

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

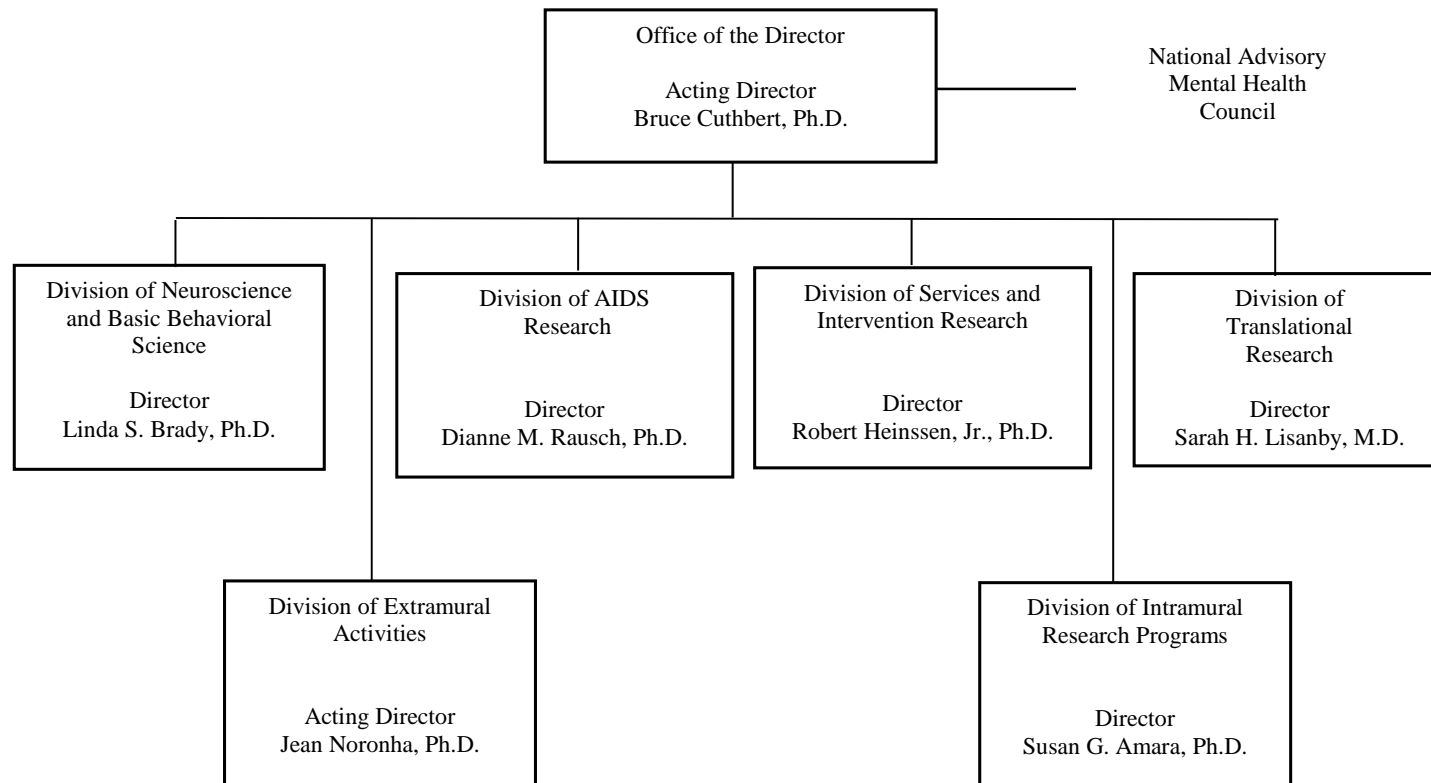
National Institute of Mental Health (NIMH)

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NOTE: The FY 2016 Enacted funding amounts cited throughout this chapter reflect the effects of OAR HIV/AIDS Transfers.

**DEPARTMENT OF HEALTH AND HUMAN SERVICES**

**National Institutes of Health  
National Institute of Mental Health**



**NATIONAL INSTITUTES OF HEALTH**

National Institute of Mental Health

For carrying out section 301 and title IV of the PHS Act with respect to mental health,  
[~~\$1,548,390,000~~]*\$1,459,700,000*.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Amounts Available for Obligation<sup>1</sup>**  
(Dollars in Thousands)

Source of Funding	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Appropriation	\$1,463,036	\$1,548,390	\$1,518,673
Mandatory Appropriation: (non-add)			
<i>Type 1 Diabetes</i>	(0)	(0)	(0)
<i>Other Mandatory financing</i>	(0)	(0)	(58,973)
Rescission	0	0	0
Sequestration	0	0	0
FY 2015 First Secretary's Transfer	0	0	0
FY 2015 Second Secretary's Transfer	0	0	0
Subtotal, adjusted appropriation	\$1,463,036	\$1,548,390	\$1,518,673
OAR HIV/AIDS Transfers	-29,385	-29,717	0
National Children's Study Transfers	0	0	0
Subtotal, adjusted budget authority	\$1,433,651	\$1,518,673	\$1,518,673
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	\$1,433,651	\$1,518,673	\$1,518,673
Unobligated balance lapsing	-48	0	0
Total obligations	\$1,433,603	\$1,518,673	\$1,518,673

<sup>1</sup> Excludes the following amounts for reimbursable activities carried out by this account:  
FY 2015 - \$5,403    FY 2016 - \$10,050    FY 2017 - \$10,050

**NATIONAL INSTITUTES OF HEALTH  
National Institute of Mental Health**

**Budget Mechanism - Total<sup>1</sup>**  
(Dollars in Thousands)

MECHANISM	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget <sup>3</sup>		FY 2017 +/- FY 2016	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
<b>Research Projects:</b>								
Noncompeting	1,407	\$636,552	1,411	\$686,634	1,358	\$676,907	-53	-\$9,727
Administrative Supplements	<i>(130)</i>	20,375	<i>(60)</i>	10,000	<i>(60)</i>	10,000		
<b>Competing:</b>								
Renewal	74	38,554	77	40,360	84	39,904	7	-456
New	431	201,727	452	211,175	439	208,789	-13	-2,386
Supplements	2	770	2	806	2	797		-9
Subtotal, Competing	507	\$241,051	531	\$252,341	525	\$249,490	-6	-\$2,851
Subtotal, RPGs	1,914	\$897,978	1,942	\$948,975	1,883	\$936,397	-59	-\$12,578
SBIR/STTR	77	38,974	83	43,744	84	44,404	1	660
Research Project Grants	1,991	\$936,952	2,025	\$992,719	1,967	\$980,801	-58	-\$11,918
<b>Research Centers:</b>								
Specialized/Comprehensive Clinical Research	39	\$69,949	39	\$72,839	39	\$72,839		
Biotechnology		472						
Comparative Medicine		990						
Research Centers in Minority Institutions								
Research Centers	39	\$71,411	39	\$72,839	39	\$72,839		
<b>Other Research:</b>								
Research Careers	319	\$51,433	319	\$52,462	319	\$52,462		
Cancer Education								
Cooperative Clinical Research								
Biomedical Research Support								
Minority Biomedical Research Support								
Other	56	26,954	56	27,493	56	27,493		
Other Research	375	\$78,387	375	\$79,955	375	\$79,955		
Total Research Grants	2,405	\$1,086,750	2,439	\$1,145,513	2,381	\$1,133,595	-58	-\$11,918
<b>Ruth L. Kirchstein Training Awards:</b>								
	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	228	\$9,375	224	\$9,630	224	\$9,823		\$193
Institutional Awards	482	24,603	501	27,831	501	28,166		335
Total Research Training	710	\$33,978	725	\$37,461	725	\$37,989		\$528
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)</i> <sup>2</sup>	156 <i>(1)</i>	\$75,494 <i>(328)</i>	175 <i>(1)</i>	\$87,558 <i>(327)</i>	175 <i>(1)</i>	\$94,922 <i>(327)</i>		\$7,364
Intramural Research	268	\$164,438	268	\$170,892	268	\$172,601		\$1,709
Res. Management & Support <i>Res. Management &amp; Support (SBIR Admin) (non-add)</i> <sup>2</sup>	268 <i>(150)</i>	72,991 <i>(150)</i>	273 <i>(150)</i>	77,249 <i>(150)</i>	273 <i>(150)</i>	79,566 <i>(150)</i>		2,317
<i>Office of the Director - Appropriation<sup>2</sup></i>								
Office of the Director - Other <i>ORIP/SEPA (non-add)</i> <sup>2</sup>								
<i>Common Fund (non-add)</i> <sup>2</sup>								
<b>Buildings and Facilities</b>								
<i>Appropriation</i>								
Type 1 Diabetes								
Program Evaluation Financing								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						-58,973		-58,973
<b>Subtotal, Labor/HHS Budget Authority</b>		<b>\$1,433,651</b>		<b>\$1,518,673</b>		<b>\$1,459,700</b>		<b>-\$58,973</b>
Interior Appropriation for Superfund Res.								
<b>Total, NIH Discretionary B.A.</b>		<b>\$1,433,651</b>		<b>\$1,518,673</b>		<b>\$1,459,700</b>		<b>-\$58,973</b>
Type 1 Diabetes								
<b>Proposed Law Funding</b>								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						58,973		58,973
<b>Total, NIH Budget Authority</b>		<b>\$1,433,651</b>		<b>\$1,518,673</b>		<b>\$1,518,673</b>		
Program Evaluation Financing								
<b>Total, Program Level</b>		<b>\$1,433,651</b>		<b>\$1,518,673</b>		<b>\$1,518,673</b>		

<sup>1</sup> All Subtotal and Total numbers may not add due to rounding.

<sup>2</sup> All numbers in italics and brackets are non-add.

<sup>3</sup> Includes mandatory financing.

## **Major Changes in the Fiscal Year 2017 President's Budget Request**

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanism and activity details and these highlights will not sum to the total change for FY 2017 President's Budget request for NIMH, which is equal to the FY 2016 Enacted level, for a total of \$1,518.673 million.

### Early Psychosis Intervention Network

In FY 2017, NIMH will build on previous work and launch the Early Psychosis Intervention Network (EPINET), with the goal of creating a learning health care system among early psychosis treatment clinics. With patients' consent, EPINET clinics will create a common database with information gathered during routine clinical encounters. This database will allow clinicians and researchers to learn more about the effectiveness of early psychosis treatment. The budget request includes an additional \$6.0 million for this Network.

### NRSA Research Training

NIMH has provided an additional \$0.528 million for NRSA Research Training to provide a stipend increase of 2.0 per cent for all trainees and maintain the same number full-time trainee positions as the FY 2016 Enacted level.

### Research Project Grants

Non-competing Research Project Grants has decreased by 53 grants and \$9.727 million. Competing Research Project Grants has decreased by 6 grants and \$2.851 million. The funds will be used to fund other high priority areas.

### Research Management and Support

This budget activity has increased by \$2.317 million to pay for mandatory pay and benefit increases as well as increases needed to support the enhanced oversight and management of new and highly complex scientific programs initiated over the past five years which are critical to the success of the Institute.

### Research and Development Contracts

NIMH has provided an additional \$7.364 million to this budget activity to support the EPINET program as well as increased costs of purchases from other government accounts.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Summary of Changes**

(Dollars in Thousands)

<b>FY 2016 Enacted</b>				\$1,518,673
<b>FY 2017 President's Budget</b>				\$1,518,673
<b>Net change</b>				\$0
CHANGES	FY 2017 President's Budget <sup>1</sup>		Change from FY 2016	
	FTEs	Budget Authority	FTEs	Budget Authority
<u>A. Built-in:</u>				
<u>1. Intramural Research:</u>				
a. Annualization of January 2016 pay increase & benefits		\$58,188		\$266
b. January FY 2017 pay increase & benefits		58,188		749
c. Two less days of pay		58,188		-423
d. Differences attributable to change in FTE		58,188		0
e. Payment for centrally furnished services		30,539		745
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		83,874		373
Subtotal				\$1,709
<u>2. Research Management and Support:</u>				
a. Annualization of January 2016 pay increase & benefits		\$37,425		\$175
b. January FY 2017 pay increase & benefits		37,425		486
c. Two less days of pay		37,425		-276
d. Differences attributable to change in FTE		37,425		0
e. Payment for centrally furnished services		9,187		465
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		32,953		1,467
Subtotal				\$2,317
Subtotal, Built-in				\$4,026

<sup>1</sup> Includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH  
National Institute of Mental Health**

**Summary of Changes - Continued**

(Dollars in Thousands)

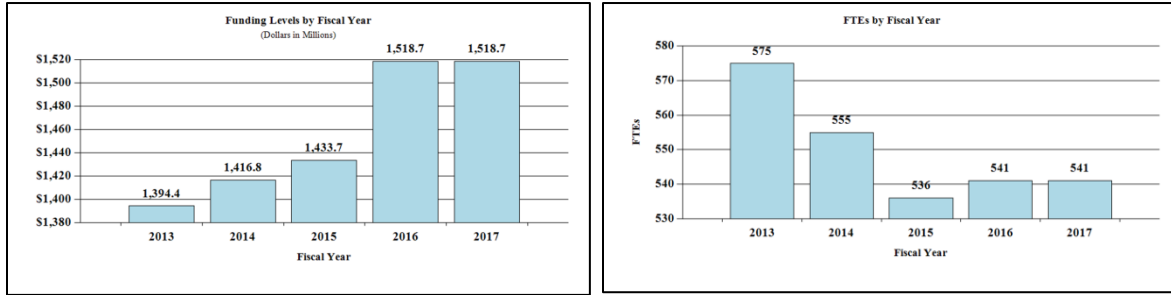
CHANGES	FY 2017 President's Budget <sup>1</sup>		Change from FY 2016	
	No.	Amount	No.	Amount
<u>B. Program</u>				
<u>1. Research Project Grants:</u>				
a. Noncompeting	1,358	\$686,907	-53	-\$9,727
b. Competing	525	249,490	-6	-2,851
c. SBIR/STTR	84	44,404	1	660
Subtotal, RPGs	1,967	\$980,801	-58	-\$11,918
2. Research Centers	39	\$72,839	0	\$0
3. Other Research	375	79,955	0	0
4. Research Training	725	37,989	0	528
5. Research and development contracts	175	94,922	0	7,364
Subtotal, Extramural		\$1,266,506		-\$4,026
6. Intramural Research	<u>FTEs</u> 268	\$172,601	<u>FTEs</u> 0	\$0
7. Research Management and Support	273	79,566	0	0
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	541	\$1,518,673	0	-\$4,026
Total changes				\$0

<sup>1</sup> Includes mandatory financing.

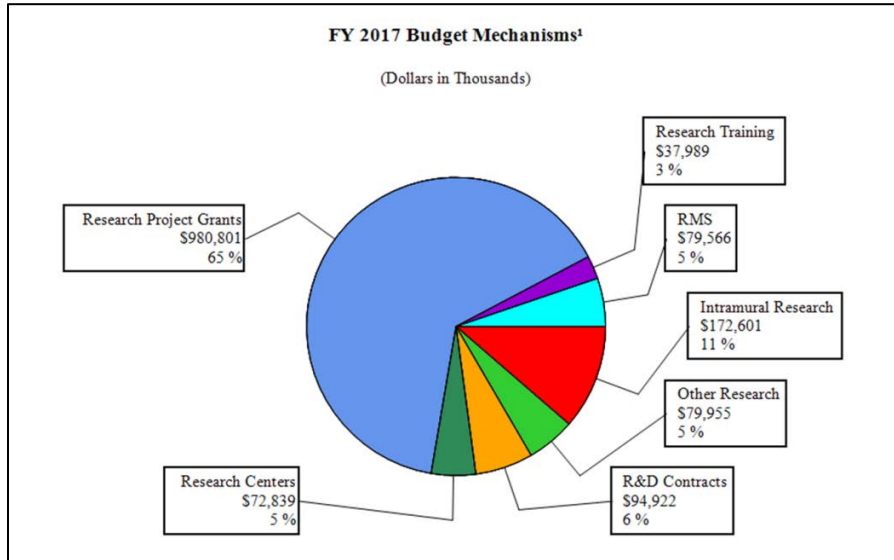


## Fiscal Year 2017 Budget Graphs

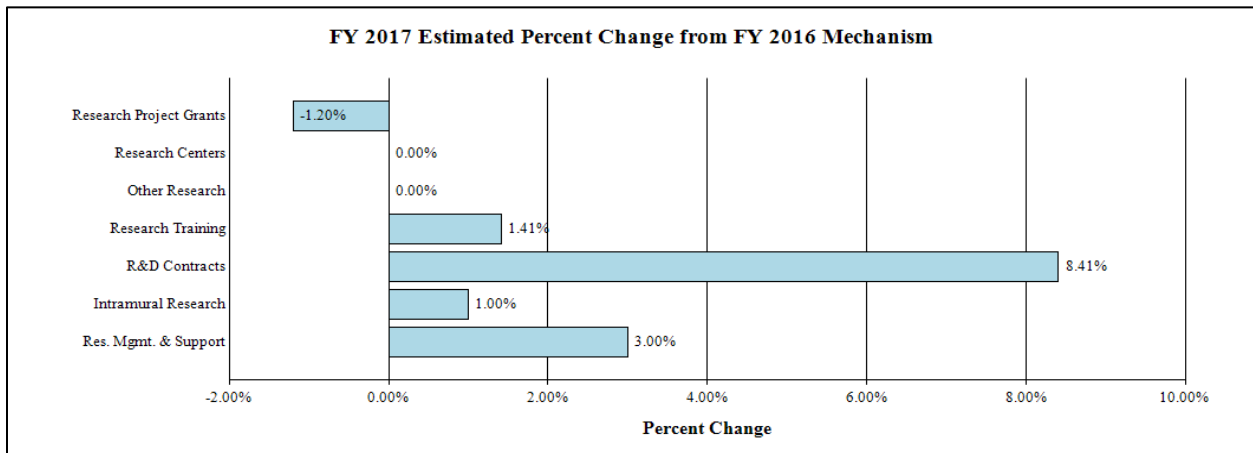
### History of Budget Authority and FTEs:



### Distribution by Mechanism:



### Change by Selected Mechanism:



**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Budget Authority by Activity<sup>1</sup>**  
(Dollars in Thousands)

	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget <sup>2</sup>		FY 2017 +/- FY2016	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<b><u>Extramural Research</u></b>								
<u>Detail</u>								
Neuroscience & Basic Behavioral Science		\$523,098		\$554,171		\$552,181		-\$1,990
Services & Intervention Research		138,048		147,097		146,568		-529
Translational Research		366,856		391,055		389,650		-1,405
AIDS Research		145,602		149,769		149,769		0
Office of the Director		22,618		28,440		28,338		-102
<b>Subtotal, Extramural</b>		<b>\$1,196,222</b>		<b>\$1,270,532</b>		<b>\$1,266,506</b>		<b>-\$4,026</b>
<b>Intramural Research</b>	<b>268</b>	<b>\$164,438</b>	<b>268</b>	<b>\$170,892</b>	<b>268</b>	<b>\$172,601</b>	<b>0</b>	<b>\$1,709</b>
<b>Research Management &amp; Support</b>	<b>268</b>	<b>\$72,991</b>	<b>273</b>	<b>\$77,249</b>	<b>273</b>	<b>\$79,566</b>	<b>0</b>	<b>\$2,317</b>
<b>TOTAL</b>	<b>536</b>	<b>\$1,433,651</b>	<b>541</b>	<b>\$1,518,673</b>	<b>541</b>	<b>\$1,518,673</b>	<b>0</b>	<b>\$0</b>

<sup>1</sup> Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

<sup>2</sup> Includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH  
National Institute of Mental Health**

**Authorizing Legislation**

	<b>PHS Act/ Other Citation</b>	<b>U.S. Code Citation</b>	<b>2016 Amount Authorized</b>	<b>FY 2016 Enacted</b>	<b>2017 Amount Authorized</b>	<b>FY 2017 President's Budget<sup>1</sup></b>
Research and Investigation	Section 301	42§241	Indefinite	\$1,518,673,000	Indefinite	\$1,459,700,000
National Institute of Mental Health	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$1,518,673,000		\$1,459,700,000

<sup>1</sup>Excludes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH  
National Institute of Mental Health**

**Appropriations History**

<b>Fiscal Year</b>	<b>Budget Estimate to Congress</b>	<b>House Allowance</b>	<b>Senate Allowance</b>	<b>Appropriation</b>
2007	\$1,394,806,000	\$1,394,806,000	\$1,403,551,000	\$1,404,494,000
Rescission				\$0
2008	\$1,405,421,000	\$1,425,531,000	\$1,436,001,000	\$1,429,446,000
Rescission				\$24,973,000
Supplemental				\$7,475,000
2009	\$1,406,841,000	\$1,455,145,000	\$1,445,987,000	\$1,450,491,000
Rescission				\$0
2010	\$1,474,676,000	\$1,502,266,000	\$1,475,190,000	\$1,489,372,000
Rescission				\$0
2011	\$1,540,345,000		\$1,537,942,000	\$1,489,372,000
Rescission				\$13,078,800
2012	\$1,517,006,000	\$1,517,006,000	\$1,460,671,000	\$1,483,068,000
Rescission				\$2,802,999
2013	\$1,479,204,000		\$1,483,687,000	\$1,480,265,001
Rescission				\$2,960,530
Sequestration				(\$74,299,124)
2014	\$1,465,782,000		\$1,456,041,000	\$1,446,172,000
Rescission				\$0
2015	\$1,440,076,000			\$1,463,036,000
Rescission				\$0
2016	\$1,489,417,000	\$1,512,401,000	\$1,520,260,000	\$1,548,390,000
Rescission				\$0
2017 <sup>1</sup>	\$1,518,673,000			

<sup>1</sup> Includes mandatory financing.

## Justification of Budget Request

### *National Institute of Mental Health*

Authorizing Legislation: Section 301 and title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget	FY 2017 +/- FY 2016
BA	\$1,433,651,000	\$1,518,673,000	\$1,518,673,000	+\$0
FTE	536	541	541	0

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

### Director's Overview

The National Institute of Mental Health (NIMH) is the lead Federal agency for research on mental illnesses, with a mission to transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure.

In the United States, an estimated 43.6 million adults suffer from a mental illness.<sup>1</sup> Mental illnesses are significantly impairing and can be life-threatening; they were the leading cause of disability in the United States in 2010, accounting for 18.7 percent of all years of life lost to illness, disability, or premature death.<sup>2</sup> Suicide is the second leading cause of death in youth and young adults aged 15-34, accounting for the loss of more than 41,000 American lives each year, and is the tenth leading cause of death overall in the United States.<sup>3</sup> A cautious estimate places the direct and indirect financial costs associated with mental illness in the United States at well over \$300 billion annually, and mental illnesses rank as the third most costly medical conditions in terms of overall health care expenditures, behind only heart conditions and traumatic injury.<sup>4,5</sup>

To ensure that NIMH optimizes its priorities and invests wisely in the most rigorous science, the Institute released an updated Strategic Plan for Research in March 2015.<sup>6</sup> The plan provides a framework to accelerate the pace of scientific progress by generating research that will have the greatest public health impact and continue to fuel the transformation of mental health care. The

<sup>1</sup> SAMHSA, Results from the 2014 National Survey on Drug Use and Health: Mental Health Findings, NSDUH Series H-47, HHS Publication No. (SMA) 13-4805. Rockville, MD: SAMHSA, 2014.

<sup>2</sup> US Burden of Disease Collaborators. The state of US health, 1990-2010: burden of diseases, injuries, and risk factors. *JAMA*, 310(6): 591-608, 2013.

<sup>3</sup> CDC, NCIPC. WISQARS: [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars) accessed October 2015.

<sup>4</sup> Insel TR. Assessing the economic cost of serious mental illness. *Am J Psychiatry*. 2008 Jun;165(6):663-5.

<sup>5</sup> Soni A. The Five Most Costly Conditions, 1996 and 2006: Estimates for the U.S. Civilian Noninstitutionalized Population. Statistical Brief #248. July 2009. AHRQ, Rockville, MD.

<sup>6</sup> <http://www.nimh.nih.gov/about/strategic-planning-reports/index.shtml>

four Objectives of the Plan describe the continuum of mental health research: defining the mechanisms of complex behavior; charting mental illness trajectories to determine when, where, and how to intervene; striving for prevention and cures; and, strengthening the public health impact of NIMH-supported research. These Objectives form a roadmap for NIMH's priorities over the next five years. In addition, NIMH has taken steps to improve efficiency, increase transparency, and monitor human-subjects protection and privacy issues effectively in its clinical research portfolio.<sup>7</sup> NIMH will continue to monitor carefully the initiation, recruitment, and completion of each clinical trial, with continued funding contingent upon meeting milestones.

**Basic Research, the Foundation for Success:** The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative is supporting the creation of new tools for decoding the language of the brain.<sup>8</sup> Managed by 10 NIH Institutes and Centers (ICs) and co-led by NIMH and the National Institute of Neurological Disorders and Stroke, the BRAIN Initiative made great strides towards uncovering the causal mechanisms of brain circuit function in FY 2015. NIMH-funded researchers published findings on a new technique for single-cell analysis, called Drop-Seq, that is faster and less expensive than current, more labor-intensive methods, and yet just as accurate. Other researchers have developed technology for targeting and precisely affecting a specific brain cell type (Designer Receptor Exclusively Activated by Designer Drugs, or DREADDs). NIMH continues to prioritize research aimed at developing innovative tools and technologies dedicated to mapping aberrant brain activity associated with mental illnesses.

NIMH investments in basic neuroscience research have built a foundation for future BRAIN Initiative efforts. For example, NIMH-funded researchers took a technology, called induced pluripotent stem cells (in which they turned stem cells derived from patients' skin cells into neurons), and streamlined the procedure to generate cortex-like structures of neurons and their support cells, called spheroids, that mimic the developing brain. These spheroids function so similarly to the developing brain that they will eventually enable researchers to evaluate proposed brain mechanisms underlying mental illnesses – the 'disease-in-a-dish' approach – and in turn, design more accurate treatments. This work illustrates how basic research provides the platform for successful treatment development.

**Improving Precision through Information Integration:** Increased precision in mental health research requires a framework for integrating many levels of information to understand basic dimensions of functioning underlying the full range of human behavior. The NIMH Research Domain Criteria (RDoC) initiative expands precision medicine to all areas of mental health research.<sup>9</sup> RDoC enables clinical investigators to think outside the box of current diagnostic categories, and encourages basic scientists to identify mechanisms of specific domains of mental function. For example, the Bipolar Schizophrenia Network on Intermediate Phenotypes (BSNIP) study used the RDoC approach to examine individuals across multiple diagnostic groups in the psychosis spectrum, employing statistical techniques to look for patterns in the data. This

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<sup>7</sup> See: <http://www.nimh.nih.gov/funding/opportunities-announcements/clinical-trials-foas/nimh-clinical-trials-portfolio-progress-to-date-and-the-road-forward.shtml>

<sup>8</sup> <http://www.nih.gov/science/brain/index.htm>

<sup>9</sup> <http://www.nimh.nih.gov/research-priorities/rdoc/index.shtml>

approach resulted in natural groupings of patients based on their biological information, rather than only observable symptoms.<sup>10</sup>

Another ongoing NIMH-funded study is using the RDoC approach as it applies to the genetic basis of attention deficit hyperactivity disorder (ADHD). Specifically, investigators are working with existing genetic databases to differentiate gene pathways to ADHD, and are then using these pathways to develop subgroups that can be validated with neurocognitive measures and structural connectivity analyses. Determining the biological basis of ADHD subgroups can lead the way towards future diagnostic and treatment development efforts, exemplifying the RDoC approach of integrating basic genetic findings into actionable translational science.

**Big Data and Technology:** NIMH is committed to supporting data integration across studies and the broad sharing of data and the resources necessary to accelerate scientific progress. Moreover, data sharing is an expectation for all NIMH-funded clinical research. NIMH has federated a series of repositories for this purpose – referred to in aggregate as the NIMH Data Archive: the National Database for Autism Research, the NIH Pediatric MRI Data Repository, the RDoC Database, and the National Database for Clinical Trials Related to Mental Illness. The NIMH commitment to broad sharing of data is also evident in its ongoing support of the Psychiatric Genomics Consortium (PGC), the largest ever genomic investigation of brain disorders, involving hundreds of thousands of samples from more than 80 institutions in over 30 countries.<sup>11,12,13,14,15</sup> Recently, PGC researchers identified overlapping genetic risk among schizophrenia, bipolar disorder, and depression for pathways affecting the immune system and brain cell communication. These findings will help guide the development of treatments for mental illnesses, thereby enabling NIMH to continue onward in accomplishing its mission.

#### Budget Policy:

The FY 2017 President’s Budget estimate is \$1,518.673 million, the same as the FY 2016 Enacted level.

## **Program Descriptions**

### **Neuroscience and Basic Behavioral Science**

The Division of Neuroscience and Basic Behavioral Science provides support for research in the areas of basic neuroscience, genetics, basic behavioral science, research training, resource development, and drug discovery. In cooperation with other NIMH programs and the wider research community, this program ensures that relevant basic scientific knowledge is generated and used in pursuit of improved methods to diagnose, treat, and prevent mental illnesses.

NIMH funds grants across a range of research topics to enhance our comprehension of the basic neurobiology underlying mental illnesses. In FY 2017, NIMH will continue to capitalize on data

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<sup>10</sup> See: <http://www.ncbi.nlm.nih.gov/pubmed/26462502>

<sup>11</sup> <http://ndar.nih.gov/>

<sup>12</sup> <http://www.pediatricmri.nih.gov/>

<sup>13</sup> <http://rdocdb.nimh.nih.gov/>

<sup>14</sup> <http://ndct.nimh.nih.gov/>

<sup>15</sup> <http://www.med.unc.edu/pgc>

arising from large scale genomic studies to understand the genetic underpinnings of mental illnesses. In particular, studies of autism spectrum disorder (ASD) and schizophrenia have yielded a large number of regions of the genome associated with disease. NIMH will work to fine tune these associations, using new statistical methods as well as biological studies.

#### Budget Policy:

The FY 2017 President's Budget estimate is \$552.181 million, a decrease of \$1.990 million or 0.4 percent compared to the FY 2016 Enacted level.

#### **Program Portrait: Mapping the Brain's Connections across the Lifespan**

FY 2016 NIH Level: \$21.3 million

FY 2017 NIH Level: \$24.6 million

Change : +\$3.3 million

Over the past decade, an explosion of interest in the patterns of connectivity underlying structural and functional brain networks has resulted in a shift to studying connectivity and networks, revolutionizing how we understand brain function and dysfunction. Echoing this shift, the NIH Human Connectome Project (HCP), funded since 2010 by the NIH Blueprint for Neuroscience Research, is a large-scale effort to develop a comprehensive reference atlas of neuronal connectivity – that is, a *connectome*.<sup>16</sup> HCP is mapping brain connectivity in 1,200 healthy adults, and making this data freely available to the scientific community. This project aims to increase knowledge of what makes us uniquely human, and also sets the stage for studies of abnormal brain circuits that appear in many mental illnesses.

Early findings from HCP show promise for improving our understanding of how brain connectivity is related to human behavior. A study published in September 2015 used HCP data to determine whether any specific patterns of brain connectivity are associated with specific sets of correlated demographics and behavior.<sup>17</sup> The investigators discovered that the strongest correlation emerged between an individual's connectome and "positive" measures, such as higher vocabulary, better memory, and higher life satisfaction. NIH has also funded a Connectome Coordination Facility that will maintain the existing data repository, support a help desk to facilitate community use of the resource, and serve as a harmonization center where data from multiple labs are made compatible.

In FY 2015, NIMH extended its connectome efforts by releasing a new series of funding opportunity announcements to support the study of infants and youth, in order to capture the structural and functional changes that occur in the brain during typical development, as well as in clinical populations.<sup>18,19,20</sup> The National Institute on Aging is coordinating a similar expansion to study older adults.<sup>21</sup> These expansions across the lifespan will enhance the clinical relevance of the data and provide benchmarks for understanding the causes of human brain disorders. Review of applications is currently ongoing, with funding of meritorious proposals anticipated to begin in the summer of 2016. NIMH supports about 30 percent of this NIH Blueprint for Neuroscience Research project.

#### **Translational Research**

The Division of Translational Research (DTR) supports integrative, multidisciplinary research and training programs that translate findings from basic science in order to discover the causes, mechanisms, and trajectories of mental illnesses, and to develop effective interventions for

<sup>16</sup> <http://www.neuroscienceblueprint.nih.gov/connectome/>

<sup>17</sup> <http://www.ncbi.nlm.nih.gov/pubmed/26414616>

<sup>18</sup> <http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-16-160.html>

<sup>19</sup> <http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-16-150.html>

<sup>20</sup> <http://grants.nih.gov/grants/guide/pa-files/PA-14-281.html>

<sup>21</sup> <http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-16-004.html>



children and adults. DTR supports research on the characteristics of and risk factors for psychiatric disorders; the neurobehavioral mechanisms of psychopathology; the trajectories of risk and resilience based on the interactive influences of genetics, brain development, environment, and experience; and the design and testing of innovative treatments and interventions.

In FY 2015, DTR launched the Autism Biomarkers Consortium project. The Autism Biomarkers Consortium is supported by the Biomarkers Consortium, a large public-private partnership that aims to facilitate precision medicine by supporting research to identify disease-specific biomarkers for targeted and individualized treatment. The project will receive a total of \$28 million from the Biomarkers Consortium over the next four years to test and refine clinical measures of social impairment in ASD, in order to evaluate potential behavioral and drug therapies as rigorously as possible. Autism Biomarkers Consortium researchers will collect electroencephalogram and eye-tracking measures in 325 children with ASD to identify reliable biomarkers for the objective selection of biologically similar subgroups of children with ASD for optimized treatment. In 2016 and beyond, the study will begin generating a scientific community resource by making the biomarker measures, laboratory tests of social impairment, extensive phenotypic information, and blood samples from the children and their parents available for use in future studies.

In FY 2016, DTR plans to launch a five-year, multi-site initiative, “Longitudinal Assessment of Post-traumatic Syndromes (LAPS),” to develop a new understanding of the neurobiological mechanisms responsible for mental illness following trauma, pending the receipt of meritorious grant applications. This effort will facilitate more accurate diagnosis, and more effective prevention and treatment of the spectrum of trauma symptoms traditionally characterized as post-traumatic stress disorder (PTSD). LAPS will assess patients exposed to trauma to characterize post-traumatic changes in neurobiological factors, cognitive functioning, and other markers of risk over time; develop algorithms to predict different clinical trajectories following trauma exposure; and inform interventions that target the underlying causes of symptoms in subgroups of patients that are less heterogeneous than individuals with a traditional PTSD diagnosis. LAPS has the potential to improve care for individuals at high risk for post-traumatic stress conditions dramatically, across civilian, military, and veteran populations. LAPS is also responsive to White House calls to invest in research that will establish biomarkers, define the pathophysiology, and develop new treatments based on mechanisms for post-traumatic stress spectrum illnesses.<sup>22</sup>

**Budget Policy:**

The FY 2017 President’s Budget estimate is \$389.650 million, a decrease of \$1.405 million or 0.4 percent compared to the FY 2016 Enacted level.

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<sup>22</sup> <http://www.whitehouse.gov/the-press-office/2012/08/31/executive-order-improving-access-mental-health-services-veterans-service>

## **Services and Intervention Research**

The Division of Services and Intervention Research (DSIR) supports research that evaluates the effectiveness of psychosocial, pharmacological, somatic, rehabilitative, and combined interventions to prevent or treat mental and behavioral illnesses. DSIR evaluates interventions for children, adolescents, and adults, focusing on acute and long-term symptom reduction, remission, and improved community functioning. DSIR also supports mental health services research, including interventions to improve the quality and outcomes of care; organization and system-level interventions to enhance service delivery; and, strategies for widespread dissemination and implementation of evidence-based treatments into routine care settings.

In FY 2015, DSIR supported two large-scale initiatives to improve the effectiveness of mental health services delivered at critical periods of illness or across developmental life stages. One initiative concerns suicide prevention. Suicide risk is 10 times higher among persons recently released from jail or prison, compared to individuals from the general population.<sup>23</sup> To reduce suicide risk during this critical period, NIMH, in partnership with the NIH Office of Behavioral and Social Sciences Research and the National Institute of Justice, funded the Suicide Prevention for at-Risk Individuals in Transition (SPIRIT) study.<sup>24</sup> This randomized control trial will evaluate the effectiveness of an evidence-based Safety Planning Intervention for reducing suicide events in the year following incarceration. The second initiative concerns outcomes for people with ASD. ASD begins in early childhood, but impairments often endure through transitions to adolescence and adulthood. There are few studies to guide delivery of mental health services across these life stages. ASD services research initiative is supporting 12 studies that examine strategies for improving outcomes for people with ASD across the lifespan. Of note, five of the 12 studies are focused on early childhood. The investigators of these studies have formed the ASD Pediatric Early Detection and Engagement in Service (ASD PEDS) network, which will pool data across the projects to expand capacity significantly to address key services research questions for young children aged 0-2 years, a developmentally important time in the course of ASD.

### Budget Policy:

The FY 2017 President's Budget estimate is \$146.568 million, a decrease of \$0.529 million or 0.4 percent compared to the FY 2016 Enacted level.

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<sup>23</sup> See <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4579558/>

<sup>24</sup> See <http://www.nimh.nih.gov/news/science-news/2015/embracing-the-spirit-of-reducing-suicide.shtml>

### **Program Portrait: Addressing Psychosis through a Learning Health Care System Approach**

FY 2016 Level: \$ 9.5 million

FY 2017 Level: \$15.5 million

Change: +\$6.0 million

The ‘learning health care system’ approach allows clinicians and researchers to learn about the effectiveness of treatments in use and to develop new strategies based on a constant flow of data from patients in real-world settings. The realm of diagnosing and treating psychosis is primed to benefit from this approach. Many people experiencing a first episode of psychosis (FEP) experience significant delays in seeking and obtaining care, though treatment is most effective for people who receive care soon after psychotic symptoms begin. The Recovery After an Initial Schizophrenia Episode (RAISE) initiative, which NIMH launched in 2008, aims to change the downward spiral that can result from untreated psychosis, and help return people to a path toward productive, independent lives. RAISE is a large-scale research initiative that began with two studies examining different aspects of coordinated specialty care (CSC) treatments for people who were experiencing FEP.

CSC is a recovery-oriented treatment program for people with FEP. CSC uses a team of specialists who work with the client to create a personal treatment plan. The specialists offer psychotherapy, medication management, family education, case management, and work or education support, depending on the individual’s needs and preferences. The goal is to link the client with a CSC team as soon as possible after psychotic symptoms begin. The client and the CSC team work together to make treatment decisions, involving family members as much as possible. RAISE investigators have shown that CSC is effective and can be implemented in community treatment settings nationwide.

Moving forward, increased funding will enable NIMH to build on the work accomplished thus far in the RAISE initiative by launching the Early Psychosis Intervention Network (EPINET), with the goal of creating a learning health care system among early psychosis treatment clinics. With patients’ consent, EPINET clinics will create a common database with information gathered during routine clinical encounters. This database will allow clinicians and researchers to learn more about the effectiveness of early psychosis treatment. EPINET will also accelerate studies of psychosis risk factors, biomarkers of illness, and pre-emptive interventions through enhancements related to, for example, data capture, data processing, and the development of specialty toolkits. RAISE and EPINET exemplify NIMH’s determination to ensure that lessons learned from research and clinical experiences are systematically and rapidly put to use to improve the lives of individuals with psychosis and their families.

### **AIDS Research**

The Division of AIDS Research (DAR) supports research and research training spanning the priority areas outlined in the NIH HIV/AIDS Research Priorities and Guidelines for Determining AIDS Funding.<sup>25</sup> DAR supports behavioral and social science research critical to the goal of reducing HIV/AIDS incidence through developing and testing new prevention strategies, such as vaccines, microbicides, and pre-exposure prophylaxis approaches. Behavioral and social science research is critical to understanding individual and communal acceptance of prevention strategies, so that the delivery of such strategies is fully optimized, widely disseminated, and successfully implemented. Moreover, DAR research places especial emphasis on health disparities, and in particular, on mental illnesses that may increase risk for HIV infection or have a negative impact on health outcomes.

DAR is also actively participating in cure efforts with the support of research on methods to eliminate HIV in infected individuals by eradicating or silencing the virus from biological reservoirs in the central nervous system (CNS). As many drugs designed to eradicate the virus

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<sup>25</sup> See <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-137.html>

are unable to penetrate the protected environment of the CNS, the CNS can act as an unwitting reservoir for HIV. Therefore, HIV latency is critically important to consider in studies of eradication and reactivation, and DAR supports research on viral latency and persistence in the CNS. This work may also inform methods to prevent or treat the neurological comorbidities of HIV, with a particular emphasis on the premature aging associated with long-term HIV disease and antiretroviral therapy. Through its commitment to bringing multidisciplinary expertise to agency-wide strategic planning efforts, DAR is working to ensure that effective integration of biomedical and behavioral approaches is accomplished, bringing us ever closer to an AIDS-free generation.

Budget Policy:

The FY 2017 President's Budget estimate is \$149.769 million, the same as the FY 2016 Enacted level.

**Intramural Research Programs**

The Division of Intramural Research Programs (DIRP) is the internal research component of NIMH, complementing the Institute's extramural grant funding program. DIRP scientists investigate basic, translational, and clinical aspects of brain function and behavior, conducting state-of-the-art research through the use of unique NIH resources. In addition, DIRP provides an excellent environment for training the next generation of clinical and basic scientists.

DIRP researchers continue to examine the relationship between genes, the brain, and behavior both in healthy development and in adult and childhood-onset mental illnesses. In FY 2015, many important basic science advances came out of the Division, including insight into the molecular mechanisms of how amphetamine stimulates brain cells; linking specific patterns of brain activity, called 'neuronal avalanches,' to changes in physiological state; and demonstrating how the immune system interacts with the brain to affect mood. DIRP scientists use brain imaging to study disruptive behavior disorders in youth, which confer increased risk of substance abuse and criminal behavior, and they investigate innovative behavioral treatments for children with severe mood dysregulation or anxiety. DIRP researchers are also exploring novel medications for treatment-resistant depression in adults, including ketamine and other experimental fast-acting antidepressant medications, and working to identify biomarkers for predicting how well an individual with depression will respond to such rapid-acting antidepressants. In FY 2015, DIRP recruited three new tenure-track scientists who will study how stress affects memory and behavior, investigate brain mechanisms that underlie cognitive behavior, and use neuroimaging and genomic approaches to examine human brain development.

Budget Policy:

The FY 2017 President's Budget estimate is \$172.601 million, an increase of \$1.709 million or 1.0 percent compared to the FY 2016 Enacted level.

**Research Management and Support (RMS)**

RMS provides leadership to NIMH, as well as administrative, budgetary, logistical, and scientific support in the review, award, and monitoring of research grants, training grants, and research and development contracts. RMS functions include strategic planning, coordination, and evaluation of NIMH's programs; regulatory compliance; coordinating global mental health efforts; and,

liaising with other Federal agencies, Congress, and the public. In FY 2015, NIMH managed 2,405 research grants, 324 training grants that supported 710 full-time trainee positions, and 156 research and development contracts.

Budget Policy:

The FY 2017 President's Budget estimate is \$79.566 million, an increase of \$2.317 million or 3.0 percent compared to the FY 2016 Enacted level. The funds are needed because of additional personnel and operating expenses related to the scale up of the EPINET and HCP Initiatives.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Budget Authority by Object Class<sup>1</sup>**

(Dollars in Thousands)

	<b>FY 2016 Enacted</b>	<b>FY 2017 President's Budget<sup>2</sup></b>	<b>FY 2017 +/- FY 2016</b>
Total compensable workyears:			
Full-time employment	541	541	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$155	\$158	\$2
Average GM/GS grade	12.7	12.7	0.0
Average GM/GS salary	\$106	\$108	\$2
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$135	\$136	\$1
Average salary of ungraded positions	\$133	\$137	\$4
<b>OBJECT CLASSES</b>	<b>FY 2016 Enacted</b>	<b>FY 2017 President's Budget<sup>2</sup></b>	<b>FY 2017 +/- FY 2016</b>
Personnel Compensation			
11.1 Full-Time Permanent	\$40,049	\$40,356	\$307
11.3 Other Than Full-Time Permanent	23,020	23,196	176
11.5 Other Personnel Compensation	1,413	1,423	11
11.7 Military Personnel	270	272	2
11.8 Special Personnel Services Payments	9,035	9,104	69
<b>11.9 Subtotal Personnel Compensation</b>	<b>\$73,787</b>	<b>\$74,352</b>	<b>\$565</b>
12.1 Civilian Personnel Benefits	\$20,744	\$21,155	\$411
12.2 Military Personnel Benefits	106	106	1
13.0 Benefits to Former Personnel	0	0	0
<b>Subtotal Pay Costs</b>	<b>\$94,636</b>	<b>\$95,613</b>	<b>\$977</b>
21.0 Travel & Transportation of Persons	\$2,622	\$2,668	\$46
22.0 Transportation of Things	93	95	2
23.1 Rental Payments to GSA	1	1	0
23.2 Rental Payments to Others	0	0	0
23.3 Communications, Utilities & Misc. Charges	1,182	1,206	23
24.0 Printing & Reproduction	51	52	2
25.1 Consulting Services	\$1,678	\$1,751	\$73
25.2 Other Services	29,663	30,019	356
25.3 Purchase of goods and services from government accounts	152,735	159,594	6,859
25.4 Operation & Maintenance of Facilities	\$4,484	\$4,485	\$0
25.5 R&D Contracts	34,446	37,326	2,880
25.6 Medical Care	275	276	2
25.7 Operation & Maintenance of Equipment	2,918	2,941	22
25.8 Subsistence & Support of Persons	0	0	0
<b>25.0 Subtotal Other Contractual Services</b>	<b>\$226,200</b>	<b>\$236,391</b>	<b>\$10,191</b>
26.0 Supplies & Materials	\$4,240	\$4,294	\$54
31.0 Equipment	6,673	6,769	95
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	1,182,974	1,171,584	-11,390
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	0	0	0
44.0 Refunds	0	0	0
<b>Subtotal Non-Pay Costs</b>	<b>\$1,424,037</b>	<b>\$1,423,060</b>	<b>-\$977</b>
<b>Total Budget Authority by Object Class</b>	<b>\$1,518,673</b>	<b>\$1,518,673</b>	<b>\$0</b>

<sup>1</sup> Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

<sup>2</sup> Includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Salaries and Expenses**  
(Dollars in Thousands)

OBJECT CLASSES	FY 2016 Enacted	FY 2017 President's Budget	FY 2017 +/- FY 2016
<b>Personnel Compensation</b>			
Full-Time Permanent (11.1)	\$40,049	\$40,356	\$307
Other Than Full-Time Permanent (11.3)	23,020	23,196	176
Other Personnel Compensation (11.5)	1,413	1,423	11
Military Personnel (11.7)	270	272	2
Special Personnel Services Payments (11.8)	9,035	9,104	69
<b>Subtotal Personnel Compensation (11.9)</b>	<b>\$73,787</b>	<b>\$74,352</b>	<b>\$565</b>
Civilian Personnel Benefits (12.1)	\$20,744	\$21,155	\$411
Military Personnel Benefits (12.2)	106	106	1
Benefits to Former Personnel (13.0)	0	0	0
<b>Subtotal Pay Costs</b>	<b>\$94,636</b>	<b>\$95,613</b>	<b>\$977</b>
Travel & Transportation of Persons (21.0)	\$2,622	\$2,668	\$46
Transportation of Things (22.0)	93	95	2
Rental Payments to Others (23.2)	0	0	0
Communications, Utilities & Misc. Charges (23.3)	1,182	1,206	23
Printing & Reproduction (24.0)	51	52	2
<b>Other Contractual Services:</b>			
Consultant Services (25.1)	1,609	1,676	67
Other Services (25.2)	29,663	30,019	356
Purchases from government accounts (25.3)	89,164	92,194	3,031
Operation & Maintenance of Facilities (25.4)	4,484	4,485	0
Operation & Maintenance of Equipment (25.7)	2,918	2,941	22
Subsistence & Support of Persons (25.8)	0	0	0
<b>Subtotal Other Contractual Services</b>	<b>\$127,838</b>	<b>\$131,314</b>	<b>\$3,476</b>
Supplies & Materials (26.0)	\$4,240	\$4,294	\$54
<b>Subtotal Non-Pay Costs</b>	<b>\$136,027</b>	<b>\$139,629</b>	<b>\$3,603</b>
<b>Total Administrative Costs</b>	<b>\$230,662</b>	<b>\$235,242</b>	<b>\$4,580</b>

**NATIONAL INSTITUTES OF HEALTH**  
**National Institute of Mental Health**

**Detail of Full-Time Equivalent Employment (FTE)**

OFFICE/DIVISION	FY 2015 Actual			FY 2016 Est.			FY 2017 Est.		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of AIDS Research									
Direct:	12	-	12	13	-	13	13	-	13
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	12	-	12	13	-	13	13	-	13
Division of Extramural Activities									
Direct:	46	-	46	47	-	47	47	-	47
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	46	-	46	47	-	47	47	-	47
Division of Intramural Research Programs									
Direct:	267	1	268	267	1	268	267	1	268
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	267	1	268	267	1	268	267	1	268
Division of Neuroscience and Basic Behavioral Science									
Direct:	26	-	26	27	-	27	27	-	27
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	26	-	26	27	-	27	27	-	27
Division of Services and Intervention Research									
Direct:	16	1	17	16	1	17	16	1	17
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	16	1	17	16	1	17	16	1	17
Division of Translational Research									
Direct:	29	-	29	31	-	31	31	-	31
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	29	-	29	31	-	31	31	-	31
Office of the Director									
Direct:	138	-	138	138	-	138	138	-	138
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	138	-	138	138	-	138	138	-	138
<b>Total</b>	<b>534</b>	<b>2</b>	<b>536</b>	<b>539</b>	<b>2</b>	<b>541</b>	<b>539</b>	<b>2</b>	<b>541</b>
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0
<b>FISCAL YEAR</b>	<b>Average GS Grade</b>								
2013	12.3								
2014	12.3								
2015	12.7								
2016	12.7								
2017	12.7								



**NATIONAL INSTITUTES OF HEALTH  
National Institute of Mental Health**

**Detail of Positions<sup>1</sup>**

GRADE	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	152,758	155,215	156,397
GM/GS-15	51	51	51
GM/GS-14	69	69	69
GM/GS-13	93	95	95
GS-12	64	66	66
GS-11	50	51	51
GS-10	0	0	0
GS-9	29	29	29
GS-8	11	11	11
GS-7	13	13	13
GS-6	1	1	1
GS-5	0	0	0
GS-4	0	0	0
GS-3	2	2	2
GS-2	0	0	0
GS-1	0	0	0
Subtotal	383	388	388
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	2	2	2
Director Grade	0	0	0
Senior Grade	0	0	0
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	2	2	2
Ungraded	168	168	168
Total permanent positions	386	391	391
Total positions, end of year	554	559	559
Total full-time equivalent (FTE) employment, end of year	536	541	541
Average ES salary	152,758	155,215	156,397
Average GM/GS grade	12.7	12.7	12.7
Average GM/GS salary	104,512	106,193	107,901

<sup>1</sup> Includes FTEs whose payroll obligations are supported by the NIH Common Fund.