

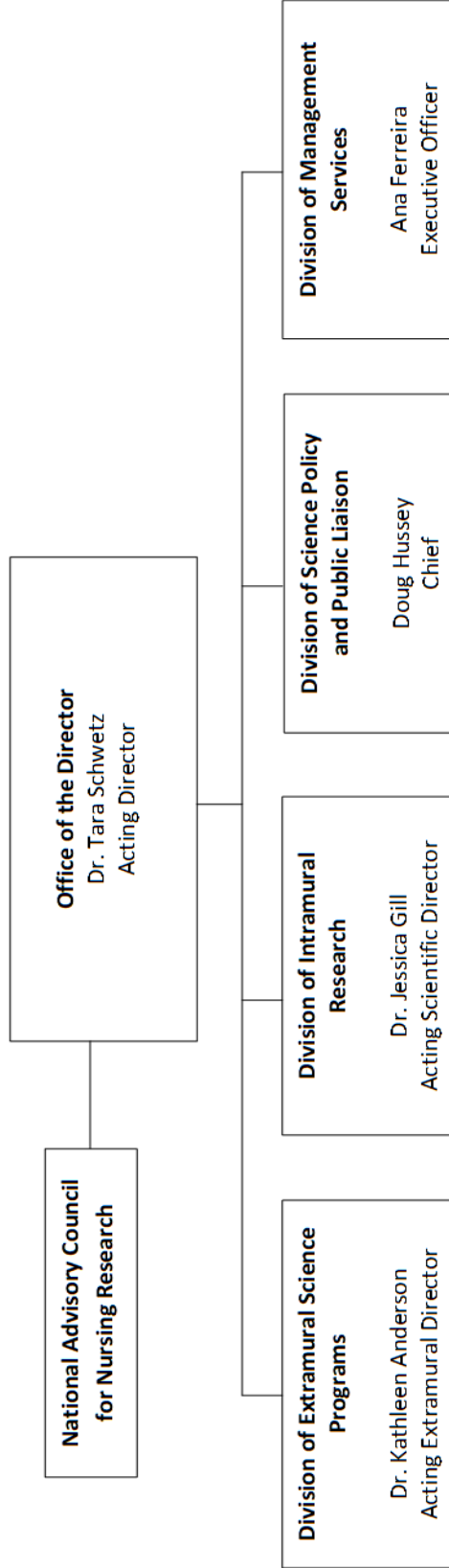
DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute of Nursing Research (NINR)

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



NATIONAL INSTITUTE OF NURSING RESEARCH

For carrying out section 301 and title IV of the PHS Act with respect to nursing research,

[\$169,113,000]*\$156,804,000.*

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

**Amounts Available for Obligation<sup>1</sup>**

(Dollars in Thousands)

Source of Funding	FY 2019 Final	FY 2020 Enacted	FY 2021 President's Budget
Appropriation	\$162,992	\$169,113	\$156,804
Mandatory Appropriation: (non-add)			
<i>Type 1 Diabetes</i>	(0)	(0)	(0)
<i>Other Mandatory financing</i>	(0)	(0)	(0)
Rescission	0	0	0
Sequestration	0	0	0
Secretary's Transfer	-560	0	0
Subtotal, adjusted appropriation	\$162,432	\$169,113	\$156,804
OAR HIV/AIDS Transfers	737	3,250	0
HEAL Transfer from NINDS	0	0	0
Subtotal, adjusted budget authority	\$163,169	\$172,363	\$156,804
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	\$163,169	\$172,363	\$156,804
Unobligated balance lapsing	-4	0	0
Total obligations	\$163,165	\$172,363	\$156,804

<sup>1</sup> Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:

FY 2019 - \$1,774    FY 2020 - \$1,874    FY 2021 - \$1,605

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

**Budget Mechanism - Total<sup>1</sup>**

(Dollars in Thousands)

MECHANISM	FY 2019 Final		FY 2020 Enacted		FY 2021 President's Budget		FY 2021 +/- FY 2020 Enacted	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
<u>Research Projects:</u>								
Noncompeting	165	\$79,153	184	\$83,792	164	\$72,804	-20	-\$10,987
Administrative Supplements	(5)	459	(3)	256	(4)	352	(1)	96
<u>Competing:</u>								
Renewal	2	1,177	2	1,158	2	1,000	0	-158
New	53	24,028	55	24,964	56	23,719	1	-1,245
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	55	\$25,205	57	\$26,121	58	\$24,719	1	-\$1,402
Subtotal, RPGs	220	\$104,817	241	\$110,169	222	\$97,875	-19	-\$12,294
SBIR/STTR	11	4,660	15	6,395	14	5,818	-1	-577
Research Project Grants	231	\$109,477	256	\$116,564	236	\$103,693	-20	-\$12,871
<u>Research Centers:</u>								
Specialized/Comprehensive	11	\$5,760	11	\$5,885	10	\$5,355	-1	-\$530
Clinical Research	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0
Comparative Medicine	0	0	0	0	0	0	0	0
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Research Centers	11	\$5,760	11	\$5,885	10	\$5,355	-1	-\$530
<u>Other Research:</u>								
Research Careers	33	\$4,024	34	\$4,171	31	\$3,795	-3	-\$375
Cancer Education	0	0	0	0	0	0	0	0
Cooperative Clinical Research	0	0	0	0	0	0	0	0
Biomedical Research Support	0	0	0	0	0	0	0	0
Minority Biomedical Research Support	0	0	0	0	0	0	0	0
Other	1	2,205	1	2,205	1	2,007	0	-198
Other Research	34	\$6,229	35	\$6,376	32	\$5,802	-3	-\$574
Total Research Grants	276	\$121,466	302	\$128,825	278	\$114,850	-24	-\$13,975
<u>Ruth L Kirchstein Training Awards:</u>								
	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	42	\$1,602	42	\$1,660	39	\$1,544	-3	-\$116
Institutional Awards	106	5,671	106	5,878	99	5,466	-7	-411
Total Research Training	148	\$7,273	148	\$7,538	138	\$7,010	-10	-\$528
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)</i>	0 <i>(0)</i>	\$4,909 <i>(50)</i>	0 <i>(0)</i>	\$5,288 <i>(69)</i>	0 <i>(0)</i>	\$5,392 <i>(63)</i>	0 <i>(0)</i>	\$105 <i>(-6)</i>
Intramural Research	29	13,485	31	14,003	31	13,319	0	-683
Res. Management & Support <i>Res. Management &amp; Support (SBIR Admin) (non-add)</i>	60 <i>(0)</i>	16,036 <i>(0)</i>	65 <i>(0)</i>	16,710 <i>(0)</i>	65 <i>(0)</i>	16,232 <i>(0)</i>	0 <i>(0)</i>	-478 <i>(0)</i>
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NINR	89	\$163,169	96	\$172,363	96	\$156,804	0	-\$15,559

<sup>1</sup> All items in italics and brackets are non-add entries.

## Major Changes in the Fiscal Year 2021 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 2021 budget request for NINR, which is \$156.8 million, a decrease of \$15.6 million from the FY 2020 Enacted level. The FY 2021 President's Budget reflects the Administration's fiscal policy goals for the Federal Government. Within that framework, NINR will pursue its highest research priorities through strategic investment and careful stewardship of appropriated funds.

### Research Project Grants (RPGs) (-\$12.9 million; total \$103.7 million):

Non-competing RPGs will decrease by 20 grants for a decrease of \$11.0 million, for a total of \$72.8 million in FY 2021, due to a large cohort of grants completing their performance period.

### Research Centers (-\$0.5 million; total \$5.4 million):

The Centers mechanism will decrease by one grant for a decrease of \$529,700, or 9.0 percent.

### Other Research (-\$0.6 million; total \$5.8 million):

The Careers mechanism will decrease by three grants for a decrease of \$375,300, or 9.0 percent.

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

**Summary of Changes**

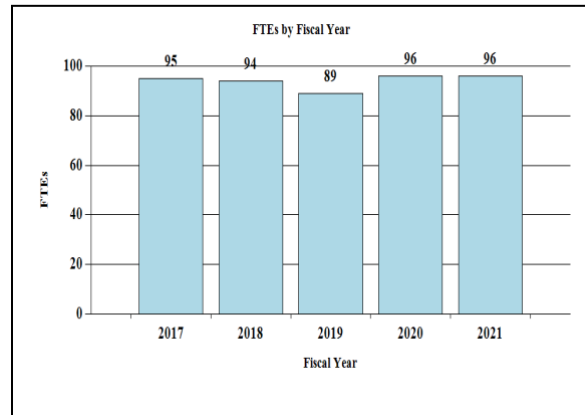
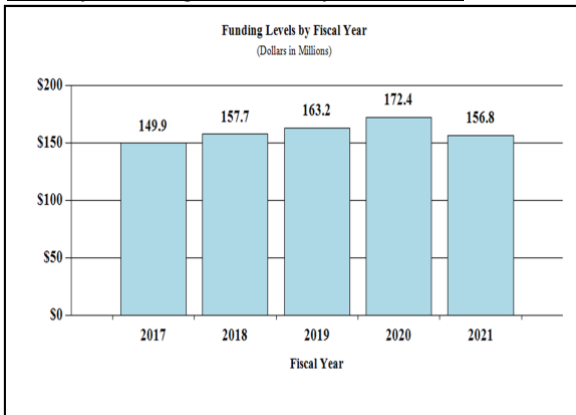
(Dollars in Thousands)

<b>FY 2020 Enacted</b>	\$172,363			
<b>FY 2021 President's Budget</b>	\$156,804			
<b>Net change</b>	<b>-\$15,559</b>			
CHANGES	FY 2021 President's Budget		Change from FY 2020 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority
<b>A. Built-in:</b>				
<b>1. Intramural Research:</b>				
a. Annualization of January 2020 pay increase & benefits		\$5,688		\$37
b. January FY 2021 pay increase & benefits		5,688		88
c. Paid days adjustment		5,688		-21
d. Differences attributable to change in FTE		5,688		0
e. Payment for centrally furnished services		1,958		-194
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		5,674		6
Subtotal				-\$85
<b>2. Research Management and Support:</b>				
a. Annualization of January 2020 pay increase & benefits		\$10,502		\$67
b. January FY 2021 pay increase & benefits		10,502		163
c. Paid days adjustment		10,502		-39
d. Differences attributable to change in FTE		10,502		0
e. Payment for centrally furnished services		1,763		-175
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		3,966		-17
Subtotal				-\$2
Subtotal, Built-in				-\$86

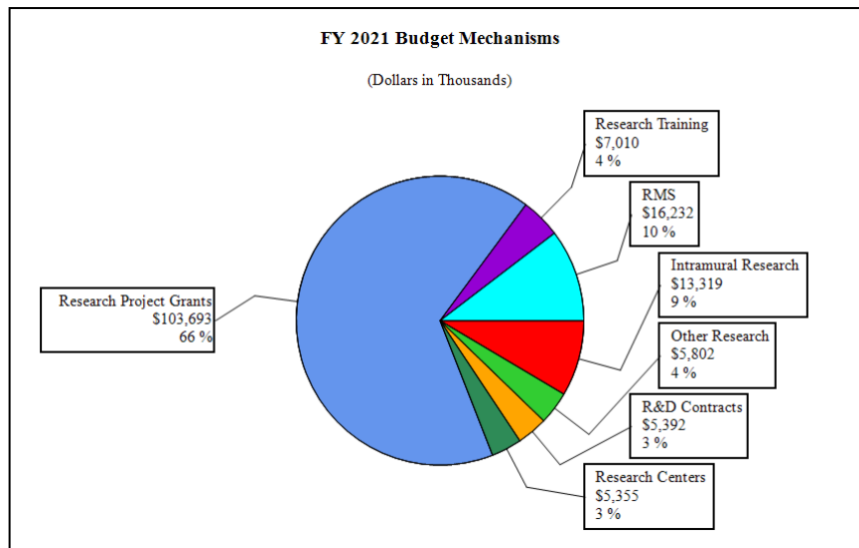
CHANGES	FY 2021 President's Budget		Change from FY 2020 Enacted	
	No.	Amount	No.	Amount
<b>B. Program:</b>				
<b>1. Research Project Grants:</b>				
a. Noncompeting	164	\$73,156	-20	-\$10,892
b. Competing	58	24,719	1	-1,402
c. SBIR/STTR	14	5,818	-1	-577
Subtotal, RPGs	236	\$103,693	-20	-\$12,871
2. Research Centers	10	\$5,355	-1	-\$530
3. Other Research	32	5,802	-3	-574
4. Research Training	138	7,010	-10	-528
5. Research and development contracts	0	5,392	0	105
Subtotal, Extramural		\$127,253		-\$14,397
6. Intramural Research	<u>FTEs</u> 31	\$13,319	<u>FTEs</u> 0	-\$599
7. Research Management and Support	65	16,232	0	-477
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	96	\$156,804	0	-\$15,473
Total changes				-\$15,559

## Fiscal Year 2021 Budget Graphs

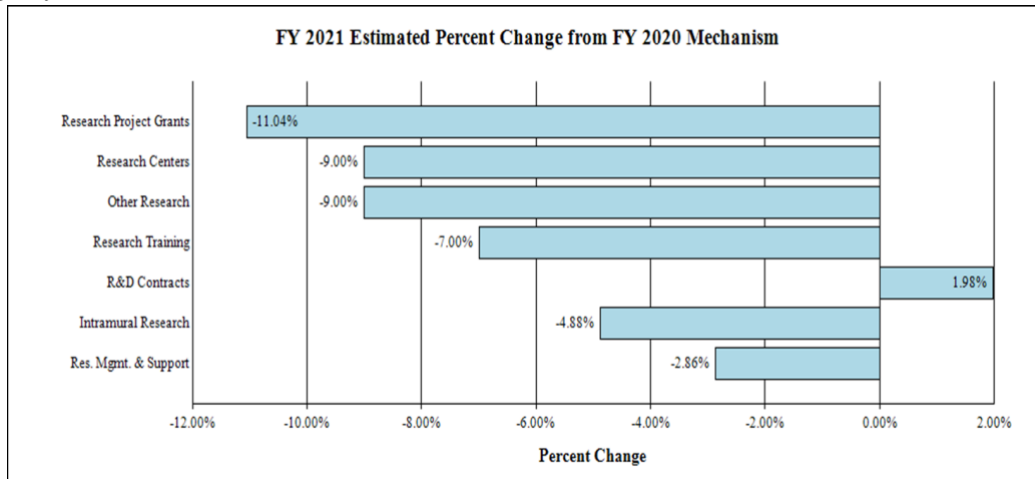
### History of Budget Authority and FTEs:



### Distribution by Mechanism:



### Change by Selected Mechanism:





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

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

	FY 2019 Final		FY 2020 Enacted		FY 2021 President's Budget		FY 2021 +/- FY2020	
	<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>Extramural Research</b>								
<u>Detail</u>								
Symptom Science		\$28,520		\$30,228		\$27,155		-\$3,072
Self-Management		21,108		22,372		20,098		-2,274
Wellness		40,399		42,818		38,466		-4,352
21st Century Nurse Scientists		16,728		17,729		15,927		-1,802
Promoting Innovation		9,851		10,441		9,380		-1,061
End-of-Life and Palliative Care		17,042		18,063		16,227		-1,836
<b>Subtotal, Extramural</b>		<b>\$133,648</b>		<b>\$141,650</b>		<b>\$127,253</b>		<b>-\$14,397</b>
<b>Intramural Research</b>	<b>29</b>	<b>\$13,485</b>	<b>31</b>	<b>\$14,003</b>	<b>31</b>	<b>\$13,319</b>	<b>0</b>	<b>-\$683</b>
<b>Research Management &amp; Support</b>	<b>60</b>	<b>\$16,036</b>	<b>65</b>	<b>\$16,710</b>	<b>65</b>	<b>\$16,232</b>	<b>0</b>	<b>-\$478</b>
<b>TOTAL</b>	<b>89</b>	<b>\$163,169</b>	<b>96</b>	<b>\$172,363</b>	<b>96</b>	<b>\$156,804</b>	<b>0</b>	<b>-\$15,559</b>

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

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

**Authorizing Legislation**

	<b>PHS Act/ Other Citation</b>	<b>U.S. Code Citation</b>	<b>2020 Amount Authorized</b>	<b>FY 2020 Enacted</b>	<b>2021 Amount Authorized</b>	<b>FY 2021 President's Budget</b>
Research and Investigation	Section 301	42§241	Indefinite	\$172,363,000	Indefinite	\$156,804,000
National Institute of Nursing Research	Section 401(a)	42§281	Indefinite		Indefinite	
<b>Total Budget Authority</b>				<b>\$172,363,000</b>		<b>\$156,804,000</b>

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

**Appropriations History**

<b>Fiscal Year</b>	<b>Budget Estimate to Congress</b>	<b>House Allowance</b>	<b>Senate Allowance</b>	<b>Appropriation</b>
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 <sup>1</sup>	\$145,912,000	\$150,008,000	\$151,965,000	\$150,273,000
Rescission				\$0
2018	\$113,688,000	\$152,599,000	\$155,210,000	\$158,033,000
Rescission				\$0
2019	\$145,842,000	\$159,920,000	\$163,076,000	\$162,992,000
Rescission				\$0
2020	\$140,301,000	\$170,958,000	\$172,417,000	\$169,113,000
Rescission				\$0
2021	\$156,804,000			

<sup>1</sup> Budget Estimate to Congress 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 2019 Final	FY 2020 Enacted	FY 2021 President's Budget	FY 2021 +/- FY 2020
BA	\$163,169,000	\$172,363,000	\$156,804,000	-\$15,559,000
FTE	89	96	96	0

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

### **Director's Overview**

From caring for premature infants in neonatal intensive care units, to reversing the increasing rates of obesity in diverse communities, to helping caregivers provide essential care to older adults with dementia, the National Institute of Nursing Research (NINR) supports research to address some of the most pressing health and healthcare challenges facing Americans. NINR's mission is to improve the health of individuals, families, and communities. To accomplish this mission, NINR supports research focused on improving quality of life for people of all ages and across illnesses and conditions. NINR also sets the stage for tomorrow's discoveries by training the next generation of nurse scientists. For over 30 years, NINR has promoted research that encompasses nurses' unique knowledge of the daily lives and needs of people and families, while using cutting-edge research tools, methods, and technologies to advance science and to help identify solutions to the health problems people deal with every day.

To advance this research vision, NINR's current priorities for research and training include:

- Identifying the underlying biological and behavioral mechanisms of symptoms, such as fatigue, pain, and sleep disturbance, and promoting personalized health strategies;
- Enhancing wellness through health promotion and illness prevention in diverse populations, and across health conditions, settings, and the life span;
- Improving quality of life by identifying effective self-management strategies for chronic conditions and engaging individuals, caregivers, and families as active participants in their own health;
- Helping individuals, families, and health care providers manage the symptoms of serious illness through advancements in end-of-life and palliative care science;
- Using smart technologies and digital health strategies to improve health and deliver personalized care, particularly for hard to reach areas such as rural communities; and
- Promoting the development of an innovative, multidisciplinary, and diverse nursing science workforce to address 21<sup>st</sup> Century health and health care challenges.

To put the current achievements and future goals of NINR-supported science in perspective, it is informative to look back and explore how NINR and nursing science have evolved over time. Twenty years ago, nursing science was a relative newcomer at NIH, with NINR having been an NIH Institute for less than ten years. NINR was just about to hold its first Summer Genetics Institute, an annual training program for faculty, graduate students, and advanced practice nurses that continues today. Nursing science was making steady progress in addressing some of the major health issues affecting the Nation, and investigators were primarily focused on clinical care and self-report indicators. Over time, while the field maintained a strong emphasis on clinical care, nursing science began to expand its focus to include genetics and other biological mechanisms underlying symptoms, social/behavioral determinants of health, and increasing recognition of the unique health needs of caregivers as they provide essential care for loved ones. As it has grown and adapted, nursing science has contributed to significant advances in science and health over the past two decades leading to the current advances we see today.

For instance, 20 years ago, there was still a lot to learn about premature infants, including how best to care for them, the causes of premature birth, and how to prevent it. Nurse scientists have led the way in advancing the science on pre-term birth and low birth weight infants. NINR-supported investigators have moved beyond research methods relying on demographics and self-reporting that initially helped to uncover some of the causes of premature birth and how to optimize developmental outcomes for premature infants. More recent research seeks to discover new biological indicators, such as changes in the microbiome that could signal increased risk for premature birth, while expanding knowledge of the health benefits of human breast milk. For example, NINR-supported researchers examined good and bad bacteria in the microbiome of pregnant women that may affect the risk of pre-term birth. Seven bacteria were found to increase the risk of preterm birth, while higher levels of an antimicrobial produced by the immune system were found to lower the risk of preterm birth, both with a greater effect in African American women.<sup>1</sup> In another example, an observational study of very low birth weight infants and the impact of consumption of human milk found that every additional 10mL/kg/day consumed in the first 14 days of life was associated with fewer hospitalizations in the first year of life and fewer specialized pediatric therapies used at 2 years of life.<sup>2</sup>

Twenty years ago, obesity was a budding epidemic. Scientists and clinicians were becoming alarmed by high and increasing rates of overweight and obesity across the country. While obesity continues to be a major area of concern, more recently there have been significant advances in research on obesity and weight loss. NINR-supported researchers have examined genetic factors that may contribute to obesity, that could lead to more personalized treatments, and have tested whether a combination of therapies, rather than just one, may lead to better results. For instance, individuals who receive cardiac rehabilitation after cardiac surgery rarely lose the weight needed to prevent future cardiovascular events. NINR-supported researchers added a telehealth weight management intervention to cardiac rehabilitation for overweight and obese rural patients. Those receiving the weight management intervention had more weight loss, higher knowledge, skill, and confidence they could manage their chronic condition, and better

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<sup>1</sup> Elovitz MA, Gajer P, Riis V, Brown AG, Humphrys MS, Holm JB, Ravel J. Cervicovaginal microbiota and local immune response modulate the risk of spontaneous preterm delivery. *Nat Commun.* 2019 Mar 21;10(1):1305. [PMID: 30899005](#)

<sup>2</sup> Johnson TJ, Patra K, Greene MM, Hamilton M, Dabrowski E, Meier PP, Patel AL. NICU human milk dose and health care use after NICU discharge in very low birth weight infants. *J Perinatol.* 39(1), 120-128. Jan 2019. Epub 2018 Oct 19. [PMID:30341399](#)

diet and exercise self-management compared to a control group.<sup>3</sup> In another example, NINR scientists examined genetic mechanisms of overweight and obesity in a sample of healthy normal and overweight individuals. They found seven genes associated with body mass index (BMI) and revealed a variety of systematic gene patterns associated with BMI. This is the first study of its kind to identify high-order gene interactions in overweight and obese individuals and has the potential to eventually inform more personalized treatments.<sup>4</sup>

The past 20 years have also seen an increased need and urgency to address the health of caregivers, and there have been great strides in research over that period. In the past, scientists and healthcare professionals were just starting to understand and address the needs of not only people with dementia, but also of their caregivers. As family caregivers increasingly take on the often-difficult role of providing care for their loved ones with dementia, there is a deeper realization of the potential for stress and caregiver burden and the need to develop interventions to support caregivers in taking care of their own health. For example, a study of a positive emotion regulation intervention showed increased positive emotion, decreased depressive symptoms/anxiety, and improved physical health for caregivers of people with dementia. This remotely delivered intervention shows promise for improving well-being of caregivers of people with dementia and other chronic conditions.<sup>5</sup> Since caregivers of people with dementia are increasingly placed in a position to make decisions on their behalf, it is important that caregivers understand their loved-one's wishes and preferences for care. A study co-funded by NINR and other agencies examined the extent to which the importance of care values of people with dementia (e.g., maintaining autonomy, not wanting to be a burden) were understood by their family caregivers. One quarter of caregivers underestimated the importance of care values of people living with dementia, while the remainder had a shared understanding. Findings suggest the need for interventions to improve care planning for the higher risk group to ensure that the wishes of individuals with dementia are identified and respected.<sup>6</sup>

A clear view of the dramatic strides nursing science has made in the past 20 years provides context to look ahead to the advances and innovations of the future. Nurse scientists will continue leading the way in precision health and omics - the science associated with measuring biological molecules with high-throughput methods - and contributing to advances in personalized approaches to health care. They will continue to make new discoveries in the role of the microbiome in various aspects of health, particularly in the area of prenatal and maternal health. Nurse scientists can play a key role in focusing more attention on prenatal health care and efforts to reduce the recent increases in maternal mortality rates. The use of digital health and smart technologies will continue to grow as nurse scientists develop and test new interventions to enhance health and improve care. This area of research will be particularly relevant for providing care to people in rural and hard-to-reach communities, as patients, caregivers, and health care providers increasingly rely on virtual "home visits." With an

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<sup>3</sup> Barnason S, Zimmerman L, Schulz P, Pullen C, Schuelke S. Weight management telehealth intervention for overweight and obese rural cardiac rehabilitation participants: A randomized trial. *J Clin Nurs*. 2019 Jan 22. [Epub ahead of print] [PMID: 30667588](#)

<sup>4</sup> Joseph PV, Jaime-Lara RB, Wang Y, Xiang L, Henderson WA. Comprehensive and systematic analysis of gene expression patterns associated with body mass index. *Sci Rep*. 2019 May 15;9(1):7447. [PMID: 31092860](#)

<sup>5</sup> Moskowitz JT, Cheung EO, Snowberg KE, Verstaen A, Merrilees J, Salsman JM, Dowling GA. Randomized controlled trial of a facilitated online positive emotion regulation intervention for dementia caregivers. *Health Psychol*. 2019 May;38(5):391-402. [PMID: 31045422](#)

<sup>6</sup> Miller LM, Whitlatch CJ, Lee CS, Caserta MS. Care values in dementia: Patterns of perception and incongruence among family care dyads. *Gerontologist*. 2019 May 17;59(3):509-518. [PMID: 29546327](#)

increasing awareness of the benefits of palliative care to health and quality of life of people with serious illness and their families, nurse scientists will continue to focus on interventions to improve and increase the use of palliative care at all stages of illness, across the life span, and across health care settings including hospital, community, and home. Greater focus will be placed on discovering novel ways to support caregivers using emerging technologies and interventions to support their physical, psychological, and emotional health. In all of these areas, including the research examples discussed above, nursing science produces results that have implications for clinical care and may ultimately guide the care provided by nurses and other health care professionals in the clinic, community, and home.

Over the past five years, NINR has supported more early stage investigators in research, invested in more training opportunities, and supported additional grants in high-priority areas. NINR anticipates that these efforts will help to secure a bright future for nursing science, leading to scientific advances that will contribute to improvements in health and quality of life across the life span and across the Nation.

#### Overall IC Budget Policy:

The FY 2021 President's Budget Request is \$156.8 million, a decrease of \$15.6 million or 9.0 percent compared with the FY 2020 Enacted level. Investigator-initiated research projects, support for new investigators, research training, and career development continue to be the Institute's highest priorities. Overall in FY 2021, 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.

## **Program Descriptions and Accomplishments**

### **Symptom Science: Promoting Personalized Health Strategies**

Symptoms including fatigue, pain, and depressive symptoms can be a debilitating part of everyday life for people with acute and chronic conditions. Yet, we have much to learn about the complex causes of symptoms and the best ways to treat them. NINR supports research on the genetic, biological, behavioral, and lifestyle factors that underlie symptoms, and how these factors are intertwined. For example, NINR-supported researchers examined whether there is a relationship between the microbiome composition in women with irritable bowel syndrome (IBS) and frequently reported symptoms such as pain (e.g., headache, joint pain, and muscle pain). They found that lower overall microbial diversity was associated with increased pain and worse quality of life, while specific types of microbiota were associated with decreased pain and improved quality of life. The findings advance our understanding of the biological underpinnings of symptoms, such as pain, experienced by women with IBS.<sup>7</sup> Additional efforts are underway by NINR-supported researchers to develop and test interventions to treat symptoms and improve quality of life. For instance, NINR-supported researchers are examining

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<sup>7</sup> Hollister EB... Heitkemper MM. Relationships of microbiome markers with extraintestinal, psychological distress, and gastrointestinal symptoms, and quality of life in women with irritable bowel syndrome. *J Clin Gastroenterol*. 2018 Aug 24. (epub ahead of print). [PMID: 30148765](https://pubmed.ncbi.nlm.nih.gov/30148765/)

the efficacy of a brief, behavioral intervention to address pain, functioning, anxiety, and depressive symptoms in veterans at risk for chronic post-surgical pain following knee surgery. NINR is also leading an initiative to support research on the biobehavioral basis of chronic pain. This initiative seeks to uncover how biological, genetic, and omic (e.g., microbiome) aspects of pain may be intertwined with behavioral and emotional aspects, with the ultimate goal of identifying approaches to lessen reliance on pain medications, such as opioids. NINR will continue to support research to uncover the complex underlying causes of symptoms, to promote more personalized strategies to prevent and treat symptoms, and to improve quality of life.

#### **Budget Policy:**

The FY 2021 President's Budget request for this program is \$27.2 million, a decrease of \$3.1 million or 10.2 percent compared to the FY 2020 Enacted level. Symptom science will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all of NINR's focus areas. As part of a strategically balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

#### **Wellness: Promoting Health and Preventing Illness**

To advance wellness, NINR supports research on key biological, behavioral, and social factors that prevent disease and promote long-term health and healthy behaviors in diverse communities. For example, NINR-supported researchers are: developing an e-Health intervention to promote healthy weight gain in pregnant low-income women; testing the effectiveness of a tailored intervention to increase physical activity in Latina adolescents using digital health technologies, such as texting, smartphone apps, and wearables; and, examining gender differences in the types of disabilities experienced by older Hispanics, as well as barriers and facilitators to the use of assistive technologies that may improve their quality of life. In addition, NINR-supported researchers developed a novel, non-invasive method for measuring responses to stress in low birth weight infants in the neonatal intensive care unit (NICU). Using a skin patch that collects cortisol levels, but does not further contribute to their stress exposure through invasive methods (e.g., blood-based measures), this is the first study to demonstrate that skin cortisol can be used as a biomarker of chronic stress in preterm infants in the NICU.<sup>8</sup> NINR also leads an initiative to promote research on telomeres, which are like caps on the ends of chromosomes that get shorter as we age and may provide clues to health and illness. The initiative seeks to increase research examining modifiable environmental, behavioral, lifestyle, and psychosocial factors that may influence telomere length, as well as the role telomeres play in wellness and disease. Efforts such as these demonstrate the many ways that NINR-supported research has the potential to enhance wellness through disease prevention and health promotion in diverse groups and across the life span.

#### **Budget Policy:**

The FY 2021 President's Budget request for this program is \$38.5 million, a decrease of \$4.4 million or 10.2 percent compared to the FY 2020 Enacted level. Wellness will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all of NINR's focus areas. As part of a strategically

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<sup>8</sup> D'Agata AL, Roberts MB, Ashmeade T, Dutra SVO, Kane B, Groer MW. Novel method of measuring chronic stress for preterm infants: Skin cortisol. *Psychoneuroendocrinology*. 2019 Apr;102:204-211. [PMID: 30583244](https://pubmed.ncbi.nlm.nih.gov/30583244/)



balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

### **Self-Management: Improving Quality of Life for Individuals with Chronic Conditions**

People living with chronic illness, and their caregivers, often face the challenge of learning effective strategies to manage the symptoms of illness so they can function well in their daily lives. NINR-supported researchers are developing and testing interventions that use the latest digital health technologies to improve self-management of illness for individuals and caregivers, such as: a peer-coaching, mobile-health intervention to promote use of self-management strategies in adolescents and young adults with chronic conditions; a self-management intervention that uses in-person training and web-based video vignettes to teach personal and social resourcefulness skills to caregivers of children dependent on technology, such as mechanical ventilation; and an mHealth intervention for individuals with heart failure that uses tools for self-monitoring, patient education, adherence reminders, and text messages to improve self-care using real-time data. NINR-supported researchers also lead the way in developing effective self-management interventions to help patients manage treatment-related symptoms. For example, NINR-supported researchers found that individuals receiving chemotherapy treatment for cancer who participated in a web-based self-care intervention reported less reduction in physical functioning compared to those in the control group.<sup>9</sup> Finally, NINR leads an initiative to encourage research that examines the biological, psychological, and social factors associated with self-management of chronic pain. NINR will continue to support research to identify effective strategies that help individuals manage their chronic conditions and improve their quality of life.

#### **Budget Policy:**

The FY 2021 President's Budget request for this program is \$20.1 million, a decrease of \$2.3 million or 10.2 percent compared to the FY 2020 Enacted level. Self-Management will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all of NINR's focus areas. As part of a strategically balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

### **End-of-Life and Palliative Care: The Science of Compassion**

As the lead NIH Institute for end-of-life research, NINR supports research to understand the end-of-life and palliative care needs and preferences of individuals with advanced illness and their families. For example, NINR-supported researchers are: examining medical decision-making preferences and level of decision-making involvement of adolescents and young adults with advanced heart disease; testing a palliative care consultation intervention to improve care and quality of life for persons in skilled nursing facilities; and investigating whether there is an economic burden associated with receiving hospice care at home for individuals with serious illness and their families. NINR supports the Palliative Care Research Cooperative (PCRC) group, currently a network of over 550 interdisciplinary scientists in over 170 research sites across the U.S., to build the science of end-of-life and palliative care. Recent findings from research supported in the PCRC showed that about 9 percent of informal caregivers who lost a

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<sup>9</sup> Robert Knoerl, Edie Weller, Barbara Halpenny, Donna Berry. Exploring the efficacy of an electronic symptom assessment and self-care intervention to preserve physical function in individuals receiving neurotoxic chemotherapy. BMC Cancer. 2018; 18: 1203. Published online 2018 Dec 4. [PMID: 30514351](https://pubmed.ncbi.nlm.nih.gov/30514351/)

loved one in hospice experienced symptoms of depression, anxiety, or complicated grief. However, among caregivers who experienced such symptoms, interest in services offered through hospice such as counseling was low, suggesting a gap between services offered and interest level.<sup>10</sup> In an effort to provide high-quality, evidence-based information to individuals, families, and clinicians, NINR developed a new, comprehensive “What is Palliative Care?” resource on its website. NINR also continued to implement the Palliative Care: Conversations Matter® campaign by expanding its social media outreach and digital engagement to reach more families and providers, and by updating the campaign’s “Personal Story” video demonstrating how palliative care positively influenced the experience of serious illness for a child and family. NINR will continue its efforts to support research and initiatives to improve end-of-life and palliative care and to enhance the lives of individuals with serious illness and their families.

#### **Budget Policy:**

The FY 2021 President’s Budget request for this program is \$16.2 million, a decrease of \$1.8 million or 10.2 percent compared to the FY 2020 Enacted level. End-of-Life and Palliative Care will remain a high priority area of focus for NINR, as identified in the Institute’s strategic plan. NINR will continue high priority research efforts across all of NINR’s focus areas. As part of a strategically balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

#### **Program Portrait: Advances in End-of-life Advance Care Planning and Decision-making**

When dealing with serious illness, family members may be called upon to act as surrogate decision-makers for loved ones who can no longer make or communicate their end-of-life wishes. Sometimes, despite best intentions, circumstances, misunderstandings, or lack of advance planning between family members and loved ones can mean that a person’s wishes for end-of-life care are not known or not followed. As the lead NIH Institute for end-of-life research, NINR seeks to help address these issues by supporting research to improve advance care planning, communication of care preferences, and decision-making at the end of life.

Recent NINR-supported research on advance care planning and communication highlights areas in need of improvement, as well as areas of success. For instance, one study found that a family-centered advanced care planning intervention increased the odds of having an advance directive in medical records by seven times in African-American and non-African-American persons living with HIV.<sup>11</sup> In another study, researchers examined whether the advance care planning needs of adolescents living with HIV matched their family surrogate decision-makers’ perceptions of their needs. They found agreement between adolescents and family members in living free from pain and understanding treatment choices, but disagreement in life-sustaining choices and when to have the end-of-life conversation.<sup>12</sup>

NINR-supported investigators found that a comprehensive advance planning decision aid, compared to basic advance care planning, improved family members’ knowledge of patient wishes at the end of life. However,

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<sup>10</sup> Ghesquiere A, Bagaajav A, Metzendorf M, Bookbinder M, Gardner DS. Hospice bereavement service delivery to family members and friends with bereavement-related mental health symptoms. *Am J Hosp Palliat Care*. 2019 May;36(5):370-378. [PMID: 30428680](#)

<sup>11</sup> Lyon ME, Squires L, D’Angelo LJ, Benator D, Scott RK, Greenberg IH, Tanjutco P, Turner MM, Weixel TE, Cheng YI, Wang J. 2019. FAmily-CEntered (FACE) advance care planning among African-American and non-African-American adults living with HIV in Washington, DC: A randomized controlled trial to increase documentation and health equity. *J Pain Symptom Manage*. 2019 Mar;57(3):607-616. Epub 2018 Nov 23. [PMID: 30472318](#)

<sup>12</sup> Lyon ME, Dallas RH, Garvie PA, Wilkins ML, Garcia A, Cheng YI, Wang J; Adolescent Palliative Care Consortium. Paediatric advance care planning survey: a cross-sectional examination of congruence and discordance between adolescents with HIV/AIDS and their families. *BMJ Support Palliat Care*. 2019 Mar;9(1):e22. [PMID: 28935629](#)

increased knowledge was not related to increased confidence in being able to accomplish the tasks associated with surrogate decision-making and having family members and patients work together on advance planning versus alone did not increase agreement between the two on patient end-of-life wishes.<sup>13</sup>

These investigators also examined whether advance care planning is beneficial to seriously ill patients and family caregivers in terms of helping them to continue having conversations about end-of-life treatment wishes after initial planning. They found that initial advance care planning events did lead to later conversations about quality of life, general wishes, and specific medical wishes, but that general discomfort with the topic and having previously discussed medical wishes were barriers to continuing communication.<sup>14</sup>

Taken together, these findings show areas that may benefit from interventions to improve advance care planning and communication for people with serious illness and their family members. NINR will continue to support research to improve advance care planning, communication, and decision-making, as well as to enhance quality of life for families dealing with serious illness.

### **Promoting Innovation: Technology to Improve Health**

NINR supports research to foster the development of new technologies, diagnostics, and interventions that deliver tailored care and real-time health information to patients, families, and clinicians. These efforts include the use of: wearables, sensors, and virtual/augmented reality; omics data in health care; and interactive systems for using health data. For example, NINR-supported investigators are developing an augmented-reality-based clinical decision support system that enables patients with chronic disease to use a heart stethoscope at home to accurately measure their own heart sounds and send data back to their health care providers. This system would allow health care providers to monitor heart sound abnormalities of patients in real-time using camera-capture and audio recorded data and would assist health care providers in managing chronic diseases. In another example, NINR-supported researchers are developing and testing a smart sensor bandage to detect pressure ulcers before they even form, potentially allowing health care providers to monitor high risk patients and provide more timely interventions. Other NINR-supported researchers developed a wearable device that uses an active ultrasound applicator to treat chronic wounds and found preliminary evidence that it may reduce healing time. Patients being treated for diabetic ulcers using the wearable ultrasound applicator had an average time to wound closure of 4.7 weeks compared to 12 weeks for patients treated with a sham applicator.<sup>15</sup> In addition, NINR is leading an initiative to encourage the development of technological tools (e.g., remote communication and monitoring tools, wearables, in-home sensors) to support caregivers and to address their care needs and symptoms. From clinic to community to home, these are just a few examples of the ways that NINR-supported researchers are developing and applying the latest smart technologies and digital health strategies to improve health.

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<sup>13</sup> Green MJ, Van Scoy LJ, Foy AJ, Stewart RR, Sampath R, Schubart JR, Lehman EB, Dimmock AEF, Bucher AM, Lehmann LS, Harlow AF, Yang C, Levi BH. A randomized controlled trial of strategies to improve family members' preparedness for surrogate decision-making. *Am J Hosp Palliat Care*. 2018 Jun;35(6):866-874. [PMID: 29186982](#)

<sup>14</sup> Schubart JR, Reading JM, Penrod J, Stewart RR, Sampath R, Lehmann LS, Levi BH, Green MJ. Family caregivers' characterization of conversations following an ACP event. *Am J Hosp Palliat Care*. 2018 Sep;35(9):1161-1167. [PMID: 30071784](#)

<sup>15</sup> Ngo O, Niemann E, Gunasekaran V, Sankar P, Putterman M, Lafontant A, Nadkarni S, DiMaria-Ghalili RA, Neidrauer M, Zubkov L, Weingarten M, Margolis DJ, Lewin PA. Development of low frequency (20-100 kHz) clinically viable ultrasound applicator for chronic wound treatment. *IEEE Trans Ultrason Ferroelectr Freq Control*. 2019 Mar;66(3):572-580. [PMID: 29993739](#)

### Budget Policy:

The FY 2021 President's Budget request for this program is \$9.4 million, a decrease of \$1.1 million or 10.2 percent compared to the FY 2020 Enacted level. Promoting Innovation will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all of NINR's focus areas. As part of a strategically balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

### **21<sup>st</sup> Century Nurse Scientists: Innovative Strategies for Research Careers**

NINR maintains its long-standing commitment to support a diverse, innovative, and multidisciplinary workforce, and to equip the next generation of nurse scientists to address 21<sup>st</sup> Century health challenges. These efforts include awards to encourage earlier entry into research careers, expanding opportunities to support new scientists, and enhancing the abilities of mid-career investigators. To achieve these goals, NINR supports a range of training opportunities, career development grants, and research intensives. For instance, the Ruth L. Kirschstein National Research Service Awards (NRSAs), as well as career development (K) awards, support nurse scientists in conducting independent research to meet existing and impending health care challenges. NINR supports the NIH-wide Pathway to Independence program, providing both mentored and independent research support to foster promising postdoctoral nurse scientists. NINR's Graduate Partnerships Program, a doctoral fellowship training program, coordinates training and funding for PhD-level nursing students interested in pursuing careers in basic or clinical research. NINR's Summer Genetics Institute (SGI), a one-month intensive research training program at NIH for graduate students, faculty, and clinicians, provides participants with a foundation in molecular genetics to increase research capability and expand clinical practice in genetics. There are now over 400 SGI graduates making a difference in communities across the country; building programs of nursing research in genetics; disseminating the results of genetics-related research in peer-reviewed scientific publications and at scientific conferences; and integrating genetics content in nursing school curricula and practice. Finally, NINR's annual Methodologies Boot Camp is a research training course designed to increase the research capacity of graduate students, faculty, and clinicians. Recently, the Boot Camp focused on "Precision Health: Smart Technologies, Smart Health," and emphasized digital health data and technologies that enable "smart health" and improved patient outcomes, such as the use of wearables, sensors, and virtual reality, as well as the use of omics in health care. NINR will continue these efforts to support the next generation of nurse scientists to be prepared with cutting-edge tools to advance science and to address the critical health issues facing the Nation.

### Budget Policy:

The FY 2021 President's Budget request for this program is \$15.9 million, a decrease of \$1.8 million or 10.2 percent compared to the FY 2020 Enacted level. Innovative strategies for developing 21<sup>st</sup> Century Nurse Scientists will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all of NINR's focus areas. As part of a strategically balanced research portfolio, policies for research grants will be implemented in this program that are consistent with those applied to the other programs described in this justification.

## **Intramural Research Program**

NINR's Division of Intramural Research (DIR) conducts basic and clinical research on the interactions among molecular mechanisms underlying symptoms and environmental influences on individual health outcomes. DIR investigators focus on symptoms associated with conditions, such as cancer-related fatigue, traumatic brain injury, and post-traumatic stress disorders, as well as clinical interventions to alleviate these conditions. One recent study examined the interplay between fatigue, depressive symptoms, and ketamine (a treatment for fatigue) on patients with treatment-resistant Major Depressive Disorder. Findings revealed that while ketamine is an effective treatment for fatigue, rather than directly improving fatigue, its effects can be attributed to improvements in depressive symptoms, suggesting potential common biological networks may be shared by fatigue and depressive symptoms.<sup>16</sup> In addition to conducting research, DIR offers various training opportunities to develop the next generation of investigators in symptom science, such as the Summer Genetics Institute, Methodologies Bootcamp, and Graduate Partnerships Program. In FY 2019, NINR-DIR launched the NINR-led Symptom Science Center (SSC), a trans-NIH resource to promote the understanding of biologic and behavioral mechanisms of symptoms in order to improve patient outcomes. The SSC, which recently enrolled its first patient, addresses the need for a more comprehensive approach to understanding the complex mechanisms underlying symptoms, which can contribute to the development of precision health interventions. The SSC is a nexus for learning and collaboration across the NIH Intramural Research Program. The SSC not only significantly enhances the important symptom science work done at NINR, but it serves as an essential resource for the rest of the NIH Intramural Research Program. Through these various research and training efforts, DIR scientists are enhancing our understanding of the complex influences underlying symptoms, guiding the development of interventions to manage and treat symptoms, and ultimately improving quality of life.

### **Budget Policy:**

The FY 2021 President's Budget request for this program is \$13.3 million, a decrease of \$683,000 or 4.9 percent compared to the FY 2020 Enacted level. In FY 2021, this program will continue to build on recent accomplishments of the IRP, to support innovative research to address the scientific challenges of understanding and managing adverse symptoms or clusters of symptoms, as well as environmental influences on individual health outcomes. This program will also continue to support important training and career development opportunities for innovative investigators.

### **Program Portrait: TBI in Military Service Members, Veterans, ER Patients, and Athletes: Identifying Biomarkers and Improving Care**

Traumatic brain injury (TBI) and concussions are common injuries, and have a wide range of causes, such as combat injury, sports injury, and everyday accidents. However, little is known about their underlying mechanisms, or how best to treat and prevent such injuries. Scientists in NINR's Division of Intramural Research are investigating ways to identify head trauma patients who are at high risk for psychological and neurological symptoms and deficits, and to inform the interventions that will support their recovery. They are developing novel lines of research using blood-based techniques to identify biomarkers that may provide clues about TBI.

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<sup>16</sup> Saligan LN, Farmer C, Ballard ED, Kadriu B, Zarate CA Jr. Disentangling the association of depression on the anti-fatigue effects of ketamine. *J Affect Disord.* 2019 Feb 1;244:42-45. [PMID: 30312839](https://pubmed.ncbi.nlm.nih.gov/30312839/)

For instance, one promising line of research focuses on biomarkers and brain proteins, such as tau, which have been linked to Alzheimer’s disease and cognitive impairment, to see if they are related to recovery from mild TBI and concussion and may be linked to long-term symptoms. In one study, NINR scientists examined whether tau might provide clues regarding sports-related concussions in athletes. This group is at risk for long-term symptoms and deficits if they return to play too soon and then have a subsequent concussion. The study showed that higher levels of tau following a sports-related concussion were related to a prolonged period before the athlete could return to play. These findings suggest that tau levels may provide important evidence to inform decisions about how long athletes should wait to safely return to play.<sup>17</sup>

In another study, NINR scientists measured small amounts of another kind of brain protein called GFAP in the blood of emergency room patients diagnosed with mild TBI and in healthy patients. Their findings showed that the amount of GFAP was higher in patients with mild TBI compared to healthy patients, suggesting it may be a promising marker of brain injury to help understand TBI and to guide medical decision-making.<sup>18</sup>

Other conditions that sometimes co-occur with mild TBI, such as post-traumatic stress disorder (PTSD), might also help explain why some individuals with mild TBI take longer to recover than others. In a study of military service members and veterans, NINR scientists found that those with “both mild TBI and PTSD” had the highest concentrations of tau in peripheral blood, compared to those with “only mild TBI” or “injured controls without TBI or PTSD.” Further, they found that PTSD was a significant and independent predictor of tau concentrations, suggesting possible increased effects of PTSD after mild TBI.<sup>19</sup>

Taken together, these studies demonstrate that blood-based biomarkers may provide important clues about recovery from mild TBI and concussion across various groups, including military personnel and veterans, athletes, and people in the emergency room for everyday accidents. NINR scientists will continue to study these potential markers of TBI, which are easily measured in peripheral blood. This line of research can shed light on the underlying mechanisms involved in brain injury, different trajectories of recovery, and the best ways to prevent, treat, and manage potentially life-changing complications due to TBI.

## **Research Management and Support**

Research Management and Support (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 2021 President’s Budget request for this program is \$16.2 million, a decrease of \$478,000 or 2.9 percent compared to the FY 2020 Enacted level. In FY 2021, NINR plans to continue addressing the challenges and opportunities that exist in strategically managing a research portfolio of 278 grants and contracts that address areas of science critical to public health.

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<sup>17</sup> Gill J1, Merchant-Borna K2, Jeromin A2, Livingston W2, Bazarian J2. Acute plasma tau relates to prolonged return to play after concussion. *Neurology*. 2017 Feb 7;88(6):595-602. [PMID: 28062722](#)

<sup>18</sup> Gill J, Latour L, Diaz-Arrastia R, Motamedi V, Turtzo C, Shahim P, Mondello S, DeVoto C, Veras E, Hanlon D, Song L, Jeromin A. Glial fibrillary acidic protein elevations relate to neuroimaging abnormalities after mild TBI. *Neurology*. 2018 Oct 9;91(15):e1385-e1389. [PMID: 30209234](#)

<sup>19</sup> Pattinson CL, Gill JM, Lippa SM, Brickell TA, French LM, Lange RT. Concurrent mild traumatic brain injury and posttraumatic stress disorder is associated with elevated tau concentrations in peripheral blood plasma. *J Trauma Stress*. 2019 Aug;32(4):546-554. [PMID: 31291489](#)

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

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

(Dollars in Thousands)

	<b>FY 2020 Enacted</b>	<b>FY 2021 President's Budget</b>	<b>FY 2021 +/- FY 2020</b>
Total compensable workyears:			
Full-time equivalent	96	96	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$0	\$0	\$0
Average GM/GS grade	13.0	13.0	0.0
Average GM/GS salary	\$123	\$124	\$1
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$126	\$127	\$1
Average salary of ungraded positions	\$57	\$57	\$0
<b>OBJECT CLASSES</b>	<b>FY 2020 Enacted</b>	<b>FY 2021 President's Budget</b>	<b>FY 2021 +/- FY 2020</b>
Personnel Compensation			
11.1 Full-Time Permanent	8,708	8,808	100
11.3 Other Than Full-Time Permanent	1,630	1,648	19
11.5 Other Personnel Compensation	230	233	3
11.7 Military Personnel	266	273	7
11.8 Special Personnel Services Payments	1,076	1,088	12
<b>11.9 Subtotal Personnel Compensation</b>	<b>\$11,910</b>	<b>\$12,051</b>	<b>\$141</b>
12.1 Civilian Personnel Benefits	3,821	3,970	149
12.2 Military Personnel Benefits	165	170	4
13.0 Benefits to Former Personnel	0	0	0
<b>Subtotal Pay Costs</b>	<b>\$15,896</b>	<b>\$16,190</b>	<b>\$294</b>
21.0 Travel & Transportation of Persons	183	92	-92
22.0 Transportation of Things	16	14	-1
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	9	8	-1
23.3 Communications, Utilities & Misc. Charges	38	35	-3
24.0 Printing & Reproduction	7	6	-1
25.1 Consulting Services	31	28	-3
25.2 Other Services	3,193	2,717	-476
25.3 Purchase of goods and services from government accounts	16,606	15,942	-664
25.4 Operation & Maintenance of Facilities	5	4	0
25.5 R&D Contracts	73	67	-7
25.6 Medical Care	61	55	-6
25.7 Operation & Maintenance of Equipment	136	123	-12
25.8 Subsistence & Support of Persons	1	1	0
<b>25.0 Subtotal Other Contractual Services</b>	<b>\$20,106</b>	<b>\$18,938</b>	<b>-\$1,168</b>
26.0 Supplies & Materials	545	496	-49
31.0 Equipment	401	365	-36
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	135,163	120,660	-14,502
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>\$156,467</b>	<b>\$140,614</b>	<b>-\$15,853</b>
<b>Total Budget Authority by Object Class</b>	<b>\$172,363</b>	<b>\$156,804</b>	<b>-\$15,559</b>

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

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

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

OBJECT CLASSES	FY 2020 Enacted	FY 2021 President's Budget	FY 2021 +/- FY 2020
<b>Personnel Compensation</b>			
Full-Time Permanent (11.1)	\$8,708	\$8,808	\$100
Other Than Full-Time Permanent (11.3)	1,630	1,648	19
Other Personnel Compensation (11.5)	230	233	3
Military Personnel (11.7)	266	273	7
Special Personnel Services Payments (11.8)	1,076	1,088	12
<b>Subtotal Personnel Compensation (11.9)</b>	<b>\$11,910</b>	<b>\$12,051</b>	<b>\$141</b>
Civilian Personnel Benefits (12.1)	\$3,821	\$3,970	\$149
Military Personnel Benefits (12.2)	165	170	4
Benefits to Former Personnel (13.0)	0	0	0
<b>Subtotal Pay Costs</b>	<b>\$15,896</b>	<b>\$16,190</b>	<b>\$294</b>
Travel & Transportation of Persons (21.0)	\$183	\$92	-\$92
Transportation of Things (22.0)	16	14	-1
Rental Payments to Others (23.2)	9	8	-1
Communications, Utilities & Misc. Charges (23.3)	38	35	-3
Printing & Reproduction (24.0)	7	6	-1
<b>Other Contractual Services:</b>			
Consultant Services (25.1)	31	28	-3
Other Services (25.2)	3,193	2,717	-476
Purchases from government accounts (25.3)	11,959	11,087	-872
Operation & Maintenance of Facilities (25.4)	5	4	0
Operation & Maintenance of Equipment (25.7)	136	123	-12
Subsistence & Support of Persons (25.8)	1	1	0
<b>Subtotal Other Contractual Services</b>	<b>\$15,324</b>	<b>\$13,961</b>	<b>-\$1,363</b>
Supplies & Materials (26.0)	\$545	\$496	-\$49
<b>Subtotal Non-Pay Costs</b>	<b>\$16,122</b>	<b>\$14,611</b>	<b>-\$1,510</b>
<b>Total Administrative Costs</b>	<b>\$32,018</b>	<b>\$30,801</b>	<b>-\$1,216</b>



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

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

OFFICE/DIVISION	FY 2019 Final			FY 2020 Enacted			FY 2021 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Science Programs									
Direct:	26	-	26	28	-	28	28	-	28
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	26	-	26	28	-	28	28	-	28
Division of Intramural Research									
Direct:	26	3	29	28	3	31	28	3	31
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	26	3	29	28	3	31	28	3	31
Division of Management Services									
Direct:	18	-	18	19	-	19	19	-	19
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	18	-	18	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:	1	-	1	3	-	3	3	-	3
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	1	-	1	3	-	3	3	-	3
<b>Total</b>	<b>86</b>	<b>3</b>	<b>89</b>	<b>93</b>	<b>3</b>	<b>96</b>	<b>93</b>	<b>3</b>	<b>96</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>								
2017	12.8								
2018	12.8								
2019	13.0								
2020	13.0								
2021	13.0								

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

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

GRADE	FY 2019 Final	FY 2020 Enacted	FY 2021 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	0	0	0
GM/GS-15	14	14	14
GM/GS-14	21	22	22
GM/GS-13	19	19	19
GS-12	12	12	12
GS-11	5	5	5
GS-10	0	0	0
GS-9	0	0	0
GS-8	0	0	0
GS-7	3	3	3
GS-6	1	1	1
GS-5	0	0	0
GS-4	0	0	0
GS-3	0	0	0
GS-2	0	0	0
GS-1	0	0	0
Subtotal	75	76	76
Grades established by Act of July 1, 1944 (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	0	0	0
Full Grade	2	2	2
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	20	20	20
Total permanent positions	78	79	79
Total positions, end of year	98	99	99
Total full-time equivalent (FTE) employment, end of year	89	96	96
Average ES salary	0	0	0
Average GM/GS grade	13.0	13.0	13.0
Average GM/GS salary	120,935	123,044	124,274

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