

DEPARTMENT OF HEALTH AND HUMAN SERVICES

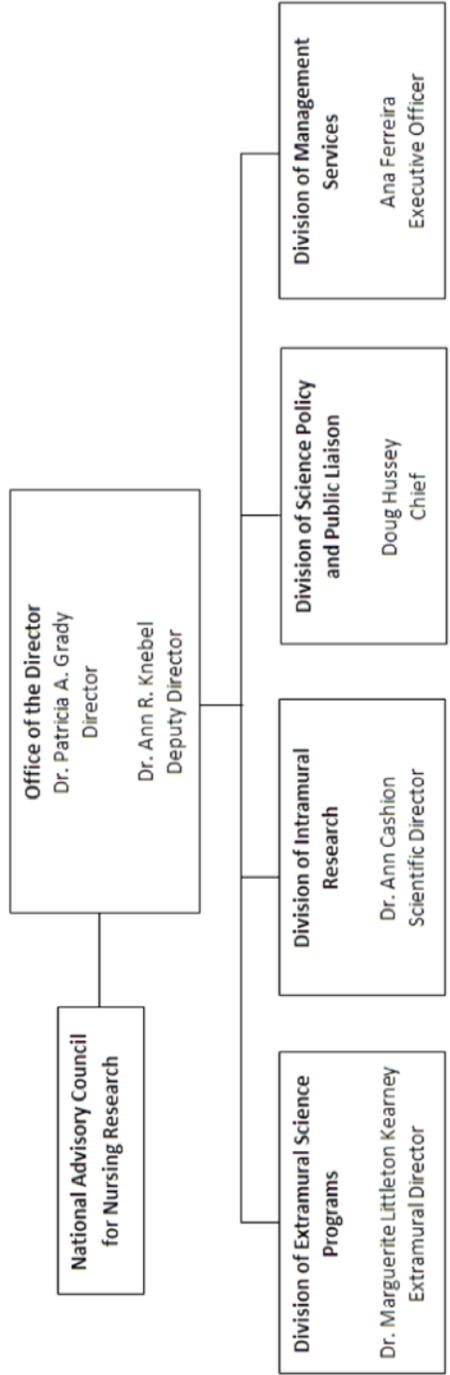
NATIONAL INSTITUTES OF HEALTH

National Institute of Nursing Research (NINR)

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

**National Institutes of Health
National Institute of Nursing Research
Organizational Chart**



NATIONAL INSTITUTES OF HEALTH

National Institute of Nursing Research

For carrying out section 301 and title IV of the PHS Act with respect to nursing research,
[~~\$146,485,000~~]*\$143,942,000*.

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Amounts Available for Obligation¹
(Dollars in Thousands)

Source of Funding	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Appropriation	\$140,953	\$146,485	\$145,912
Mandatory Appropriation: (non-add)			
<i>Type 1 Diabetes</i>	(0)	(0)	(0)
<i>Other Mandatory financing</i>	(0)	(0)	(1,970)
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	\$140,953	\$146,485	\$145,912
OAR HIV/AIDS Transfers	-101	-573	0
National Children's Study Transfers	0	0	0
Subtotal, adjusted budget authority	\$140,852	\$145,912	\$145,912
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	\$140,852	\$145,912	\$145,912
Unobligated balance lapsing	-15	0	0
Total obligations	\$140,837	\$145,912	\$145,912

¹ Excludes the following amounts for reimbursable activities carried out by this account:
FY 2015 - \$100 FY 2016 - \$141 FY 2017 - \$141

**NATIONAL INSTITUTES OF HEALTH
FY 2017 Congressional Justification
NINR**

Budget Mechanism - Total¹

(Dollars in Thousands)

MECHANISM	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget ²		FY 2017 +/- FY 2016	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	159	\$68,260	150	\$69,794	150	\$72,516		\$2,722
Administrative Supplements	(4)	390	(4)	242	(1)	39	(-3)	-203
Competing:								
Renewal								
New	46	22,271	47	22,755	39	18,882	-8	-3,873
Supplements								
Subtotal, Competing	46	\$22,271	47	\$22,755	39	\$18,882	-8	-\$3,873
Subtotal, RPGs	205	\$90,922	197	\$92,791	189	\$91,437	-8	-\$1,354
SBIR/STTR	6	3,672	8	5,148	8	5,438		290
Research Project Grants	211	\$94,594	205	\$97,939	197	\$96,875	-8	-\$1,064
Research Centers:								
Specialized/Comprehensive	10	\$3,928	10	\$4,082	10	\$4,082		
Clinical Research								
Biotechnology								
Comparative Medicine								
Research Centers in Minority Institutions								
Research Centers	10	\$3,928	10	\$4,082	10	\$4,082		
Other Research:								
Research Careers	29	\$3,339	30	\$3,470	30	\$3,470		
Cancer Education								
Cooperative Clinical Research								
Biomedical Research Support								
Minority Biomedical Research Support								
Other	1	2,466	1	2,466	1	2,466		
Other Research	30	\$5,804	31	\$5,935	31	\$5,935		
Total Research Grants	251	\$104,326	246	\$107,957	238	\$106,893	-8	-\$1,064
Ruth L. Kirchstein Training Awards:	<u>FTEPs</u>		<u>FTEPs</u>		<u>FTEPs</u>		<u>FTEPs</u>	
Individual Awards	53	\$1,762	55	\$1,850	55	\$1,872		\$22
Institutional Awards	146	7,101	152	7,772	152	7,866		93
Total Research Training	199	\$8,862	207	\$9,622	207	\$9,738		\$115
Research & Develop. Contracts <i>(SBIR/STTR) (non-add) ²</i>		\$4,359 <i>(31)</i>		\$4,415 <i>(32)</i>		\$5,217 <i>(34)</i>		\$802 <i>(2)</i>
Intramural Research	22	\$8,470	22	\$8,691	22	\$8,727		\$37
Res. Management & Support <i>Res. Management & Support (SBIR Admin) (non-add) ²</i>	70	14,834	71	15,227	71	15,337		110
<i>Office of the Director - Appropriation ²</i>								
<i>Office of the Director - Other</i>								
<i>ORIP/SEPA (non-add) ²</i>								
<i>Common Fund (non-add) ²</i>								
Buildings and Facilities								
<i>Appropriation</i>								
Type 1 Diabetes								
Program Evaluation Financing								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						-1,970		-1,970
Subtotal, Labor/HHS Budget Authority		\$140,852		\$145,912		\$143,942		-\$1,970
Interior Appropriation for Superfund Res.								
Total, NIH Discretionary B.A.		\$140,852		\$145,912		\$143,942		-\$1,970
Type 1 Diabetes								
Proposed Law Funding								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						1,970		1,970
Total, NIH Budget Authority		\$140,852		\$145,912		\$145,912		
Program Evaluation Financing								
Total, Program Level		\$140,852		\$145,912		\$145,912		

¹ All Subtotal and Total numbers may not add due to rounding.

² All numbers in italics and brackets are non-add.

³ 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 detail and these highlights will not sum to the total change for the FY 2017 budget request for NINR, which is flat to the FY 2016 Enacted level, for a total of \$145.912 million.

Research Project Grants (RPGs: -\$1.354 million; total \$91.437 million):

NINR will support 39 competing RPG awards totaling \$18.882 million in FY 2017, a decrease of 8 awards from the FY 2016 Enacted level. An estimated 150 noncompeting RPG awards will be funded totaling \$72.516 million, which reflects a \$2.722 million increase from the FY 2016 Enacted level. In addition, resources are identified to support SBIR and STTR projects to sustain the higher statutory funding threshold applicable for FY 2017.

Intramural Research and Research Management and Support (+\$0.147 million; total \$24.064 million): Increases in both IR and RMS mechanisms accommodates mandatory payroll cost increases attributable to anticipated annual salary raises and higher health insurance premiums.

**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

Summary of Changes

(Dollars in Thousands)

FY 2016 Enacted		\$145,912		
FY 2017 President's Budget		\$145,912		
Net change		\$0		
CHANGES	FY 2017 President's Budget'		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		\$3,622		\$21
b. January FY 2017 pay increase & benefits		3,622		43
c. Two less days of pay		3,622		-33
d. Differences attributable to change in FTE		3,622		0
e. Payment for centrally furnished services		1,412		34
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		3,693		0
Subtotal				\$65
<u>2. Research Management and Support:</u>				
a. Annualization of January 2016 pay increase & benefits		\$10,374		\$65
b. January FY 2017 pay increase & benefits		10,374		122
c. Two less days of pay		10,374		-78
d. Differences attributable to change in FTE		10,374		0
e. Payment for centrally furnished services		1,509		37
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		3,454		0
Subtotal				\$145
Subtotal, Built-in				\$210

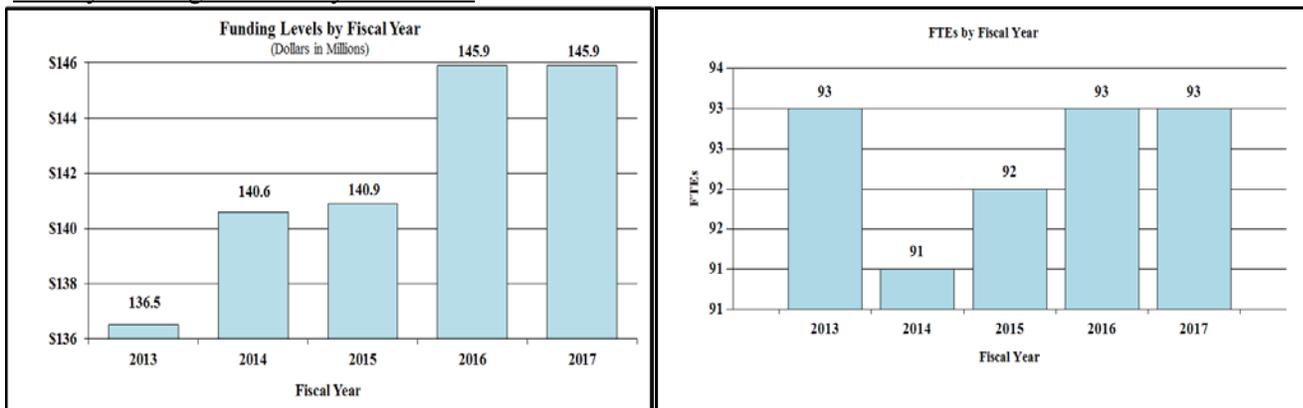
NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research
Summary of Changes – Continued
(Dollars in Thousands)

CHANGES	FY 2017 President's Budget ¹		Change from FY 2016	
	No.	Amount	No.	Amount
<u>B. Program:</u>				
1. Research Project Grants:				
a. Noncompeting	150	\$72,555	0	\$2,520
b. Competing	39	18,882	-8	-3,873
c. SBIR/STTR	8	5,438	0	290
Subtotal, RPGs	197	\$96,875	-8	-\$1,064
2. Research Centers	10	\$4,082	0	\$0
3. Other Research	31	5,935	0	0
4. Research Training	207	9,738	0	115
5. Research and development contracts	0	5,217	0	802
Subtotal, Extramural		\$121,848		-\$146
6. Intramural Research	<u>ETEs</u> 22	\$8,727	<u>ETEs</u> 0	-\$28
7. Research Management and Support	71	15,337	0	-35
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	93	\$145,912	0	-\$210
Total changes				\$0

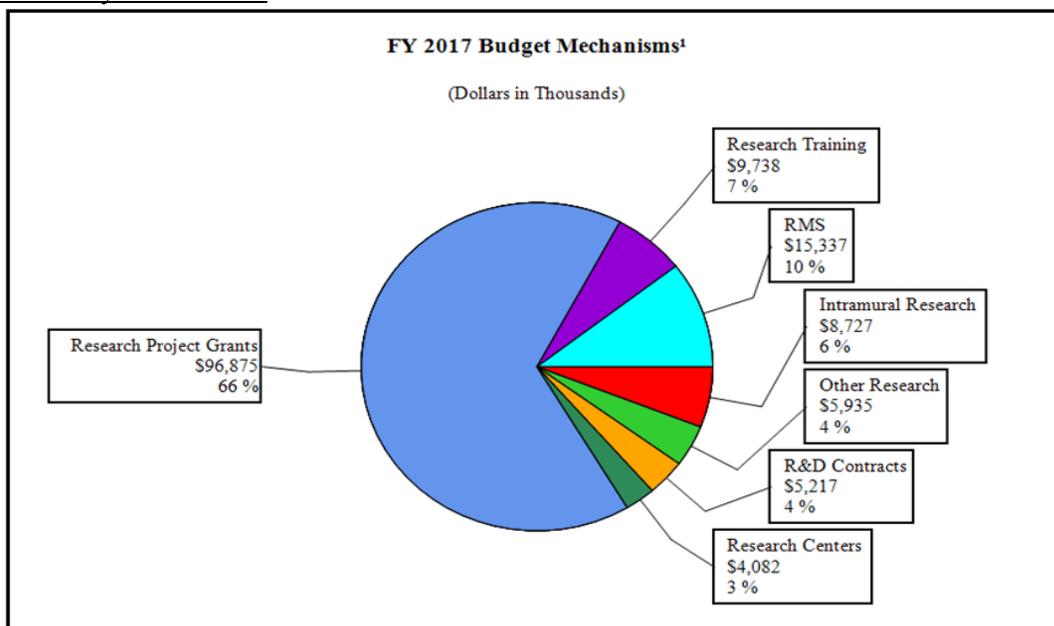
¹ Includes mandatory financing.

Fiscal Year 2017 Budget Graphs

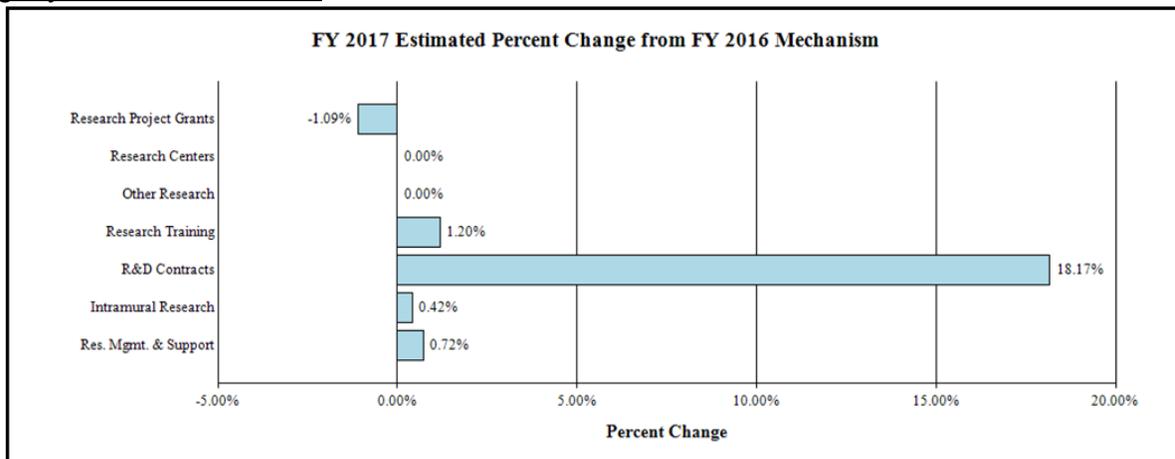
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanism:



**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

Budget Authority by Activity¹
(Dollars in Thousands)

	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget ²		FY 2017 +/- FY2016	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<u>Extramural Research</u>								
<u>Detail</u>								
Quality of Life		\$37,071		\$38,473		\$38,427		-\$46
Health Promotion and Disease Prevention		42,154		43,749		43,696		-52
Investing in Nurse Scientists		14,008		14,538		14,520		-17
Innovation		7,017		7,282		7,273		-9
Palliative and End-of-Life Care		17,298		17,953		17,931		-22
Subtotal, Extramural		\$117,548		\$121,994		\$121,848		-\$146
Intramural Research	22	\$8,470	22	\$8,691	22	\$8,727	0	\$37
Research Management & Support	70	\$14,834	71	\$15,227	71	\$15,337	0	\$110
TOTAL	92	\$140,852	93	\$145,912	93	\$145,912	0	\$0

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

² Includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2016 Amount Authorized	FY 2016 Enacted	2017 Amount Authorized	FY 2017 President's Budget¹
Research and Investigation	Section 301	42§241	Indefinite	\$145,912,000	Indefinite	\$143,942,000
National Institute of Nursing Research	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$145,912,000		\$143,942,000

¹Excludes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2007	\$137,342,000	\$136,550,000	\$137,848,000	\$137,404,000
Rescission				\$0
2008	\$137,800,000	\$139,527,000	\$140,456,000	\$139,920,000
Rescission				\$2,244,000
2009	\$137,609,000	\$142,336,000	\$141,439,000	\$141,879,000
Rescission				\$0
Supplemental				\$731,000
2010	\$143,749,000	\$146,945,000	\$144,262,000	\$145,660,000
Rescission				\$0
2011	\$150,198,000		\$149,963,000	\$145,660,000
Rescission				\$1,278,982
2012	\$148,114,000	\$148,114,000	\$142,755,000	\$145,043,000
Rescission				\$274,131
2013	\$144,153,000		\$144,590,000	\$144,768,869
Rescission				\$289,538
Sequestration				(\$7,266,402)
2014	\$146,244,000		\$145,272,000	\$140,517,000
Rescission				\$0
2015	\$140,452,000			\$140,953,000
Rescission				\$0
2016	\$144,515,000	\$142,701,000	\$147,508,000	\$146,485,000
Rescission				\$0
2017 ¹	\$145,912,000			

¹ Includes mandatory financing.

Justification of Budget Request

National Institute of Nursing Research

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

Budget Authority:

	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget	FY 2017 +/- FY 2016
BA	\$140,852,000	\$145,912,000	\$145,912,000	\$0
FTE	92	93	93	0

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

Director's Overview

The National Institute of Nursing Research (NINR) supports clinical and basic research and training to improve the health of individuals, families, and communities. For thirty years, NINR science has increased the evidence base for clinical practice and improved quality of life. The past decades have seen many achievements in health, with many Americans living longer and healthier lives, and also new challenges as we are more likely to experience a long-term chronic illness or to provide care for someone who has one. In light of these opportunities and challenges, nurse scientists are making significant discoveries with the potential to enhance our understanding of the mechanisms of health and illness. Nurses are uniquely positioned to understand the unique needs and experiences of individuals and families, to bridge the gap between science and the community, and to contribute to a healthier Nation. NINR remains committed to supporting research and training to work towards novel solutions for challenging health issues, to develop effective tools and harness new technologies to improve health, and to chart new pathways forward to improve quality of life for all.

To advance the science that informs clinical practice and improves quality of life, NINR supports research to:

- Investigate the underlying mechanisms of symptoms of acute and chronic illness and devise new personalized approaches to treating symptoms;
- Enhance wellness by promoting health and preventing illness across health conditions, settings, the lifespan, and in minority and underserved groups;
- Assist individuals from diverse backgrounds with chronic illness and their families by developing effective self-management strategies to improve quality of life;
- Develop new tools to support family caregivers in providing care to loved ones and to maintain their own health and wellness;
- Improve quality of life for individuals with serious, advanced illness and their families through development of effective approaches to manage symptoms through palliative care, and for end-of-life decision-making;

- Devise new technologies to provide effective and practical solutions for conditions and illnesses that are often complex and difficult to treat; and,
- Prepare the next generation of nurse scientists to address the Nation's most pressing health issues, including those at an early career stage and from underrepresented groups.

In FY 2017, NINR plans to continue a variety of activities at the intersection of the Institute's mission and the research themes established by the NIH Director. Consistent with the NIH Director's emphasis on the promise of precision medicine, NINR supports basic science to advance our knowledge of the underlying biological mechanisms of symptoms such as pain and fatigue. This approach will lay the foundation for the development of new, improved, and more personalized treatments that take into account an individual's genes, environment, and lifestyle. NINR currently supports an initiative to integrate information on biological and molecular processes with information from patients on how they experience symptoms to better understand the factors that influence complex diseases.

Another NINR-led initiative seeks to increase our understanding of the mechanisms of pain, a symptom that negatively impacts countless Americans, by supporting research from various scientific perspectives ranging from molecular to genetic to biobehavioral in order to increase our understanding of the causes, effects, and best strategies to treat and manage pain. New insights from these lines of research may lead to unexpected pathways for improving outcomes, reducing the burden of chronic illness, and enhancing personalized health strategies. For example, due to the great variability in how people respond to rehabilitation after a stroke, NINR-supported researchers are investigating the ways in which stress and genetic factors affect how people respond to rehabilitation therapy, which could lead to more individualized rehabilitation care. These efforts, guided by the vision reflected in the Precision Medicine Initiative, will replace a one-size-fits-all treatment approach with more personalized treatments unique to specific individuals.

Reflecting the NIH Director's focus on applying big data and technology to improve health, NINR supports research to develop new technologies and tools to improve symptom management, enhance wellness, and lead to better quality of life. For example, in one NINR-supported study, researchers are developing an innovative human-assistive robot platform which serves as a smart power-assist walker to help older adults who have mobility impairment stay physically active. In FY 2015, with a focus on Big Data for a second year, NINR offered its annual Symptom Methodologies Boot Camp. This weeklong intensive training course provides a foundation in data science methodologies and equips nurse scientists with the latest approaches in Big Data. These examples illustrate NINR's support for nurse scientists to use technology and apply big data to improve health.

The NIH Director's focus on stewardship to inspire public trust is displayed in NINR's strong commitment to training and strengthening the workforce of nurse scientists. Training has always been a fundamental goal and high priority for NINR. NINR recognizes that it is particularly important to support and mentor early-stage investigators and to enhance the diversity of the workforce of nurse scientists. To that end, NINR supports a variety of opportunities, such as our Summer Genetics Institute, Graduate Partnerships Program, and Minority Faculty-Student Partnership Program, to provide essential mentoring and training on leading-edge tools and

research methodologies for scientists at all career levels. NINR also invests in individual and institutional pre- and post-doctoral research fellowships and career development awards. NINR will continue to provide opportunities for research support, training, and mentoring to prepare the next generation of nurse scientists with the tools to advance nursing science and to contribute innovative solutions to the Nation's health challenges.

As we commemorate our 30th year of supporting nursing science, we look forward to new opportunities to advance science and contribute to a healthier Nation. While we continue to build the evidence base and develop effective interventions to improve symptom management and end-of-life and palliative care, enhance wellness, and delve into an ever-expanding world of new technologies for health, we will never lose sight of our ultimate goal to improve quality of life for individuals, families, and communities across the Nation.

Overall IC Budget Policy:

Investigator-initiated research projects, support for new investigators, research training, and career development continue to be the Institute's highest priorities. Overall in FY 2017, NINR will maintain a strategic balance between solicitations issued to the extramural community in high-priority areas of research, and funding made available to support investigator-initiated projects. Scientific reviews, with recommendations from the National Advisory Council for Nursing Research, inform the level of recommended support for all research applications. NINR will continue to support new and early stage investigators. Intramural Research and Research Management and Support will receive less than a one percent increase.

The NINR will support a two percent increase for stipends levels under the Ruth L. Kirschstein National Research Service Award training program. The requested increase will help to sustain the development of a highly qualified biomedical research workforce.

Program Descriptions and Accomplishments

Symptom Science and Self-Management to Promote Quality of Life: Today, more people are living with long-term chronic illnesses and potentially burdensome symptoms, such as pain, fatigue, and disordered sleep. NINR supports research to improve quality of life for individuals and families by identifying effective strategies to manage symptoms of acute and chronic illness, and by contributing to a better understanding of underlying biological mechanisms of symptoms. NINR-supported researchers are advancing our knowledge in symptom science and leading the way to develop personalized prevention, treatment, and management approaches for addressing adverse symptoms of illness across diverse populations and settings. For example, NINR-supported researchers are currently studying underlying mechanisms of comorbid chronic pain disorders that are not well understood and have poor treatment options, such as irritable bowel syndrome. Another study is examining the molecular and genetic mechanisms of cancer-related fatigue in men with prostate cancer. NINR-supported researchers are also making great strides in another area of emphasis involving the science of self-management: the examination of strategies that help individuals with chronic illness, their families, and caregivers better understand and manage their illness and enhance health behavior. For instance, one project is developing a mobile health application that builds upon family and community relationships to improve self-management of type 2 diabetes in African Americans. In another project,

researchers demonstrated that individuals at high risk for poor medication adherence, who participated in a nurse-delivered, self-care chronic heart failure intervention, were almost four times as likely to be adherent to their medications a year after the intervention than control group participants who received usual care.

Budget Policy:

The FY 2017 President’s Budget request for this program is \$38.427 million, a decrease of \$46 thousand or 0.12 percent compared to the FY 2016 Enacted level. In FY 2017, NINR plans to continue to address the many challenges and opportunities that exist in the areas of self-management, symptom management, and caregiving as part of a strategically balanced research portfolio.

Program Portrait: Precision Medicine and Symptom Science

FY 2016 Level: \$6.1 million

FY 2017 Level: \$6.1 million

Change: \$0.0 million

Millions of Americans suffer from adverse symptoms, such as pain, fatigue, and disordered sleep, that can negatively affect their quality of life; however, the approaches used to treat these symptoms are uniform, generic, and often ineffective. Through an emphasis on symptom science, NINR-supported scientists are accelerating discoveries that can provide clinicians with new tools and knowledge to select which interventions will work best for which patients. Precision medicine is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. In FY 2016, President Obama unveiled the Precision Medicine Initiative – a bold new enterprise to revolutionize medicine and generate the scientific evidence needed to move the concept of precision medicine into everyday clinical practice.

Consistent with the Precision Medicine Initiative, NINR-supported scientists across the United States are exploring how differences in individuals’ genes, environments, and behaviors affect how they experience the adverse symptoms of illness and how these symptoms can best be managed. For example, chronic pain is difficult to manage and the current one-size-fits-all approach is not ideal. Accordingly, scientists are working to improve the use of imaging tools to better examine pain pathways in order to advance the diagnoses and treatment options for patients with chronic pain. Other NINR-supported investigators are focusing on pain along with other adverse symptoms, such as fatigue, that can be experienced by cancer survivors. One study aims to improve the quality of life in men who have survived prostate cancer and are experiencing such symptoms by testing the dose-related effectiveness of a novel steroid hormone replacement which will provide a personalized approach to their symptom management.

Recent advances in genomics and other fields have contributed to a better understanding of symptoms of chronic illness and have provided new opportunities and methods to develop personalized strategies to treat and prevent adverse symptoms. For example, NINR-supported researchers are seeking to improve patient-reported outcomes, such as pain and weakness resulting from chemotherapy in cancer patients, by utilizing genome sequencing to examine gene variations. In another study, scientists are using genomics to examine the microbiome of preterm infants to determine the link between the microbiome and infants’ health, growth, and development over time.

Guided by the vision reflected in the Precision Medicine Initiative, NINR will continue to support innovative research to improve health and symptom outcomes, and devise more personalized approaches to prevention and treatment, for individuals experiencing adverse symptoms of illness.

Health Promotion and Disease Prevention: In an effort to promote health and prevent disease, NINR supports research to better understand the physical, behavioral, and environmental causes of illness, and to develop evidence-based interventions to promote wellness across health conditions and the lifespan. For example, one NINR-supported study is testing a home-based aerobic exercise intervention for older adults living with HIV in order to reduce cognitive decline and heart disease, conditions for which this group is at high risk. NINR-supported research is also focused on developing and testing culturally appropriate interventions to promote health and prevent disease in minority and underserved groups. In one NINR-supported community-based participatory research study, investigators are testing an intervention aimed at American Indian/Alaska Native teens and their mothers to raise awareness of the risks of gestational diabetes mellitus, promote a healthy lifestyle, and prevent subsequent development of type 2 diabetes. Another recent study showed improvements in asthma episode management and prevention behaviors in medically underserved, primarily minority, lower socioeconomic, and inner-city students who received a school and community based asthma health education and counseling program. NINR also supports new initiatives to prevent illness and promote health across the lifespan. NINR currently supports an initiative to improve health outcomes for women, infants and children by stimulating interdisciplinary research on maternal nutrition and pre-pregnancy obesity. An additional NINR-led initiative seeks to optimize health and wellness in mid-life, when major health problem often begin, with the goal of preventing illness and disability in later years.

Budget Policy:

The FY 2017 President's Budget request for this program is \$43.696 million, a decrease of \$52 thousand or 0.12 percent compared to the FY 2016 Enacted level. In FY 2017, NINR will continue to strategically address health promotion and disease prevention through its research portfolio.

End-of-Life and Palliative Care: Every day, Americans of all ages face the burden of serious, advanced illnesses, such as cancer and heart failure, which may result in physical discomfort, emotional distress, and the need for families to make difficult decisions. As the lead NIH Institute for end-of-life research, NINR supports end-of-life and palliative care science to develop strategies to prevent or reduce the symptoms of advanced illness, such as pain, distress, and other physical and psychosocial symptoms. NINR also supports research to develop interventions to address emotional, social, spiritual, and informed decision-making needs of individuals and families. For example, recent NINR-supported projects include: assessing effectiveness of a palliative care intervention for older individuals with heart failure to improve quality of life and to reduce burden for their caregivers; testing an innovative decision support technology designed to assist surrogate decision makers of cognitively impaired individuals with chronic critical illness; and examining factors associated with preferences for end-of-life care and planning of older adults and family members, and how preferences may change over time. NINR continues to support a palliative care research cooperative (PCRC) to build the science of end-of-life and palliative care. Bringing together multidisciplinary researchers from universities, health systems, hospices, and hospitals across the United States, and building on the existing PCRC infrastructure and resources, NINR will support high quality, high impact research to advance this area of science. As an example, recent findings from research supported by the PCRC may help address a challenging question sometimes faced by health care providers of

individuals with a limited life expectancy: when is stopping a medication more beneficial than continuing its use? PCRC-supported investigators found that discontinuing statin use in patients with advanced illness is safe and may increase quality of life, decrease the use of nonstatin medications, and reduce costs. Taken together, these efforts to advance the science of end-of-life and palliative care hold the potential to improve quality of life, ease suffering, and support families dealing with serious, advanced illness.

Budget Policy:

The FY 2017 President’s Budget request for this program is \$17.931 million, a decrease of \$22 thousand or 0.12 percent compared to the FY 2016 Enacted level. Given the enormous potential and great need for improving the quality of life for persons with life-limiting conditions and their caregivers, NINR plans to expand end-of-life research efforts in FY 2017 to build upon continuing accomplishments in this program area. The proposed level of funding will allow NINR to support existing commitments and fund additional awards in this critical area of research, as part of a balanced program portfolio.

Program Portrait: Pediatric Palliative Care Initiatives

FY 2016 Level: \$1.2 million

FY 2017 Level: \$1.2 million

Change: \$0.0 million

When a child has a serious illness, it can be difficult and overwhelming for the whole family. Pediatric palliative care can help and can be a key part of care for a child with serious illness. Palliative care is comprehensive treatment of the discomfort, symptoms, and stress of serious illness. Palliative care is available at any time during a serious illness and can be given at the same time as other treatments for a child’s illness. However, it can be difficult for children, families, and health care providers to have conversations about palliative care and oftentimes children and families are not aware that it can give them extra support in dealing with a serious illness. The NINR *Palliative Care: Conversations Matter®* initiative, which launched in FY 2014, is now in its second phase. The first phase was focused on providing materials and tools to assist health care providers in having sometimes difficult conversations with children and families about palliative care. The recently launched second phase is focused on children, parents, and families, and includes a new brochure to help them understand what palliative care is; how to identify when a child needs it; and the importance of such care for the whole family.

In addition to supporting children, families, and health care providers through this comprehensive campaign, NINR is also committed to advancing the science of pediatric palliative care through research. Achieving advances in this area of science is particularly important since little is known about the most effective palliative care strategies to meet the unique needs of children with serious illnesses. One recent NINR-led initiative will support research focused on the unique perspectives, needs, wishes, and decision-making processes of youth living with serious illnesses. This initiative also emphasizes the need to better understand how best to support physical, psychological, spiritual, and social needs to enhance quality of life of youth with serious illness and their families.

Current efforts by NINR-supported researchers will contribute to a better understanding of the needs, perceptions, and experiences of children dealing with serious illnesses, as well as develop new tools and interventions to support children and their families. NINR-supported scientists are testing a culturally sensitive, family-based palliative care intervention to prepare teens with cancer and their families for end-of-life decision-making and to improve their quality of life. In another study, researchers are testing the effectiveness of a web-based palliative care intervention that helps children develop an electronic digital storyboard including things they want others to know or remember about them (e.g., information, videos, pictures) with the goal of helping children with cancer and their families adjust and cope.

NINR recognizes that high quality, evidence-based pediatric palliative care is a critical component of maintaining quality of life at any stage of illness. Through the *Palliative Care: Conversations Matter*® initiative and support of pediatric palliative care research, NINR is helping children with serious illness and their families live quality lives.

Innovation: In order to address some of our Nation’s most pressing and challenging health problems, NINR supports the development, testing, and advancement of new innovations and leading-edge technology. NINR-supported science in this area provides the foundation for developing novel, culturally sensitive interventions that deliver personalized care and real-time health information to patients, families, clinicians, and communities. For instance, NINR-supported researchers designed a lightweight ankle exoskeleton that harnesses the power of a person’s own muscles to make walking more efficient. Early findings show that wearing the exoskeleton reduced the energy cost of walking by 7.2 percent, which is equivalent to the effect of taking off a 10-pound backpack. While still in the early stages of development and testing, the exoskeleton has the potential to make walking easier for people recovering from an injury or stroke or those dealing with normal aging issues. Another NINR-supported study found a significant drop in readmissions at a three-hospital academic health system after implementing a decision support tool using electronic health records to enhance identification of patients in need of post-acute care. Other NINR-supported researchers are refining and enhancing a minimally intrusive, blink-based communication system that uses infrared cameras and illuminators to help severely impaired individuals with ALS in bed communicate basic requests to caregivers. These are just a few examples of NINR-supported investigators using technology to enhance health and functioning and improve quality of life in novel and practical ways. NINR will continue to support efforts to advance new technologies which can oftentimes be life-changing for the most vulnerable individuals facing complex and difficult to treat conditions.

Budget Policy:

The FY 2017 President’s Budget request for this program is \$7.273 million, a decrease of \$9 thousand or 0.12 percent compared to the FY 2016 Enacted level. In FY 2017, NINR plans to continue supporting research on the use and development of novel technologies that address current and future clinical care and patient management needs, and their incorporation into standard practice. This level of funding will allow NINR to cover current commitments and fund additional awards in this emerging area of research as part of a balanced portfolio.

Investing in Nurse Scientists: Research training and career development to cultivate the next generation of nurse scientists has been a fundamental goal of NINR since its establishment. NINR promotes the development of nurse scientists, including trainees from underrepresented backgrounds, through a variety of training programs and mechanisms. NINR prepares nurse scientists at all career levels, particularly those at the early career stage who are so critical to sustaining the future of innovative research. NINR’s training opportunities include individual and institutional pre- and post-doctoral fellowships, as well as career development awards for junior and mid-career investigators. For example, the Ruth L. Kirschstein National Research Service Awards (NRSAs), along with career development (K) awards, help develop a highly trained, diverse pool of nurse scientists to address the Nation’s most pressing health challenges. NINR supports the NIH-wide K99/R00 Pathway to Independence program to foster promising postdoctoral nurse scientists through mentoring and independent support. NINR also sponsors a variety of research training opportunities through its Intramural Research Program. NINR’s Graduate Partnership Program, a fellowship program that partners NINR with schools of nursing

across the United States, coordinates training and funding for doctoral nursing students to enhance their basic research and methodology skills through training and mentoring in NIH labs. NINR's Summer Genetics Institute provides graduate students, faculty, and clinicians a foundation in molecular genetics for use in research and clinical practice, and offers a formal program of classroom and laboratory study on the NIH campus. The Symptom Research Methodologies Boot Camp, a one-week research training course, provides a foundation in the latest research methodologies, such as Big Data, and features lectures by distinguished guest speakers, classroom discussion, and hands-on training. In addition, an on-line series of video modules are available on NINR's website which were developed to provide an introduction to the NIH grant application process for students and early career scientists, as well as tools and techniques for writing successful grant applications. Through these intensive training opportunities, NINR seeks to support continued advancements in science and improvements in health, as well as help develop a scientific workforce that is innovative, diverse, and ready for the future.

Budget Policy:

The FY 2017 President's Budget request for this program is \$14.520 million, a decrease of \$17 thousand or 0.12 percent compared to the FY 2016 Enacted level. This proposed level of funding will allow NINR to cover its current commitments as well as allow new training grants to be awarded in FY 2017. In FY 2017, NINR plans to continue its commitment to developing the next generation of investigators and enhance overall research capacity in strategically important areas of research as part of a balanced program portfolio. These efforts will continue to include awards to encourage earlier entry into research careers and to expand the interdisciplinary backgrounds of new investigators.

Intramural Research Program: NINR's Division of Intramural Research (NINR-DIR) conducts basic and clinical research on the interactions among molecular mechanisms underlying symptoms and environmental influences on individual health outcomes. The program focuses on the biological and behavioral underpinnings of symptoms of chronic conditions, including digestive disorders, cancer-related fatigue, neuromuscular disorders, traumatic brain injury (TBI), and post-traumatic stress disorders, as well as clinical interventions to alleviate symptoms. In one recent project investigating TBI in military personnel who had been deployed for combat, NINR-DIR researchers uncovered new findings about tau, a protein in the brain believed to be associated with Parkinson's and Alzheimer's disease. Findings from the study revealed that tau protein accumulations in the brain, which had been previously linked to acute symptoms immediately following TBI, may also be responsible for long-term complications that can result from TBI. Another recent study found that changes in vasoactive intestinal peptide, which has been identified as a potential drug target for several chronic inflammatory diseases, may play a role in symptoms associated with irritable bowel syndrome. Such findings contribute to a better understanding of symptoms of complex conditions, may lead to new treatment approaches, and may ultimately improve quality of life.

Budget Policy:

The FY 2017 President's Budget request for this program is \$8.727 million, an increase of \$37 thousand or 0.42 percent compared to the FY 2016 Enacted level. In FY 2017, this program will build on the recent accomplishments of the IRP, continuing to support innovative research to

address the scientific challenges of understanding and managing adverse symptoms-or clusters of symptoms, along with environmental influences on individual health outcomes. This program will also continue to support important training and career development opportunities for innovative investigators. The requested level accommodates mandatory payroll cost increases attributable to anticipated annual salary raises and higher health insurance premiums.

Research Management and Support (RMS): RMS activities provide administrative, budgetary, logistical, and scientific support in reviewing, awarding, and monitoring research grants, training awards, and research and development contracts. The functions of RMS also encompass strategic planning, coordination, and evaluation of the Institute's programs, as well as communication and coordination with other Federal agencies, Congress, and the public.

Budget Policy:

The FY 2016 President's Budget request for this program is \$15.337 million, an increase of \$110 thousand or 0.72 percent compared to the FY 2016 Enacted level. The requested level accommodates mandatory payroll cost increases attributable to anticipated annual salary raises and higher health insurance premiums. In FY 2017, NINR plans to continue addressing the challenges and opportunities that exist in strategically managing a research portfolio of more than 300 grants and contracts that address areas of science critical to public health.

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2016 Enacted	FY 2017 President's Budget²	FY 2017 +/- FY 2016
Total compensable workyears:			
Full-time employment	93	93	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$0	\$0	\$0
Average GM/GS grade	12.4	12.4	0.0
Average GM/GS salary	\$102	\$104	\$2
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$141	\$143	\$2
Average salary of ungraded positions	\$65	\$66	\$1
OBJECT CLASSES	FY 2016 Enacted	FY 2017 President's Budget²	FY 2017 +/- FY 2016
Personnel Compensation			
11.1 Full-Time Permanent	\$7,839	\$7,899	\$60
11.3 Other Than Full-Time Permanent	1,960	1,975	15
11.5 Other Personnel Compensation	166	167	1
11.7 Military Personnel	151	152	1
11.8 Special Personnel Services Payments	438	441	3
11.9 Subtotal Personnel Compensation	\$10,554	\$10,634	\$80
12.1 Civilian Personnel Benefits	\$3,208	\$3,271	\$64
12.2 Military Personnel Benefits	90	91	1
13.0 Benefits to Former Personnel	0	0	0
Subtotal Pay Costs	\$13,851	\$13,996	\$145
21.0 Travel & Transportation of Persons	\$156	\$158	\$3
22.0 Transportation of Things	11	11	0
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	2	2	0
23.3 Communications, Utilities & Misc. Charges	155	158	3
24.0 Printing & Reproduction	1	1	0
25.1 Consulting Services	\$93	\$95	\$2
25.2 Other Services	1,496	1,234	-262
25.3 Purchase of goods and services from government accounts	12,283	13,314	1,032
25.4 Operation & Maintenance of Facilities	\$34	\$35	\$1
25.5 R&D Contracts	125	127	2
25.6 Medical Care	10	10	0
25.7 Operation & Maintenance of Equipment	132	134	2
25.8 Subsistence & Support of Persons	0	0	0
25.0 Subtotal Other Contractual Services	\$14,173	\$14,950	\$777
26.0 Supplies & Materials	\$679	\$691	\$12
31.0 Equipment	505	514	9
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	116,379	115,431	-949
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	0	0	0
44.0 Refunds	0	0	0
Subtotal Non-Pay Costs	\$132,061	\$131,916	-\$145
Total Budget Authority by Object Class	\$145,912	\$145,912	\$0

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.

² Includes mandatory financing.

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Salaries and Expenses
(Dollars in Thousands)

OBJECT CLASSES	FY 2016 Enacted	FY 2017 President's Budget	FY 2017 +/- FY 2016
Personnel Compensation			
Full-Time Permanent (11.1)	\$7,839	\$7,899	\$60
Other Than Full-Time Permanent (11.3)	1,960	1,975	15
Other Personnel Compensation (11.5)	166	167	1
Military Personnel (11.7)	151	152	1
Special Personnel Services Payments (11.8)	438	441	3
Subtotal Personnel Compensation (11.9)	\$10,554	\$10,634	\$80
Civilian Personnel Benefits (12.1)	\$3,208	\$3,271	\$64
Military Personnel Benefits (12.2)	90	91	1
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	\$13,851	\$13,996	\$145
Travel & Transportation of Persons (21.0)	\$156	\$158	\$3
Transportation of Things (22.0)	11	11	0
Rental Payments to Others (23.2)	2	2	0
Communications, Utilities & Misc. Charges (23.3)	155	158	3
Printing & Reproduction (24.0)	1	1	0
Other Contractual Services:			
Consultant Services (25.1)	93	95	2
Other Services (25.2)	1,496	1,234	-262
Purchases from government accounts (25.3)	8,210	8,475	265
Operation & Maintenance of Facilities (25.4)	34	35	1
Operation & Maintenance of Equipment (25.7)	132	134	2
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	\$9,965	\$9,973	\$8
Supplies & Materials (26.0)	\$679	\$691	\$12
Subtotal Non-Pay Costs	\$10,969	\$10,994	\$26
Total Administrative Costs	\$24,820	\$24,990	\$170

**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

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 Extramural Science Programs									
Direct:	30	-	30	31	-	31	31	-	31
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	30	-	30	31	-	31	31	-	31
Division of Intramural Research									
Direct:	20	2	22	20	2	22	20	2	22
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	20	2	22	20	2	22	20	2	22
Division of Management Services									
Direct:	19	-	19	19	-	19	19	-	19
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	19	-	19	19	-	19	19	-	19
Division of Science Policy and Public Liaison									
Direct:	15	-	15	15	-	15	15	-	15
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	15	-	15	15	-	15	15	-	15
Office of the Director									
Direct:	6	-	6	6	-	6	6	-	6
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	6	-	6	6	-	6	6	-	6
Total	90	2	92	91	2	93	91	2	93
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
FISCAL YEAR	Average GS Grade								
2013	12.2								
2014	12.2								
2015	12.4								
2016	12.4								
2017	12.4								

**NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research**

Detail of Positions¹

GRADE	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	0	0	0
GM/GS-15	10	10	10
GM/GS-14	22	23	23
GM/GS-13	21	21	21
GS-12	10	10	10
GS-11	10	10	10
GS-10	0	0	0
GS-9	4	4	4
GS-8	1	1	1
GS-7	5	5	5
GS-6	0	0	0
GS-5	1	1	1
GS-4	0	0	0
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	84	85	85
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	0	0	0
Senior Grade	1	1	1
Full Grade	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	2	2	2
Ungraded	26	26	26
Total permanent positions	86	87	87
Total positions, end of year	112	113	113
Total full-time equivalent (FTE) employment, end of year	92	93	93
Average ES salary	0	0	0
Average GM/GS grade	12.4	12.4	12.4
Average GM/GS salary	102,397	102,422	103,989

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.