National Institute of Nursing Research

CONGRESSIONAL JUSTIFICATION
FY 2022

Department of Health and Human Services
National Institutes of Health

NIH National Institute of Nursing Research

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute of Nursing Research (NINR)

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Director's Overview

Nurses know people, and people trust nurses. Patients and families interact with nurses more than any other health professionals. The science supported by the National Institute Nursing Research (NINR) uses this special relationship to better understand patients, families, and communities and the many factors that influence their health. Nurses have long understood that promoting health and well-being means addressing people's needs in multiple contexts, settings, and over the whole life course. Nurses play a key role in prevention, diagnosis, treatment, and care in settings that include hospitals and clinics but also schools, workplaces, long-term care facilities, and the community. Nurses understand vividly that favorable environments, systems, and policies can often mean the difference between health and illness, even life and death. Nursing science uses this holistic and life-course perspective to answer critical research questions from the molecular level to the community level in order to advance health for all and eliminate health inequities.

As I begin my journey as Director, I am eager to continue long-standing efforts by NINR to use the strengths of nursing science to address health challenges of great urgency to the Nation, to reduce and eliminate health inequities, andto invest in the science and training today that will lead to the breakthroughs of tomorrow. These efforts are rooted in the unique experiences and expertise that nurses and nurse scientists bring to the table, get to the heart of the challenges faced by individuals and families every day, and seek to offer solutions that ultimately lead to better quality of life and a better nation.

Closing the Gap in Health Disparities

There is saying that when it comes to health, your ZIP code can be more important than your genetic code. Where you live determines whether you have access to grocery stores and healthy foods, pharmacies and essential medicine, jobs that pay a living wage, good schools, safe affordable housing, attractive parks and green spaces, and clean air and water. These factors are examples of social determinants of health. They are often a root cause of the persistent health inequities that exist in our society, inequities that were sharply exposed during the COVID-19 pandemic. Nurse scientists' holistic and life-course approach to patients and the community make them ideally positioned to develop and implement new strategies to improve prevention, diagnosis, treatment, and care across diverse settings and for diverse populations that are responsive to the realities of people's lives and living conditions. While science has helped to make progress in reducing health inequities, it is clear that we have a long way to go. The NINR budget request for FY 2022 includes $20.0 million to support additional nursing research focused on racial, ethnic, and socioeconomic health disparities. This funding will build on and expand NINR's long-standing commitment to research that will close the gap in health inequities and lead to healthier lives for everyone.

Rural Health: NINR supports an ongoing Rural Health Initiative aimed at reducing rural health

disparities. In 2018, NINR hosted a workshop bringing together scholars from across the Nation to identify gaps and opportunities for research focused on rural populations. Based on recommendations from the workshop, NINR started an initiative to develop evidence-based interventions that can reduce health risks faced by rural Americans. One project supported by this initiative is a home food delivery intervention that distributes healthy food and educational materials to help food insecure people living in rural areas manage type 2 diabetes. Another project is testing an intervention to improve health outcomes, care engagement, and medication adherence for rural older adults living with the human immunodeficiency virus (HIV). NINR also participates in an NIH-wide forum bringing together perspectives from across the NIH community to reduce rural health disparities.

Communities and Community-Based Participatory Research: NINR-funded investigators have developed a set of four community-based participatory research partnership tools aimed at supporting community–academic research partnerships in strengthening their research processes, with the ultimate goal of improving research outcomes. There is a vital need for enhanced community engagement to address health and health equity. Nurses' knowledge of people and their communities, and people's trust of nurses, could help make NINR-supported research on community engagement a key part of improving health and health equity. The pandemic has highlighted many challenges related to trust in the health system and more research is vitally needed to address these trust issues.

Palliative Care: Palliative care, which is comfort care for individuals with serious illness, is an area where we see persistent disparities in access to and quality of care. One potential solution is increasing the use of palliative care consultation where health care providers discuss goals of care before patients are discharged from the hospital. Researchers are currently testing a community-developed palliative care tele- consult program, one of the first such programs being tested in the United States that considers cultural differences in perceptions and preferences regarding health care. The intervention, which uses telehealth to provide palliative care consultation, was developed in priorresearch through an extensive partnership with African American and White rural community members. Researchers are determining whether the intervention improves health outcomes, such as symptom burden, quality of life, caregiver burden, and hospital readmission among hospitalized African American and White rural elders with serious illness and their caregivers. Other NINR-supported researchers found that palliative care consultations may be a promising strategy for improving outcomes across diverse groups. In a recent large study of hospital patients, they found that both African American and White patients with serious illness were more likely to be referred for hospice care at discharge if they had received palliative care consultation.[1]

Addressing Public Health Needs with Great Urgency – COVID-19

The worldwide coronavirus disease 2019 (COVID-19) pandemic has reminded our society of the

[1] Starr, et al. Goals-of-Care Consultation Associated With Increased Hospice Enrollment Among Propensity-MatchedCohorts of Seriously Ill African American and White Patients. J Pain Symp Manage. 2020 Oct;60(4):801-810.

indispensable roles of nurses as they selflessly endure great risk during this unprecedented public health crisis. From nurses caring for patients in hospitals, nursing homes, and clinics across the Nation, to those in schools, health departments, and other community settings, we are so appreciative of the work that nurses do. With nurses and nurse scientists already entrenched in our lives and in our communities, when the pandemic hit they were poised to immediately recognize the challenges faced by patients, families, health care providers, and decision-makers in various health care settings, know the essential research questions to ask, and be ready with potential solutions.

Developing Tools to Monitor COVID-19: Notably, nurse scientists are developing tools to monitor symptoms of COVID-19 in the community. For instance, NINR had recently supported the development of a device to monitor asthma symptoms. This device is now being repurposed and tested for possible use in monitoring the symptoms of patients with COVID-19. The device, which can be worn as a flexible patch on the upper body, can monitor respiratory conditions and symptoms, such as coughing frequency, providing essential information to patients and health care providers for managing their illness and care. Conceptualized by an NINR-supported nurse scientist, and now patented and licensed by the grantee to a digital health company, the device has been cited by an industry publication as one of the top wearable technologies in 2020.

Addressing Challenges in Nursing Homes: It is well known that nursing homes, where nurses care for some of the most vulnerable patients, experienced significant challenges early in the pandemic. NINR-supported nurse scientists contributed some of the early, preliminary research regarding the challenges faced by nursing homes and home health agencies, such as potential staff shortages and lack of personal protective equipment.[2,3] Other nurse scientists, with input from nursing home leaders, developed a framework to aid in decision-making (e.g., about policies regarding patient care). Bringing together nursing home leaders and policymakers at all levels of government, the framework can help ensure a coordinated response, and help nursing home leaders develop solutions to challenges in maintaining quality of care for vulnerable patients.[4]

Supporting Telehealth Research to Address COVID-19: NINR has long supported research on telehealth, which has taken on greater importance during the pandemic as it can provide an essential link between patients, caregivers, and health care providers when in-person visits are

[2] Quigley, et al. COVID-19 Preparedness in Nursing Homes in the Midst of the Pandemic. J Am Geriatr Soc.2020 Jun;68(6):1164- 1166.
[3] Shang, et al. COVID-19 Preparedness in US Home Health Care Agencies. J Am Med Dir Assoc. 2020 Jul;21(7):924-927.
[4] Behrens & Naylor. "We are Alone in This Battle": A Framework for a Coordinated Response to COVID-19 in Nursing Homes. J Aging Soc Policy. Jul-Oct 2020;32(4-5):316-322.

not possible. In research with potential implications for COVID-19, NINR-supported scientists examined whether telehealth might help distance caregivers providing care from afar for their loved ones with cancer. Preliminary findings showed that a videoconference intervention, that included coaching and participation in patient-doctor visits via video, significantly reduced anxiety and distress for distance caregivers. These findings may be informative for COVID-19 which has made it necessary for more caregivers to provide support remotely.

Capitalizing on Foundational Investments

Today's foundational investments in science lead to tomorrow's breakthroughs that ultimately improve people's health, quality of care, and lives. To build a strong foundation, NINR invests in research to discover biological influences on health, develop new technologies to address pressing health challenges, and train the next generation of nurse scientists.

Investment in Tomorrow's Nurse Scientists: There is no better investment for laying the foundation for future advances than investing in the next generation of nurse scientists. Increased funding in recent fiscal years has allowed us to continue our commitment to supporting early-stage investigators and training initiatives. NINR will continue those efforts to develop a strong, innovative, and diverse group of new scientists who are exceptionally prepared to lead and contribute to high-impact research. To that end, NINR supports a range of training opportunities, career development grants, and research intensives. NINR's Methodologies Boot Camp is a research training course designed to increase the rigor of research conducted by graduate students, faculty, and clinicians. In 2020, the Boot Camp, which was held virtually for the first time and attended by over 3,500 individuals, explored the impact of Artificial Intelligence (AI) on the evolving healthcare environment. AI, which uses computer learning and data-driven methods, holds the potential to improve quality of care for patients and families, and to offer faster and more precise diagnosis and medical decision-making. The 2021 boot camp will again be centered on AI, with an added focus on using AI to increase, and not inhibit, health equity.

Wearable Devices to Help People With Mobility Issues: In another example, NINR-supported researchers are making important discoveries in the use of exoskeletons, which are wearable devices worn on the leg that harness the power of a person's own muscles to make walking more efficient. Past research shows that exoskeletons can make walking easier and reduce the energy ittakes to walk, which has the potential to help people recovering from an injury or stroke, or olderadults with mobility issues. The researchers wanted to get a better understanding of how exactly the exoskeleton works. They used ultrasound to look "under the skin" to examine whether increasing the stiffness of the exoskeleton on the ankle affects muscle dynamics and how much energy it takes to walk. They found that increasing ankle exoskeleton stiffness led to changes in how the muscles worked and in the amount of energy used to walk, suggesting that the exoskeleton may shape the user's metabolic rate during walking.[5] These findings may help improve design of exoskeletons in the future to be more effective and tailored to work best based on an individual's muscle functioning and health needs.

[5] Nuckols, et al. Ultrasound imaging links soleus muscle neuromechanics and energetics during human walking with elastic

Traumatic Brain Injury in Military Members and Veterans: NINR scientists are making steady progress to uncover biomarkers that can predict risk of ongoing complications due to traumatic brain injury (TBI) in members of the military. In a multicenter study of the long-term effects of mild TBI, NINR scientists measured the number of certain molecules in blood samples from military personnel comparing those who had experienced TBIs to those who had not. They found that experiencing multiple mild TBIs was associated with higher levels of specific proteins found inside neurons, as well as molecules involved in inflammation. Their findings bring us one step closer to identifying markers in the blood that can identify risk for complications such as post-traumatic stress disorder (PTSD) and depression, and potentially help guide further treatment.[6]

Conclusion

In FY 2022, NINR will release a new strategic plan to guide research and training activities over the next five years. NINR is reaching out to scientists, policy makers, nurses, and health care workers in the community for invaluable feedback as the plan is developed. NINR intends to continue our tradition of excellence in supporting research on clinical and behavioral interventions and to extend this tradition to further support and develop research on needs in multiple settings, including the clinic, schools, workplaces, the community and over the whole life course. Mindful of the important work that nurses do every day, NINR's future research efforts will support rigorous, high-impact science that will ensure that nursing and other clinical practice is always guided by the best evidence, leading to improved health and quality of life for all.

Overall Budget Policy:

The FY 2022 President's Budget Request for NINR is $199.8 million, an increase of $24.8 million or 14.2 percent compared with the FY 2021 Enacted level. This increase includes $20.0 million to expand NINR research into issues of health disparities. Investigator-initiated research projects, support for new investigators, research training, and career development continue to be the Institute's highest priorities. Overall, in FY 2022, 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.

[6] Edwards, et al. Interleukin-6 is associated with acute concussion in military combat personnel. BMC Neurol. 2020 May 25;20(1):209.

National Institute of Nursing Research

ABOUT NINR

Nurses understand that improving health and well-being means addressing people's needs in multiple settings, contexts, and over the whole life course. NINR research uses this holistic perspective to improve individual and population health and advance health equity by identifying nursing practice and policy solutions across clinical and community settings that are responsive to the realities of peoples' lives.

Facts and Figures

Total Competing Research Project Grants (FY17-20)*	248
Number of Funded Investigators (FY17-20)*	339
Number of Early Stage Investigator Awards (FY17-20)*	39
Success Rate - Early Stage Investigator Awards (FY17-20)*	20%
Total NINR FTEs (FY2020)	85

*Data represent 4-year totals

APPROPRIATIONS HISTORY

NINR HIGHLIGHTS

- Nurses know people, and people trust nurses. Patients and families interact with nurses more than any other clinicians. Nursing science uses this special relationship to better understand patients, families, and communities and the many factors that influence their health.
- Nursing science supported by NINR uses this knowledge to develop strategies for improving health and wellness across populations, health care settings and the lifespan, with an emphasis on achieving health equity.
- NINR-supported scientists have developed interventions for: supporting parents of premature infants; promoting HIV prevention in underserved populations; improving transitional care leading to better outcomes and cost-savings; and helping inner-city children manage asthma.
- NINR is also supporting the next generation of nurse scientists. NINR commits more support to the training and career development of new and early career scientists, as a percent of budget, then nearly any other NIH Institute or Center.

Shannon N. Zenk, PhD, MPH, RN, FAAN
NINR Director

Dr. Zenk joined NINR as Director in September 2020. Prior to her arrival at NINR, she was Collegiate Professor at the University of Illinois Chicago College of Nursing. Her research interests include health disparities, urban food environments, community health solutions, and veterans' health.

TIMELINE

1985
Public Law 99-158, the Health Research Extension Act of 1985, creates the National Center for Nursing Research (NCNR) at NIH.

1993
NCNR is elevated to an NIH institute (NINR) with the signing of the NIH Revitalization Act.

1997
NIH Director designates NINR as the lead NIH Institute to coordinate research at NIH and other federal agencies on end-of-life care.

2010
The first NINR Methodologies Boot Camp, focused on pain research, for nursing graduate students, faculty, and clinicians.

2020
Dr. Shannon Zenk becomes the third permanent director of NINR.

2022
NINR to release new strategic plan, detailing a research agenda committed to better health and health equity.

NINR HIGHLIGHTS

COVID-19

Nurses responded heroically to the COVID-19 pandemic, and the nursing science community also rose to the occasion. NINR has participated in NIH's RADx-initiative, to speed the development and deployment of COVID-19 testing. One of the NINR-supported projects is attempting to increase COVID-19 testing among African Americans in an urban community. Future NINR efforts will use the lessons learned from the pandemic to address the significant health inequities exposed by COVID-19, and to better prepare for future health challenges.

Artificial Intelligence Boot Camp

NINR's annual methodologies Boot Camp in 2021 will once again focus on the impact of Artificial Intelligence (AI) in the evolving healthcare environment and overall efforts to use AI to improve quality of care for patients and families, with an added focus on using AI to help increase, and not inhibit, health equity. The 2020 bootcamp on AI was attended virtually by over 3,500 individuals.

NINR Partnerships Across NIH in Addressing Pressing Health Challenges and Stubborn Health Disparities

- NIH Common Fund Initiative: Transformative Research to Address Health Disparities and Advance Health Equity (Co-Chair)
- NIH UNITE Initiative: Health Disparities and NIH Culture & Structure Committees
- HEAL (Helping to End Addiction Long-term) Initiative (Executive Committee)

Clinical Big Data and Big Data Strategies to Address Health Inequities

NINR organized a roundtable in FY 2021 focused on using clinical big data to explore health inequities and social determinants of health. Participants discussed how data sources such as electronic health records can inform the development of interventions to reduce health inequities, and how big data can be used to better understand and address social needs and social determinants of health to reduce health inequities.

Workshop: Innovative Models of Care and Maternal Health Inequities

NINR and other NIH partners held a virtual workshop on innovative models of care for reducing inequities in maternal health. The workshop brought together scientists, clinicians, and public health experts from NIH, HHS, and universities and medical centers across the country. Experts explored how nurses, midwives, and birth companions can improve maternal and infant health in communities affected by health inequalities and identified pressing research questions moving forward.

FUTURE INITIATIVES

- In FY 2022, NINR will release a new strategic plan to guide research and training activities over the next five years. NINR is reaching out to scientists, policy makers, nurses, and health care workers in the community for invaluable feedback as the plan is developed.
- Moving forward, NINR will build on and expand our long-standing commitment to research that will close the gap in health inequities and lead to healthier lives for everyone.

Major Changes in the Fiscal Year 2022 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 2022 budget request for NINR, which is $199.8 million, an increase of $24.8 million from the FY 2021 Enacted level. Within the FY 2022 request level, NINR will pursue its highest research priorities through strategic investment and careful stewardship of appropriated funds.

Research Project Grants (RPGs) ($19.9 million; total $141.2 million):
Non-competing RPGs will decrease by 5 grants along with an increase of $1.1 million, for a total of $88.2 million in FY 2022, due to a large cohort of grants completing their performance period. Competing RPGs will increase by 42 grants and $17.6 million due to the overall $20.0 million increase in funding to support nursing research focused on racial, ethnic, and socioeconomic health disparities.

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Budget Mechanism - Total[1]

(Dollars in Thousands)

MECHANISM	FY 2020 Final		FY 2021 Enacted		FY 2022 President's Budget		FY 2022 +/- FY 2021 Enacted	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	165	$81,479	184	$87,114	179	$88,230	-5	$1,116
Administrative Supplements	*(9)*	1,068	*(1)*	98	*(3)*	323	*(2)*	225
Competing:								
Renewal	4	1,817	4	2,000	5	2,220	1	220
New	67	27,925	62	25,648	103	43,022	41	17,374
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	71	$29,742	66	$27,648	108	$45,242	42	$17,594
Subtotal, RPGs	236	$112,290	250	$114,860	287	$133,795	37	$18,935
SBIR/STTR	13	4,950	17	6,467	19	7,384	2	917
Research Project Grants	249	$117,239	267	$121,327	306	$141,179	39	$19,852
Research Centers:								
Specialized/Comprehensive	11	$6,048	11	$3,187	11	$3,266	0	$80
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	$6,048	11	$3,187	11	$3,266	0	$80
Other Research:								
Research Careers	40	$4,903	41	$4,977	42	$5,101	1	$124
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	1,581	1	1,682	1	1,724	0	42
Other Research	41	$6,485	42	$6,659	43	$6,825	1	$166
Total Research Grants	301	$129,772	320	$131,173	360	$151,271	40	$20,098
Ruth L Kirschstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	36	$1,436	36	$1,458	37	$1,547	1	$89
Institutional Awards	110	6,130	110	6,222	113	6,537	3	315
Total Research Training	146	$7,566	146	$7,680	150	$8,083	4	$404
Research & Develop. Contracts	0	$5,673	0	$5,880	0	$6,443	0	$563
(SBIR/STTR) (non-add)	*(0)*	*(52)*	*(0)*	*(69)*	*(0)*	*(78)*	*(0)*	*(10)*
Intramural Research	27	13,182	31	13,617	31	14,288	0	671
Res. Management & Support	58	16,170	65	16,587	80	19,670	15	3,084
SBIR Admin. (non-add)	*(0)*	*(19)*	*(0)*	*(25)*	*(0)*	*(28)*	*(0)*	*(3)*
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NINR	85	$172,363	96	$174,936	111	$199,755	15	$24,819

[1] All items in italics and brackets are non-add entries.

NATIONAL INSTITUTE OF NURSING RESEARCH

For carrying out section 301 and title IV of the PHS Act with respect to nursing research, [$174,957,000]*$199,755,000*.

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Summary of Changes

(Dollars in Thousands)

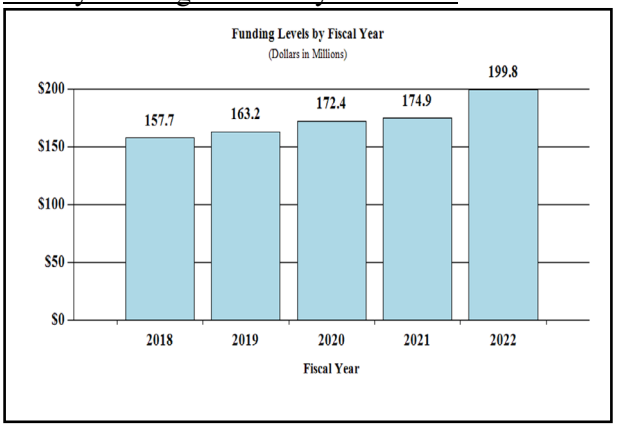
FY 2021 Enacted	$174,936
FY 2022 President's Budget	$199,755
Net change	$24,819

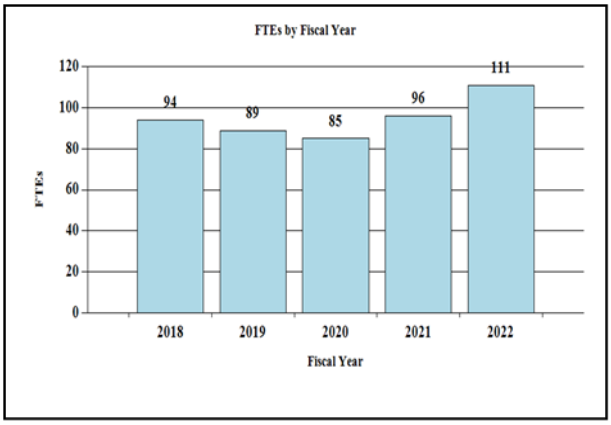
CHANGES	FY2021 Enacted		FY 2022 President's Budget		Built-In Change from FY 2021 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of January 2021 pay increase & benefits		$5,252		$5,407		$16
b. January FY 2022 pay increase & benefits		5,252		5,407		138
c. Paid days adjustment		5,252		5,407		0
d. Differences attributable to change in FTE		5,252		5,407		0
e. Payment for centrally furnished services		2,291		2,405		115
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		6,075		6,476		164
Subtotal						$433
2. Research Management and Support:						
a. Annualization of January 2021 pay increase & benefits		$10,581		$13,425		$28
b. January FY 2022 pay increase & benefits		10,581		13,425		296
c. Paid days adjustment		10,581		13,425		0
d. Differences attributable to change in FTE		10,581		13,425		4,959
e. Payment for centrally furnished services		1,465		1,539		73
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		4,540		4,707		113
Subtotal						$5,470
Subtotal, Built-in						$5,903

CHANGES	FY2021 Enacted		FY 2022 President's Budget		Program Change from FY 2021 Enacted	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	184	$87,212	179	$88,553	-5	$1,341
b. Competing	66	27,648	108	45,242	42	17,594
c. SBIR/STTR	17	6,467	19	7,384	2	917
Subtotal, RPGs	267	$121,327	306	$141,179	39	$19,852
2. Research Centers	11	$3,187	11	$3,266	0	$80
3. Other Research	42	6,659	43	6,825	1	166
4. Research Training	146	7,680	150	8,083	4	404
5. Research and development contracts	0	5,880	0	6,443	0	563
Subtotal, Extramural		$144,732		$165,797		$21,065
	FTEs		FTEs		FTEs	
6. Intramural Research	31	$13,617	31	$14,288	0	$237
7. Research Management and Support	65	16,587	80	19,670	15	-2,387
8. Construction		0		0		0
9. Buildings and Facilities		0		0		0
Subtotal, Program	96	$174,936	111	$199,755	15	$18,916
Total built-in and program changes						$24,819

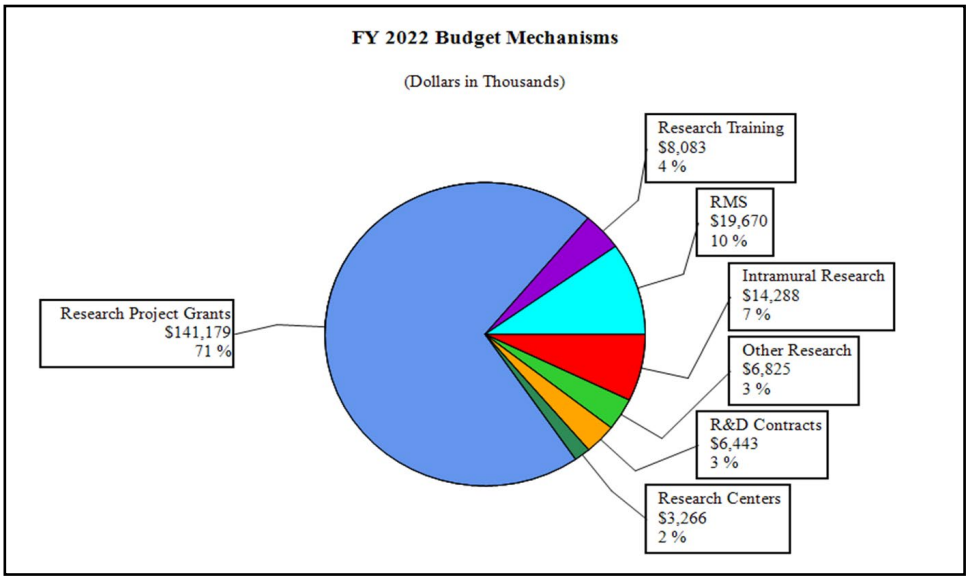
Fiscal Year 2022 Budget Graphs

History of Budget Authority and FTEs:

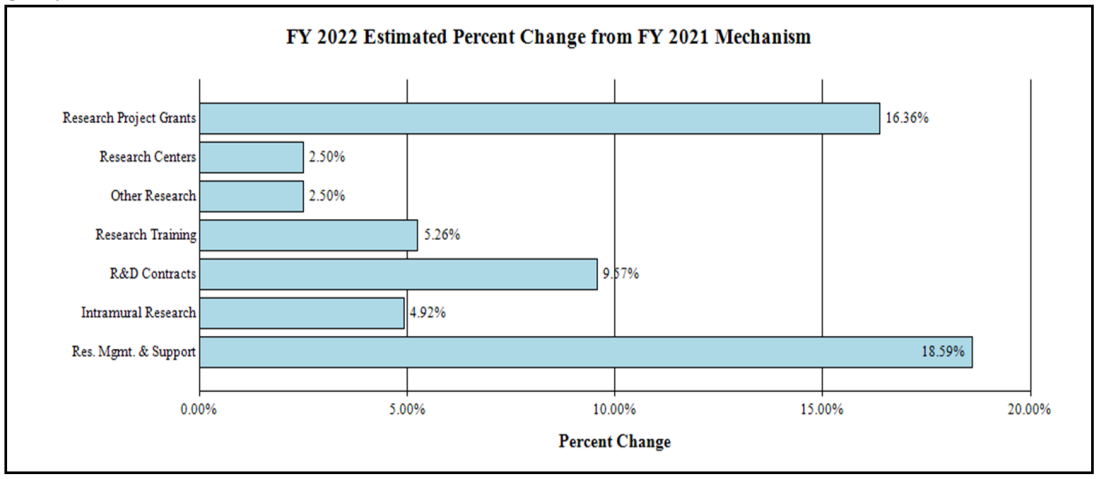




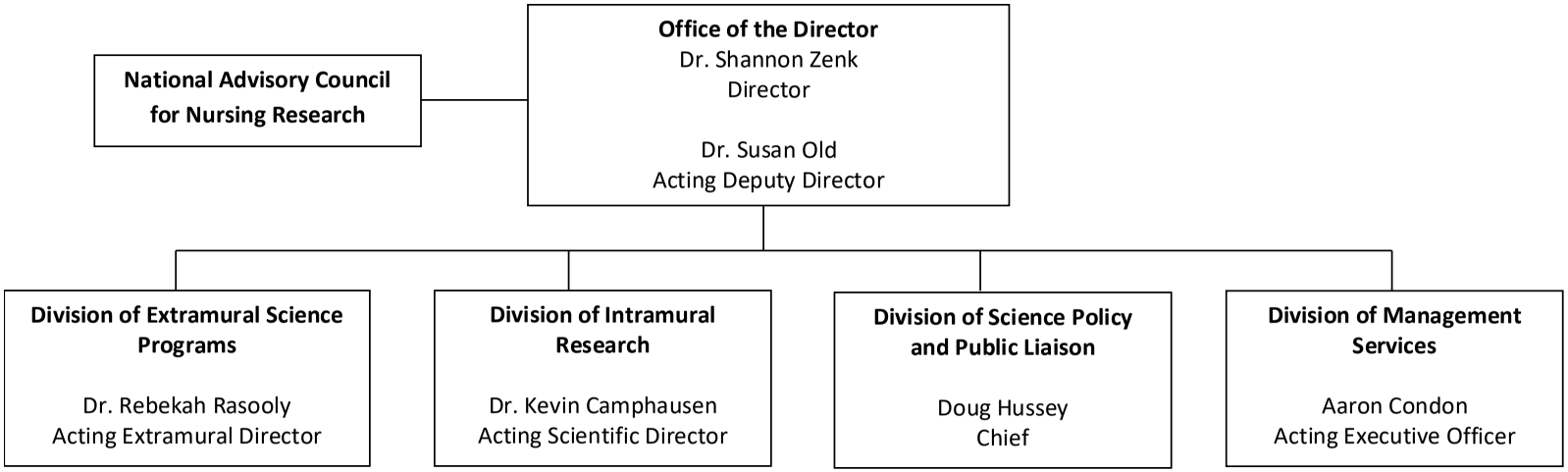
Distribution by Mechanism:



Change by Selected Mechanism:



National Institutes of Health
National Institute of Nursing Research
Organizational Chart



NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Budget Authority by Activity[1]

(Dollars in Thousands)

	FY 2020 Final		FY 2021 Enacted		FY 2022 President's Budget		FY 2022 +/- FY 2021 Enacted	
Extramural Research	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**	**FTE**	**Amount**
Detail								
Symptom Science		$26,285		$26,601		$30,472		$3,872
Self-Management		25,810		26,120		29,922		3,802
Wellness		46,531		47,091		53,945		6,854
21st Century Nurse Scientists		18,544		18,768		21,499		2,731
Promoting Innovation		9,852		9,970		11,421		1,451
End-of-Life and Palliative Care		15,990		16,182		18,537		2,355
Subtotal, Extramural		**$143,011**		**$144,732**		**$165,797**		**$21,065**
Intramural Research	**27**	**$13,182**	**31**	**$13,617**	**31**	**$14,288**	**0**	**$671**
Research Management & Support	**58**	**$16,170**	**65**	**$16,587**	**80**	**$19,670**	**15**	**$3,084**
TOTAL	**85**	**$172,363**	**96**	**$174,936**	**111**	**$199,755**	**15**	**$24,819**

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

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 (BA):

	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021
BA	$172,363,000	$174,936,000	$199,755,000	+$24,819,000
FTE	85	96	111	15

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

Program Descriptions and Accomplishments

Symptom Science: Promoting Personalized Health Strategies

NINR supports research to identify underlying biological and behavioral mechanisms of symptoms, such as fatigue, pain, and sleep disturbance. For instance, NINR-supported researchers found altered gene expression and perturbed signaling pathways related to the gut-brain axis among oncology patients who experienced chemotherapy-induced nausea, compared to those who did not.[7] Their findings may have implications for developing better interventions to prevent chemotherapy-induced nausea, such as using probiotics. In addition, NINR-supported investigators are currently using an approach that combines molecular, genomic, and behavioral factors, such as poor diet, physical inactivity, and sleep disruption, to examine novel biomarkers for cancer-related fatigue. Other researchers are testing a model of care to reduce behavioral and psychological symptoms of dementia in persons with Alzheimer's disease and related dementias by using trained patient engagement specialists to provide dementia care in hospitals. NINR is leading an initiative to stimulate research that incorporates advances in genomics and other omics (e.g., metabolomics, microbiomics) into translatable, personalized biobehavioral interventions for improved health outcomes. In 2020, NINR hosted a virtual workshop focused on genomic responses to the social environment and implications for health outcomes. This event brought together researchers in different disciplines from across the nation to discuss research and future directions for understanding the ways in which our social environment and our genes jointly influence our health. Through these various efforts, NINR-supported researchers seek to uncover the genetic, behavioral, and social factors that contribute to

[7] Singh, et al. Alterations in Patterns of Gene Expression and Perturbed Pathways in the Gut-Brain Axis Are Associated With Chemotherapy-Induced Nausea. J Pain Symptom Manage. 2020 Jun;59(6):1248-1259.

Maternal Health

In recent years, the rates of maternal morbidity and mortality have increased in the United States. To address this urgent public health issue, NINR invests in research to uncover the causes of poor maternal health, and to develop interventions to promote better health for mothers and infants.

In FY 2020, NINR and other NIH partners held a virtual workshop on innovative models of care for reducing inequities in maternal health. The workshop brought together scientists, clinicians, and public health experts from NIH, the U.S. Department of Health & Human Services, and universities and medical centers across the country. This panel of experts explored how nurses, midwives, and birth companions can improve maternal and infant health for women in communities affected by health inequalities and identified some of the most pressing research questions moving forward.

NINR-supported researchers investigated whether stillbirths contribute to severe maternal morbidity. They analyzed a large dataset of over 6 million births in California and found that women who have stillbirths are a specific population that has a 4-fold higher risk of severe maternal morbidity. Given that nearly 1 in 17 women hospitalized for stillbirth delivery experience severe morbidity, this finding points to the need for closer monitoring of women for symptoms of severe maternal morbidity.

Sleep disruptions are common in pregnancy and can negatively affect the health of mothers and infants. Self-management interventions may promote better sleep during pregnancy, but it is not known whether pregnant women are willing to participate. Findings of a pilot study suggest that the majority of pregnant women were willing to participate in a 12-week sleep intervention and wear a personal health monitor to self-monitor sleep during pregnancy, laying the groundwork to test the intervention in a larger study.

Finally, NINR leads an initiative to encourage research focusing on maternal nutrition and pre-pregnancy obesity to improve health outcomes for women, infants, and children. These combined efforts will provide important information to reduce maternal mortality and morbidity, and to improve health and quality of life.

symptoms, identify new and improved strategies to manage symptoms, and improve the daily lives of people dealing with adverse symptoms.

Budget Policy:
The FY 2022 President's Budget request for this program is $30.5 million, an increase of $3.9 million or 14.6 percent compared to the FY 2021 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 NINR 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 andPreventing Illness

NINR supports research on health promotion and illness prevention in diverse populations, and across health conditions, settings, and the life span. NINR-supported researchers who focus on wellness examine the social, biological, and environmental contributors to illness, and develop interventions to improve the health and well-being of children and adults living with chronic conditions and theirfamilies. For example, NINR-supported investigators

found that African American and Hispanic older adults receiving post-acutehome health care had higher odds of rehospitalization and emergency room visits than White older adults. Racial and ethnic differences in utilization of health care varied based on factors such as caregiver availabilityand severity of illness, suggesting research strategies to develop future interventions.[8]

Other current studies supported by NINR include: examining independent and combined effects of a lifestyle physical activity intervention and cognitive training to prevent memory loss in olderwomen with heart disease; testing an afterschool program to promote physical activity and healthin children, with an emphasis on reducing racial and ethnic health disparities; and examining the feasibility of a smart phone app intervention to promote risk reduction in young adults with asthma and to minimize asthma symptoms during wildfire smoke events. In addition, NINR led an initiative to promote research on the use of community health workers to improve care for people living with HIV, focusing on patient outcomes across the care continuum such as care engagement, antiretroviral adherence, and viral suppression.

Budget Policy:

The FY 2022 President's Budget request for this program is $53.9 million, an increase of $6.9 million or 14.6 percent compared to the FY 2021 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 NINR 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.

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

NINR supports research to improve 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. In one example to address sleep problems that are common among children with asthma and their parents, NINR-supported researchers tested a web-based, shared-management intervention that engages parents and children as equal partners in managing health and improving sleep. Preliminary findings showed that participation in the intervention was associated with improved sleep outcomes for both children with asthma and their parents.[9] Other NINR-supported researchers are currently: testing self-management interventions for caregivers of persons with dementia that can be self-tailored to their needs and preferences in light of transitions in the caregiving role over time; examining the barriers, facilitators, and preferences of using digital health technologies for self-management of type 2 diabetes in Black men; and testing a comprehensive, technology-enhanced self-management system to improve medication adherence and management of blood pressure in older adults. NINR is also leading a new initiative to support research that addresses "patient activation," which is a key component of self-management of chronic conditions, that involves having the knowledge, skills, and willingness to manage one's own health and health care.

Budget Policy:

[8] Chase, et al. Relationships Between Race/Ethnicity and Health Care Utilization Among Older Post-Acute Home Health CarePatients. J Appl Gerontol. 2020 Feb;39(2):201-213.

[9] Sonney, et al. Sleep intervention for children with asthma and their parents (SKIP Study): a novel web-based shared management pilot study. J Clin Sleep Med. 2020 Jun 15;16(6):925-936.

The FY 2022 President's Budget request for this program is $29.9 million, an increase of $3.8 million or 14.6 percent compared to the FY 2021 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 NINR 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 on end-of-life research, NINR supports research to help individuals, families, and health care providers manage the symptoms of serious illness through advancements in end-of-life and palliative care science. NINR continues to support the Palliative Care Research Cooperative (PCRC) to build the science of end-of-life and palliative care. The PCRC now includes over 650 scientists from different disciplines located at over 200 research sites across the country. A recent study supported by the PCRC found areas of concern regarding quality of end-of-life care for adolescents and young adults (AYA) with cancer, many of whom lived in poverty. The majority of AYA did receive a palliative care consultation, however, there were low rates of hospice referral, most received late hospice referrals, and there were high rates of in-hospital death.[10] Findings suggest the need for further research on the end-of-life care priorities and unmet needs of AYA with cancer, particularly for those who are living

[10] Roeland, et al. End-of-life care among adolescent and young adult patients with cancer living in poverty. Cancer. 2020 Feb15;126(4):886-893.

Preventing Infections in Health Care

Health care-associated infections (HAIs) are numerous, costly, and largely preventable events that can cause significant illness—and even death—particularly in vulnerable older patients. Nurses provide most direct patient care in health care settings, so they are closely involved with infection control and prevention. Research led by nurse scientists on infection control has helped provide a foundation of evidence and guided best practices in health care.

One area of research focuses on how HAI's might spread. There is increasing evidence that some HAIs may be associated with hospital roommates or previous occupants of the same hospital bed. NINR-supported scientists found that patients with HAIs were nearly 5 times as likely as patients without HAIs to have been exposed to the same disease-causing agent or pathogen that infected a hospital roommate. Those with HAIs were almost 6 times as likely to have been exposed to the same pathogen that infected the person who had used the same hospital bed immediately prior to the patient.

Nurse scientists have also focused on whether issues such as adequate nurse staffing and infection control training may play a role. NINR-supported researchers used a dataset of over 100,000 patients, of which more than 4 percent developed a HAI during hospitalization. They found that patients on units with understaffing of nurses had an 11 to 15 percent greater risk for HAI compared to patients on units with adequate staffing.[1] Another study investigated whether the level of staff training and education in infection control contributes to variations in HAI incidence. It found that tailored and continuous training of nursing home staff was associated with better HAI control than isolated responses to incidents.

These are just a few examples of how nurse scientists are contributing to our knowledge of the potential causes and solution for HAIs. While there is still much to learn, NINR-supported researchers will continue to build the foundation of evidence to prevent HAIs and improve quality of care for the most vulnerable patients.

in poverty. Currently, other NINR-supported researchers are: testing a palliative care intervention that can be tailored to address the advance care planning and psychosocial needs of patients with metastatic cancer; examining howhospice volunteers as part of a hospice care team can help address informational, emotional and support needs of adolescents with a parent in hospice through improved communication; and refining and testing an intervention to help oncologists communicate a simple and transparent prognosis to patients with advanced cancer, improve patients' understanding of how much time they have left to live, and improve their quality of care. NINR continues to implement the Palliative Care: Conversations Matter™ campaign, including recently updated social media materials to enhance outreach to the public. To build upon efforts to share end-of-life (EOL) information among the public, NINR is developing an "EOL information suite," which provides a series of fact sheets and resources, online and in print, and available in English and Spanish, for caregivers of people with serious illnesses.

Budget Policy:
The FY 2022 President's Budget request for this program is $18.5 million, an increase of $2.4 million or 14.6 percent compared to the FY 2021 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 NINR 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.

Promoting Innovation: Technology to Improve Health

NINR supports research on using smart technologies and digital health strategies to improve health and deliver personalized care. In one example, NINR-supported researchers developed and tested a wireless mobile health (mHealth) sensing device to measure stress using human

sweat, as an alternative to currentmethods such as questionnaires, which can be subjective, or invasive blood tests.[11] Initial testing of the device revealed a relationship between levels of cortisol measured in the blood and cortisol levels measured in sweat. Preliminary findings suggest that this device could serve as a reliable, non-invasive, fast, real-time method to measure stress for use in research, as well as in personalized health care.NINR-supported investigators are currently testing the effectiveness of virtual reality psychological therapy, which is an experiential learning system that uses immersive virtual reality training to change negative perceptions about pain and may be a potential non-opioid alternative to treating pain. Other NINR-supported investigators are developing and testing a mobile app that enables both older heart failure patients and their clinicians to remotely monitor patients' physiological and cognitive symptoms, provide cognitive rehabilitation treatments in the moment, and potentially improve cognitive functioning and self-care. In another example aimed at improving management of chronic heart failure, NINR-supported investigators are developing a wearable sweat sensor patch as a method to monitor biomarkers of heart failure, that can be used for non-invasive, personalized, mHealth management, monitoring, and feedbackall in one package. These are just a few examples of the innovative ways NINR-supported researchers are exploring the use of smart, digital health technologies as a means to connect patients at home to their health care providers in the clinic by providing real-time, personalized monitoring and treatment of various symptoms, illnesses, and conditions to improve health and quality of life.

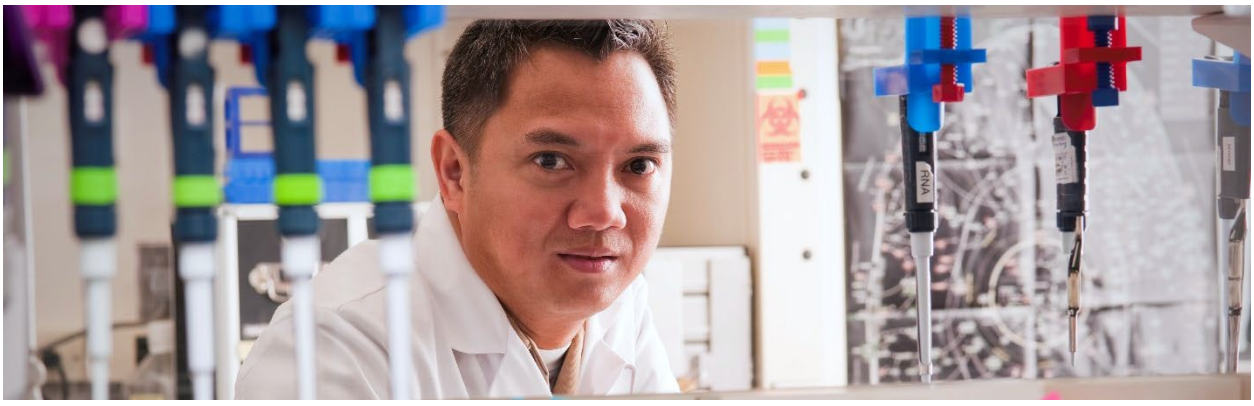
Budget Policy:
The FY 2022 President's Budget request for this program is $11.4 million, an increase of $1.5 million or 14.6 percent compared to the FY 2021 Enacted level. Promoting Innovation will remain a high priority area of focus for NINR, as identified in the Institute's strategic plan. NINR will continue high priority research efforts across all NINR 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.

21st Century Nurse Scientists: Innovative Strategies for Research Careers
NINR remains committed to promoting the development of the nursing science workforce and to ensure that they are prepared to address 21st Century health and health care challenges. NINR offers a variety of training and career development grants and programs to support current and future nurse scientists at all career levels. For example, the Ruth L. Kirschstein National

[11] Torrente-Rodríguez, et al. Investigation of cortisol dynamics in human sweat using a graphene-based wireless mHealth system.Matter. 2020 Apr 1;2(4):921-937.

Research Service Awards (NRSAs) and the career development (K) awards enable scientists to be trained to conduct independent nursing research and help develop a highly trained, diverse pool of nurse scientists. In FY 2020, NINR held the Summer Genetics Institute (SGI) 20th Anniversary Symposium to commemorate 20 years of providing a foundation in genetics for students, faculty, and clinicians to use in their research and clinical practice. NINR's investment in the SGI has resulted in over 425 graduates who are making a difference in communities across the country. SGI alumni are building programs of nursing research in genetics; disseminating the results of genetics-related research in peer-reviewed scientific publications; and integrating genetics content in nursing school curricula and practice. In FY 2020, NINR's annual Methodologies Bootcamp focused on Artificial Intelligence (AI), which uses computer learning and data-driven methods, and holds the potential to improve quality of health care, precision in making diagnoses, and medical decision-making. Held virtually for the first time, the Boot Camp explored the impact of AI on the evolving health care environment. NINR also held an online panel discussion featuring nurse scientists at NINR and NIH who talked to attendees about the many career opportunities open to nurse scientists with PhDs. Taken together, these efforts contribute to the development of new scientists who are exceptionally prepared to lead and contribute to high-impact research. To truly prosper as a science, NINR and the nursing science community must continue to work to create a strong, innovative, and diverse workforce fully positioned to address any upcoming challenge and opportunity.

Budget Policy:
The FY 2022 President's Budget request for this program is $21.5 million, an increase of $2.7 million or 14.6 percent compared to the FY 2021 Enacted level. Innovative strategies for developing 21st 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 NINR 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
The Division of Intramural Research (DIR) is dedicated to conducting basic and clinical research on the interactions among molecular mechanisms underlying a single symptom or cluster of symptoms and environmental influences on individual health outcomes. It encompasses topics such as the individual variability inherent in symptoms associated with cancer treatment-related

fatigue, and the neurological and behavioral symptoms of traumatic brain injury. One NINR scientist, in collaboration with scientists from the Department of Defense and multiple academic institutions across the United States, identified markers in the blood that could help to predict which athletes need additional time to recover from a sports-related concussion. The researchers tested blood serum from athletes and found that the levels of two proteins were significantly different in athletes who needed less or more than 14 days to return to play. These findings hold the potential to inform the development of a test to help predict which athletes need more time to recover from a concussion before they return to play.[12] Launched in 2019, NINR continues to build the Symptom Science Center (SSC) to promote the understanding of the biological and behavioral mechanisms of symptoms to improve patient outcomes. The SSC is led by NINR but promotes collaborations across the intramural and extramural communities of NIH and follows NINR's commitment to train scientists and clinicians interested in symptom science. The SSC is currently enrolling participants for two research studies to understand the causes of, and develop treatments for, fatigue, a symptom that is not well understood and often associated with various illnesses, conditions, and treatment side effects. In a recent study, SSC investigators examined the potential benefits of acupressure as treatment for chemotherapy-induced neuropathy, a side effect of cancer treatment that involves pain, numbness, and tingling in the hands and feet. They found that acupressure led to improvements in pain, numbness, stiffness, and tingling, as well as preliminary evidence of connectivity and activity changes in the brain, providing some clues about the areas of the brain which may play a role in pain, memory, and cognitive functioning.[13]

Budget Policy:
The FY 2022 President's Budget request for this program is $14.3 million, an increase of $0.7 million or 4.9 percent compared to the FY 2021 Enacted level. In FY 2022, 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.

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 2022 President's Budget request for this program is $19.7 million, an increase of $3.0 million or 18.6 percent compared to the FY 2021 Enacted level. In FY 2022, NINR plans to devote additional resources to RMS, including additional FTE, to continue addressing the

[12] Pattinson, et al. Plasma Biomarker Concentrations Associated With Return to Sport Following Sport-Related Concussion in Collegiate Athletes-A Concussion Assessment, Research, and Education (CARE) Consortium Study. JAMA Netw Open. 2020Aug 3;3(8).
[13] Yeh, et al. Dynamic Brain Activity Following Auricular Point Acupressure in Chemotherapy-Induced Neuropathy: A Pilot Longitudinal Functional Magnetic Resonance Imaging Study. Glob Adv Health Med. 2020 Feb 13;9:1-9.

challenges and opportunities that exist in strategically managing a research portfolio of 360 grants, an NRSA Training Program of 153 Full Time Training Positions (FTTPs), and contracts that address areas of science critical to public health.

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Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
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	$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	$170,567,000	$177,976,000	$174,957,000
Rescission				$0
2022	$199,755,000			

[1] Budget Estimate to Congress includes mandatory financing.

NATIONAL INSTITUTES OF HEALTH
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Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2021 Amount Authorized	FY 2021 Enacted	2022 Amount Authorized	FY 2022 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$174,936,000	Indefinite	$199,755,000
National Institute of Nursing Research	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$174,936,000		$199,755,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Amounts Available for Obligation[1]

(Dollars in Thousands)

Source of Funding	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget
Appropriation	$169,113	$174,957	$199,755
Secretary's Transfer	0	0	0
OAR HIV/AIDS Transfers	3,250	-21	0
HEAL Transfer from NINDS	0	0	0
Subtotal, adjusted budget authority	$172,363	$174,936	$199,755
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$172,363	$174,936	$199,755
Unobligated balance lapsing	-21	0	0
Total obligations	$172,342	$174,936	$199,755

[1] Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2020 - $1,535 FY 2021 - $2,000 FY 2022 - $3,500

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Budget Authority by Object Class[1]

(Dollars in Thousands)

		FY 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021 Enacted
Total compensable workyears:				
	Full-time equivalent	96	111	15
	Full-time equivalent of overtime and holiday hours	0	0	0
	Average ES salary	$0	$0	$0
	Average GM/GS grade	13.1	13.2	0.0
	Average GM/GS salary	$128	$132	$3
	Average salary, Commissioned Corps (42 U.S.C. 207)	$98	$101	$3
	Average salary of ungraded positions	$61	$71	$10
	OBJECT CLASSES	**FY 2021 Enacted**	**FY 2022 President's Budget**	**FY 2022 +/- FY 2021**
	Personnel Compensation			
11.1	Full-Time Permanent	9,660	11,728	2,069
11.3	Other Than Full-Time Permanent	1,608	1,645	37
11.5	Other Personnel Compensation	293	296	3
11.7	Military Personnel	280	287	8
11.8	Special Personnel Services Payments	0	0	0
11.9	**Subtotal Personnel Compensation**	**$11,840**	**$13,957**	**$2,116**
12.1	Civilian Personnel Benefits	3,831	4,705	874
12.2	Military Personnel Benefits	161	170	9
13.0	Benefits to Former Personnel	0	0	0
	Subtotal Pay Costs	**$15,833**	**$18,832**	**$2,999**
21.0	Travel & Transportation of Persons	85	87	2
22.0	Transportation of Things	12	12	0
23.1	Rental Payments to GSA	0	0	0
23.2	Rental Payments to Others	7	7	0
23.3	Communications, Utilities & Misc. Charges	31	32	1
24.0	Printing & Reproduction	5	5	0
25.1	Consulting Services	5,155	5,368	213
25.2	Other Services	1,631	1,660	29
25.3	Purchase of goods and services from government accounts	11,195	13,388	2,192
25.4	Operation & Maintenance of Facilities	46	49	4
25.5	R&D Contracts	425	443	17
25.6	Medical Care	127	132	5
25.7	Operation & Maintenance of Equipment	324	345	21
25.8	Subsistence & Support of Persons	0	0	0
25.0	**Subtotal Other Contractual Services**	**$18,903**	**$21,385**	**$2,482**
26.0	Supplies & Materials	677	701	24
31.0	Equipment	531	541	10
32.0	Land and Structures	0	0	0
33.0	Investments & Loans	0	0	0
41.0	Grants, Subsidies & Contributions	138,852	158,154	19,302
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	**$159,103**	**$180,923**	**$21,820**
	Total Budget Authority by Object Class	**$174,936**	**$199,755**	**$24,819**

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

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Salaries and Expenses

(Dollars in Thousands)

OBJECT CLASSES	FY 2021 Enacted	FY 2022 President's Budget	FY 2022 +/- FY 2021
Personnel Compensation			
Full-Time Permanent (11.1)	$9,660	$11,728	$2,069
Other Than Full-Time Permanent (11.3)	1,608	1,645	37
Other Personnel Compensation (11.5)	293	296	3
Military Personnel (11.7)	280	287	8
Special Personnel Services Payments (11.8)	0	0	0
Subtotal Personnel Compensation (11.9)	**$11,840**	**$13,957**	**$2,116**
Civilian Personnel Benefits (12.1)	$3,831	$4,705	$874
Military Personnel Benefits (12.2)	161	170	9
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	**$15,833**	**$18,832**	**$2,999**
Travel & Transportation of Persons (21.0)	$85	$87	$2
Transportation of Things (22.0)	12	12	0
Rental Payments to Others (23.2)	7	7	0
Communications, Utilities & Misc. Charges (23.3)	31	32	1
Printing & Reproduction (24.0)	5	5	0
Other Contractual Services:			
Consultant Services (25.1)	5,155	5,368	213
Other Services (25.2)	1,631	1,660	29
Purchases from government accounts (25.3)	6,560	8,140	1,580
Operation & Maintenance of Facilities (25.4)	46	49	4
Operation & Maintenance of Equipment (25.7)	324	345	21
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	**$13,715**	**$15,562**	**$1,847**
Supplies & Materials (26.0)	$677	$701	$24
Subtotal Non-Pay Costs	**$14,532**	**$16,406**	**$1,874**
Total Administrative Costs	**$30,365**	**$35,238**	**$4,873**

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Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2020 Final			FY 2021 Enacted			FY 2022 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Science Programs									
Direct:	23	-	23	28	-	28	33	-	33
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	23	-	23	28	-	28	33	-	33
Division of Intramural Research									
Direct:	24	3	27	28	3	31	28	3	31
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	24	3	27	28	3	31	28	3	31
Division of Management Services									
Direct:	19	-	19	19	-	19	25	-	25
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	19	-	19	19	-	19	25	-	25
Division of Science Policy and Public Liaison									
Direct:	14	-	14	15	-	15	17	-	17
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	14	-	14	15	-	15	17	-	17
Office of the Director									
Direct:	2	-	2	3	-	3	5	-	5
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	2	-	2	3	-	3	5	-	5
Total	82	3	85	93	3	96	108	3	111
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**								
2018	12.8								
2019	13.0								
2020	13.1								
2021	13.1								
2022	13.2								

NATIONAL INSTITUTES OF HEALTH
National Institute of Nursing Research

Detail of Positions[1]

GRADE	FY 2020 Final	FY 2021 Enacted	FY 2022 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	0	0	0
General Schedule			
GM/GS-15	13	14	16
GM/GS-14	23	23	27
GM/GS-13	18	19	23
GS-12	13	13	17
GS-11	3	5	5
GS-10	0	0	0
GS-9	0	0	0
GS-8	0	0	0
GS-7	2	2	2
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	73	77	91
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	0	0	0
Director Grade	1	1	1
Senior Grade	1	1	1
Full Grade	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	18	20	21
Total permanent positions	77	79	79
Total positions, end of year	94	100	115
Total full-time equivalent (FTE) employment, end of year	85	96	111
Average ES salary	0	0	0
Average GM/GS grade	13.1	13.1	13.2
Average GM/GS salary	126,707	128,299	131,683

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