was released in June 2014. The funding level proposed in the President's budget request would keep NIH on target for its efforts to eventually ramp up to $500 million per year.
- **Defense Advanced Research Projects Agency (DARPA):** DARPA is expected to invest roughly $100 million to develop new sets of tools for imaging and analysis of neurons and synapses within the brain, new neurotechnology-based capabilities, as well as improving point-of-care diagnosis and treatment for wounded warriors. This would be a roughly $20 million increase over FY 2015. Last year DARPA created a new division, the Biological Technologies Office (BTO), to consolidate the biological research which was scattered across the agency under one umbrella. There are now eight different programs under BTO that align with BRAIN Initiative priorities.
- **National Science Foundation (NSF):** Through its newly renamed program, "Understanding the Brain (UtB)," the NSF intends to invest $144 million in FY 2016. NSF would contribute half of that, $72 million, to align with the Administration's BRAIN Initiative priorities, a substantial increase over last year's investment of $48 million in the initiative's activities. UtB, previously titled "Cognitive Science and Neuroscience" is identified in the FY 2016 budget request from NSF as one of four cross-agency initiatives of significance. This is a multi-year effort to continue their support for enabling understanding of the complex structures and activities within the brain.

Additionally, given the high toll inflicted by those suffering from Alzheimer's disease as well as those caring for them in terms of lost productivity and financial cost, NIH will continue to expand its investment in treating this disease. NIH intends to commit an additional $51 million in FY 2016, for a total estimated investment in Alzheimer's disease research of $638 million.

Source: The NIH FY 2016 Budget Request can be viewed at:
http://officeofbudget.od.nih.gov/pdfs/FY16/Overview%20(Volume%20I).pdf; The "Brain 2025: A Scientific Vision" can be viewed at: http://www.braininitiative.nih.gov/2025/BRAIN2025.pdf; NSF's "Understanding the Brain" can be viewed at:
http://www.nsf.gov/about/budget/fy2016/pdf/42_fy2016.pdf.

Precision Medicine Initiative
The President's budget request includes $215 million for the Precision Medicine Initiative. Precision medicine is an evolving field that uses an individual's genetic and biologic information to develop and deliver the right therapies to the right patient at the right times. It has the potential to transform healthcare cost and delivery by providing highly tailored care which should increase the success of therapies for disease as well as create better ways to sustain health and wellness. Although this field

has been evolving for more than two decades and the National Institutes of Health (NIH) has been making strategic investments in this space for some time, the Administration hopes a big investment can help accelerate discovery in this field and thus the accessibility of new cures.

The immediate priority for the initiative will be focused on addressing cancer through translational research. The National Cancer Institute (NCI), therefore, would receive $70 million to help facilitate a more robust pipeline of research identifying molecular signatures in cancer and developing new therapies. However, as this field advances, there will be efforts through this initiative to address many different diseases and conditions beyond cancer, such as metabolic disorders and cardiovascular disease.

The remaining $145 million would support the Big Data element of this initiative and go to various agencies within the Department of Health and Human Services (HHS). The NIH would receive $130 million to launch a database with the goal of creating a national, longitudinal cohort of a million volunteers that share their electronic medical records, genomic data, and other biological information of interest. The Food and Drug Administration (FDA) would receive $10 million to help support a new regulatory structure for the database intended to help stimulate further innovation with the data and protect individuals' information. The Office of the National Coordinator for Health Information Technology (ONC) would receive $5 million to help establish and implement interoperability standards to promote secure data sharing across systems so the genetic information could be used by researchers and physicians.

Additionally, building on the success of the Human Genome Project and the current model for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, the President is seeking to leverage new opportunities through public-private partnerships in this space to develop the necessary infrastructure and frameworks.

Source: The White House fact sheet on the Precision Medicine Initiative can be viewed at:
http://www.whitehouse.gov/the-press-office/2015/01/30/fact-sheet-president-obama-s-precision-medicine-initiative.

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