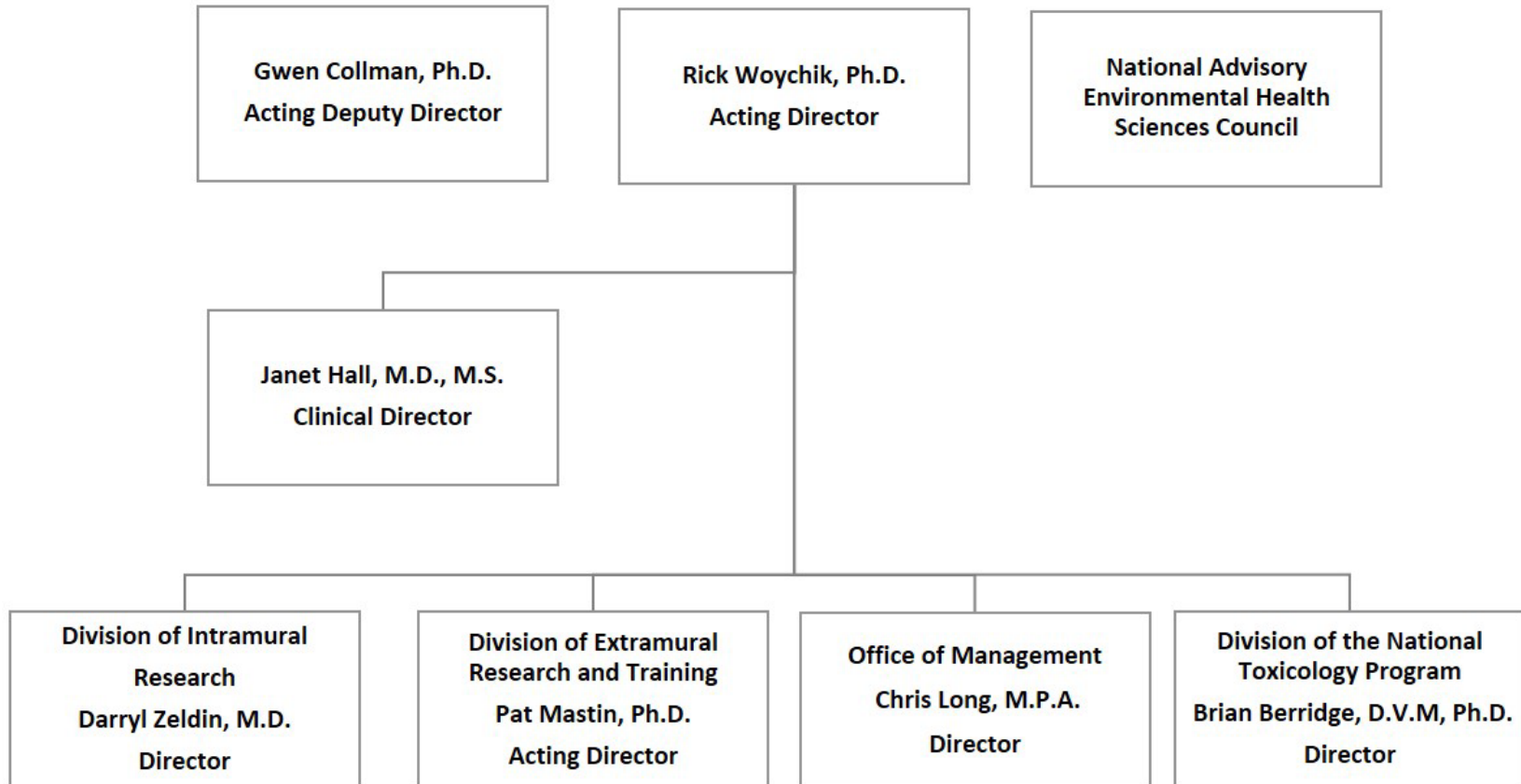


DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences (NIEHS)
Department of Interior and Related Agencies Appropriations
Superfund-Related Activities

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NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences
Organization Structure



Superfund-2

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences
Department of Interior, Environment, and Related Agencies Appropriations
Superfund Related Activities

For necessary expenses for the National Institute of Environmental Health Sciences in carrying out activities set forth in section 311(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9660(a)) and section 126(g) of the Superfund Amendments and Reauthorization Act of 1986, [~~\$81,000,000~~]*\$73,688,000*.
(Department of the Interior, Environment, and Related Agencies Appropriations Act, 2020.)

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Amounts Available for Obligation¹
(Dollars in Thousands)

Source of Funding	FY 2019 Final ²	FY 2020 Enacted	FY 2021 President's Budget
Appropriation	\$79,000	\$81,000	\$73,688
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	0	0	0
Subtotal, adjusted appropriation	\$79,000	\$81,000	\$73,688
OAR HIV/AIDS Transfers	0	0	0
HEAL Transfer from NINDS	0	0	0
Subtotal, adjusted budget authority	\$79,000	\$81,000	\$73,688
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	\$79,000	\$81,000	\$73,688
Unobligated balance lapsing	0	0	0
Total obligations	\$79,000	\$81,000	\$73,688

¹ Excludes the following amounts (in thousands) for reimbursable activities carried out by this account:
FY 2019 - \$9,041 FY 2020 - \$12,000 FY 2021 - \$12,000

² Excludes \$1.0 million supplemental appropriation provided in P.L. 116-20.

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Budget Mechanism - Total¹

(Dollars in Thousands)

MECHANISM	FY 2019 Final ²		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	1	\$154	0	\$0	0	\$0	0	\$0
Administrative Supplements	(4)	337	(0)	0	(0)	0	(0)	0
<u>Competing:</u>								
Renewal	0	0	0	0	0	0	0	0
New	0	0	0	0	10	2,500	10	2,500
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	0	\$0	0	\$0	10	\$2,500	10	\$2,500
Subtotal, RPGs	1	\$491	0	\$0	10	\$2,500	10	\$2,500
SBIR/STTR	12	2,544	9	2,461	8	2,015	-1	-446
Research Project Grants	13	\$3,035	9	\$2,461	18	\$4,515	9	\$2,054
<u>Research Centers:</u>								
Specialized/Comprehensive	0	\$0	0	\$0	0	\$0	0	\$0
Clinical Research	0	0	0	0	0	0	0	0
Biotechnology	0	0	0	0	0	0	0	0
Comparative Medicine	15	43,739	22	47,444	19	41,859	-3	-5,585
Research Centers in Minority Institutions	0	0	0	0	0	0	0	0
Research Centers	15	\$43,739	22	\$47,444	19	\$41,859	-3	-\$5,585
<u>Other Research:</u>								
Research Careers	0	\$0	0	\$0	0	\$0	0	\$0
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	30	28,030	31	26,657	23	23,099	-8	-3,559
Other Research	30	\$28,030	31	\$26,657	23	\$23,099	-8	-\$3,559
Total Research Grants	58	\$74,804	62	\$76,562	60	\$69,472	-2	-\$7,090
<u>Ruth L Kirchstein Training Awards:</u>								
Individual Awards	0	\$0	0	\$0	0	\$0	0	\$0
Institutional Awards	0	0	0	0	0	0	0	0
Total Research Training	0	\$0	0	\$0	0	\$0	0	\$0
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)</i>	0 (0)	\$0 (0)	0 (0)	\$0 (0)	0 (0)	\$0 (0)	0 (0)	\$0 (0)
Intramural Research	0	0	0	0	0	0	0	0
Res. Management & Support <i>Res. Management & Support (SBIR Admin) (non-add)</i>	0 (0)	4,196 (0)	0 (0)	4,438 (0)	0 (0)	4,216 (0)	0 (0)	-222 (0)
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, Superfund	0	\$79,000	0	\$81,000	0	\$73,688	0	-\$7,312

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

² Excludes \$1.0 million supplemental appropriation provided in P.L. 116-20.

Major Changes in the Fiscal Year 2021 Budget Request

Major changes by budget mechanism and/or budget program detail are briefly described below. The FY 2021 President's Budget for NIEHS Superfund is \$73.7 million, which is \$7.3 million below the FY 2020 Enacted level.

Research Project Grants (RPGs) (+\$2.1 million; total \$4.5 million):

NIEHS plans to support a total of 18 RPG awards in FY 2021, including 8 SBIR/STTR awards. No noncompeting RPG awards are anticipated in either FY 2020 or FY 2021.

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Summary of Changes

(Dollars in Thousands)

FY 2020 Enacted				\$81,000
FY 2021 President's Budget				\$73,688
Net change				-\$7,312
CHANGES	FY 2021 President's Budget		Change from FY 2020 Enacted	
	FTEs	Budget Authority	FTEs	Budget Authority
<u>A. Built-in:</u>				
<u>1. Intramural Research:</u>				
a. Annualization of January 2020 pay increase & benefits		\$0		\$0
b. January FY 2021 pay increase & benefits		0		0
c. Paid days adjustment		0		0
d. Differences attributable to change in FTE		0		0
e. Payment for centrally furnished services		0		0
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		0		0
Subtotal				\$0
<u>2. Research Management and Support:</u>				
a. Annualization of January 2020 pay increase & benefits		\$1,992		\$13
b. January FY 2021 pay increase & benefits		1,992		31
c. Paid days adjustment		1,992		-7
d. Differences attributable to change in FTE		1,992		0
e. Payment for centrally furnished services		12		-1
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		2,211		40
Subtotal				\$76
Subtotal, Built-in				\$76

**NATIONAL INSTITUTES OF HEALTH
Superfund**

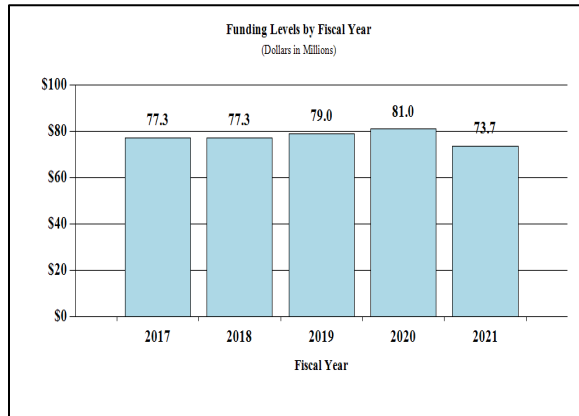
Summary of Changes - Continued

(Dollars in Thousands)

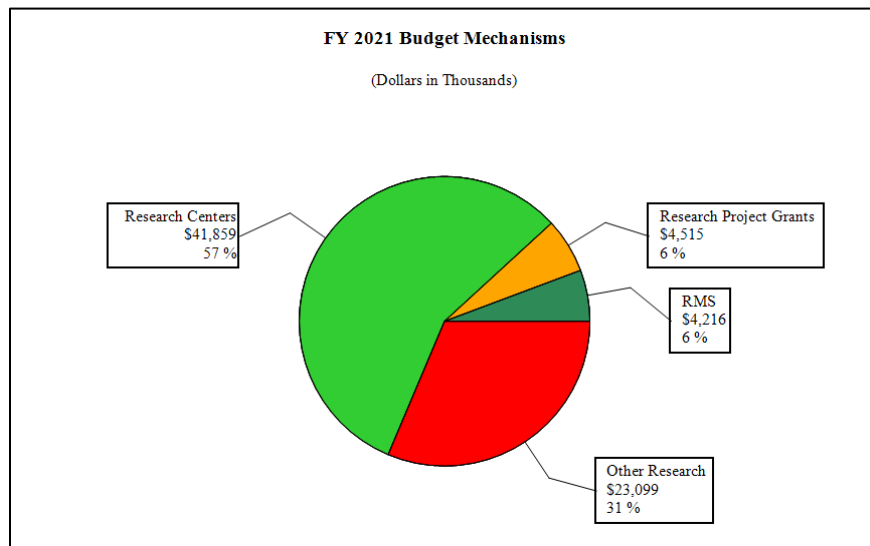
CHANGES	FY 2021 President's Budget		Change from FY 2020 Enacted	
	No.	Amount	No.	Amount
B. Program:				
<u>1. Research Project Grants:</u>				
a. Noncompeting	0	\$0	0	\$0
b. Competing	10	2,500	10	2,500
c. SBIR/STTR	8	2,015	-1	-446
Subtotal, RPGs	18	\$4,515	9	\$2,054
2. Research Centers	19	\$41,859	-3	-\$5,585
3. Other Research	23	23,099	-8	-3,559
4. Research Training	0	0	0	0
5. Research and development contracts	0	0	0	0
Subtotal, Extramural		\$69,472		-\$7,090
6. Intramural Research	<u>FTEs</u> 0	\$0	<u>FTEs</u> 0	\$0
7. Research Management and Support	0	4,216	0	-298
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	0	\$73,688	0	-\$7,388
Total changes				-\$7,312

Fiscal Year 2021 Budget Graphs

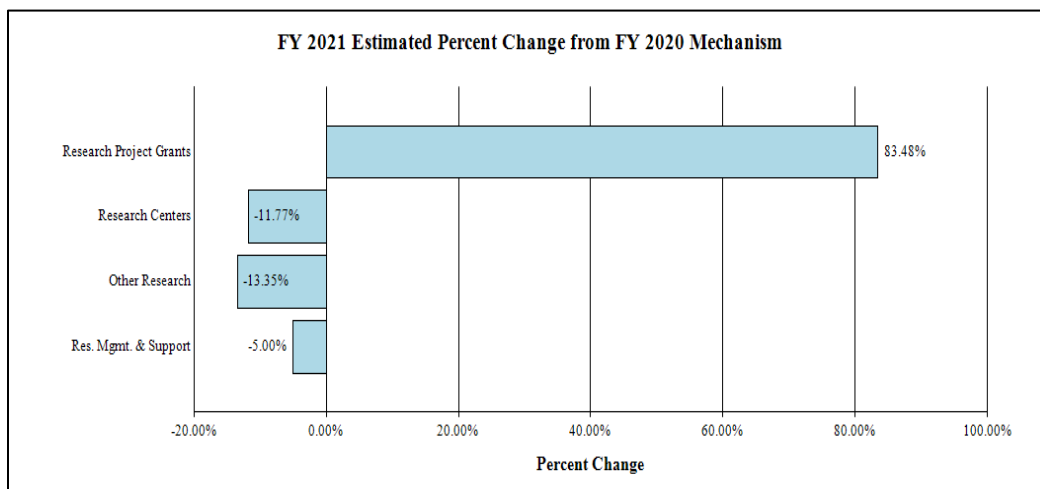
History of Budget Authority:



Distribution by Mechanism:



Change by Selected Mechanism:



**NATIONAL INSTITUTES OF HEALTH
Superfund**

Budget Authority by Activity¹
(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>
Extramural Research								
<u>Detail</u>								
Superfund Research		\$48,164		\$49,922		\$46,065		-\$3,857
Worker Training Program		26,640		26,640		23,407		-3,233
Subtotal, Extramural		\$74,804		\$76,562		\$69,472		-\$7,090
Intramural Research	0	\$0	0	\$0	0	\$0	0	\$0
Research Management & Support	0	\$4,196	0	\$4,438	0	\$4,216	0	-\$222
TOTAL	0	\$79,000	0	\$81,000	0	\$73,688	0	-\$7,312

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

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2020 Amount Authorized	FY 2020 Enacted	2021 Amount Authorized	FY 2021 President's Budget
Environmental Protection Agency's Hazardous Substance Superfund	CERCLA Section 311(a)	42§9660 Section 9660(a)	Indefinite	\$81,000,000	Indefinite	\$73,688,000
	SARA Section 126(a)	42§9660 Section 9660(a)	Indefinite		Indefinite	
Total, Budget Authority				\$81,000,000		\$73,688,000

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2012	\$81,085,000			\$79,054,000
Rescission				\$126,000
2013	\$78,928,000		\$78,928,000	\$78,927,514
Rescission				\$157,855
Sequestration				(\$3,961,618)
2014	\$79,411,000			\$77,349,000
Rescission				\$0
2015	\$77,349,000			\$77,349,000
Rescission				\$0
2016	\$77,349,000	\$77,349,000	\$77,349,000	\$77,349,000
Rescission				\$0
2017 ¹	\$77,349,000	\$77,349,000	\$77,349,000	\$77,349,000
Rescission				\$0
2018	\$59,607,000	\$75,370,000		\$77,349,000
Rescission				\$0
2019	\$53,967,000	\$80,000,000	\$78,349,000	\$79,000,000
Rescission				\$0
2020	\$66,581,000	\$80,000,000	\$81,000,000	\$81,000,000
Rescission				\$0
2021	\$73,688,000			

¹ Budget Estimate to Congress includes mandatory financing.

Justification of Budget Request

Superfund

Authorizing Legislation: Section 311(a) of the Comprehensive Environmental, Response, Compensation, and Liability Act of 1980, as amended, and Section 126(g) of the Superfund Amendments and Reauthorization Act of 1986.

Budget Authority (BA):

	FY 2019 Final	FY 2020 Enacted	FY 2021 President's Budget	FY 2021+ / - FY 2020
BA	\$79,000,000	\$81,000,000	\$73,688,000	-\$7,312,000

FTEs are included with the regular NIEHS appropriation.

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements and Other.

Director's Overview

The National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH), Superfund-Related Activities seek scientific solutions and training advancements to health and environmental problems associated with hazardous waste and disaster response. This program consists of two interdependent components: the Superfund Research Program (SRP) and the Worker Training Program (WTP).

The history of the NIEHS Superfund-Related Activities illustrates its development and successes. The Superfund Amendments and Reauthorization Act (SARA) of 1986 created SRP and WTP within NIEHS (Section 209(b) and Section 126(g) of P.L. 99-499, respectively). In 1987, the Programs' first year, SRP awarded four university-based research programs with funds of \$3 million while WTP awarded 11 non-profit organizations with funds totaling \$10 million. The Programs continued their progress, and in 1989, SRP added 5 new programs, while in 1990 WTP funded 16 organizations. Later in 2000, SRP's funding changed from an annual pass-through received from the U.S. Environmental Protection Agency (EPA) to a direct line item within the NIEHS budget, and WTP started a new 5-year funding cycle with 18 grantees. Then in 2002, SRP began participating in the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs and, in 2005, in response to lessons learned from national disasters, including the September 11, 2001 terrorist attacks, WTP established the HAZMAT Disaster Preparedness Training Program.

Over the years, SRP and WTP have each produced distinctive achievements. For example, early work by SRP grantees at the University of California, Davis, on testing pesticide safety led to the discovery of a previously unknown biological pathway for pain, opening a new field of pharmaceuticals to treat veterinary and human diseases, including hypertension, depression, and

neuropathic pain.¹ Another example is the research of Microvi, an SRP small business grantee, on biological-based treatment for 1,4-Dioxane that led to a breakthrough for removal of pollutants from municipal water treatment plants.² Their new approach to water treatment could prove a less expensive option to help fix nitrate pollution throughout the United States while producing less waste than existing processes.

Early SRP accomplishments continue to generate savings to the taxpayer today. For instance, a steam injection method to speed up remediation of groundwater contaminants,³ funded by SRP during the 1990s, has saved an estimated \$50 million in cleanup costs at a hazardous site in Visalia, California, and caused the site to be removed from the EPA-maintained Superfund National Priorities List. The method is currently being applied to at least 18 different hazardous waste sites in nine states.

Consistent with the 2018-2023 NIEHS Strategic Plan, SRP is helping to advance data sharing. Working with current grantees, SRP is accelerating the practice of sharing data on public repositories, as well as developing novel opportunities to reuse data to enhance science. As a result of the \$1.5 million in additional funds received in FY 2019 for SRP, compared with the prior year, SRP was able to invest in the recently established NIEHS Human Health Exposure Analysis Resource (HHEAR), which provides chemical testing services of biological samples and environmental samples, such as drinking water, that were collected from human health studies funded by the NIH with the goal of linking health outcomes to their environmental sources.

The WTP, charged with training workers in the safe handling of hazardous materials and waste, has also been successful. In 2019, approximately 9,000 courses were provided to 137,000 workers for over 1.4 million contact hours. More than 3.5 million workers have been enrolled in training courses since WTP's inception.

Long-standing WTP training of community members and groups in disaster response and cleanup has been a public health achievement. For example, WTP is addressing challenges related to "high hazard" freight trains and the needs of residents in oil train hazard zones across the Midwest United States, including the Twin Cities and in Minnesota rural communities. The University of Minnesota School of Public Health, through WTP grantee Midwest Consortium for Hazardous Worker Training (Midwest Consortium), has delivered specialized training that involves emergency response and preparedness opportunities with Citizens Acting for Rail Safety, a community-based rail safety initiative. WTP also has addressed new and emerging hazards as they arise, providing training that is responsive and takes advantage of new technology in personal protective equipment (PPE). For example, the International Association of Fire Fighters and several other NIEHS-funded emergency response training providers have adapted their training to the presence of cancer-causing substances during all fire responses. WTP grantees deliver appropriate education and training to first responders to minimize carcinogenic exposure during their daily work, emphasizing the critical importance of safe work

¹ <https://www.niehs.nih.gov/research/supported/success/2017/hammock/index.cfm>

² <https://www.scientificamerican.com/article/to-clean-drinking-water-just-add-microbes/>

³ Udell K, Heron G, McDonald M, and Mabey W. 2000. Steam enhanced extraction demonstration at site 5, Alameda Point. Field Feasibility Demonstration for the US Navy, DO-9. Final Report. Berkeley Environmental Restoration Center, University of California at Berkeley, Berkeley, CA.

practices and proper use of PPE. WTP reinforces the need to decontaminate equipment after even the simplest of fires and assures that trainees enter fires with properly fitting respiratory protection gear.

The WTP vision includes continued development of training and disaster response resources that include training for vulnerable worker populations, infectious diseases response, and opioids awareness. As a result of the \$151,000 in additional funds received in FY 2019 for WTP compared with the prior year, WTP used part of the increase to fund an additional Phase II, SBIR grant to further develop a social learning platform that formulates personalized learning activities for workers with an elevated risk of exposure to hazardous materials. The remainder of the funds were awarded in a generalized way, as additional funding, to existing grantees to conduct regular training under the Program.

Overall Budget Policy:

The FY 2021 President's Budget request for NIEHS Superfund is \$73.7 million, a decrease of \$7.3 million or 9.0 percent compared with the FY 2020 Enacted level.

Program Descriptions and Accomplishments

NIH/NIEHS Superfund Research Program (SRP)

SRP funds university-based grants to support basic biological, environmental, and engineering processes aimed at finding real and practical solutions to human health challenges associated with exposures to hazardous substances. SRP provides practical, scientific solutions to protect our health, environment, and communities.

SRP: Reducing Disparate Impacts – American Indians/Alaska Natives (AI/AN)

In concert with its mission, SRP funds research to reduce disparate impacts of toxic substances. Native Americans, for example, face disproportionate exposures to environmental pollution through traditional subsistence practices including shellfish harvesting. SRP-funded researchers at Oregon State University developed a passive sampling model, which offers a simplified, cost effective, and low impact approach to assess contaminant levels in butter clams, an important traditional food among Native Americans. The model will allow for informed decisions to avoid harmful exposures.

Similarly, uranium contamination and other toxic metals due to abandoned mining or National Priority List sites have the potential to adversely impact nearby Native American communities. The SRP funds the University of New Mexico Metals Exposure and Toxicity Assessment on Tribal Lands in the Southwest (UNM METALS) Center that works with these communities as well as federal stakeholders such as EPA. UNM METALS scientists are working closely with affected community members, and Tribal and Federal agencies, to identify site-specific factors that may impact site remediation, and to develop solutions that build onsite properties to: immobilize and remove metals; reduce risk in ways that are holistic, predictable, and sustainable; and test biological interventions to reduce toxicity.

Other SRP UNM grantees are investigating metal mixtures in unregulated water sources on the Navajo Nation. Contaminant mixtures are identified regularly in public and private drinking

water supplies throughout the United States; however, the complex and often interrelated nature of mixtures makes identification challenging. The UNM scientists used a special technique involving spatial clustering to identify and characterize contaminant mixtures in water supplies. These methods may be applied to help inform public policy makers, community outreach, and future research efforts to reduce exposure to multiple contaminants from unregulated water sources. This is especially important for Tribal communities since their access to regulated drinking water is more limited compared to the U.S. general population.

SRP: Rural Populations and Water

Many residents of the United States residing in remote or rural areas depend on private well and unregulated water sources for drinking and cooking, yet these sources may have high amounts of some contaminants such as arsenic. In the United States, arsenic contamination in groundwater disproportionately affects rural populations. Elevated arsenic exposure from drinking water is associated with increased risk of cardiovascular disease, diabetes, kidney disease, and skin, lung, and bladder cancer. SRP grantees at Columbia University are working on the Strong Heart Water Study, which aims to inform and design a multi-level intervention to reduce arsenic exposure among private well users in the Great Plains Indian Nations. Recent progress from this research provides a model for the development of environmental health interventions to reduce arsenic exposure from drinking water.

To better address impacts of toxic substances on human health and ecological quality, scientists at the University of Iowa funded through the SRP have completed a study that better predicts the transfer of pesticides and toxic chemicals from soils (or water) to food crops. This model performs far better than any other model previously developed for predicting the contamination levels of pesticides and toxic organic chemicals in crop roots—a model that is improving the assessment of food safety risks. Such knowledge is needed for estimating the levels of harmful substances in food chains and the associated human health impacts, which may ultimately alter farming practices.

Budget Policy:

The FY 2021 President's Budget request is \$46.1 million, a decrease of \$3.9 million or 7.7 percent compared with the FY 2020 Enacted level.

Program Portrait: SRP and Per- and polyfluoroalkyl substances (PFAS)

In 2019, NIEHS SRP competitively awarded a five-year grant to the University of Rhode Island to fund its “Sources, Transport, Exposure and Effects of PFASs (STEEP) Superfund Research Program Center.” The Center is assessing the impact of PFAS exposures on immune dysfunction and metabolic abnormalities by examining the health of children from birth cohorts. The Center is also characterizing hydrological flow paths and groundwater geochemistry in Cape Cod, Massachusetts to better understand how environmental factors influence the transport and transformations of PFAS away from contaminated sites and into drinking water supplies. Additionally, the Center is developing and validating novel passive sampling tools for PFAS to measure time-weighted average concentrations for some PFAS and their volatile precursors. These tools can be deployed to aid site managers in risk

characterization. Promising results indicate that these sampling tools can be effective monitors for airborne PFAS, a route that may contribute significantly to PFAS fate, transport, and human exposure. Finally, the Center is engaging communities and advising stakeholders on ways to effectively reduce human exposure to PFAS.

Through SBIR grants, the SRP provides support to scientists and engineers developing novel technologies for mitigation and remediation of PFAS in the environment. NIEHS SBIR grantee CycloPure, Inc., of Illinois, is developing novel, high-affinity cyclodextrin polymers for the cost-effective remediation of PFAS from water.⁴ In another NIEHS SBIR project, EnChem Engineering, Inc., of Massachusetts, is developing and demonstrating an innovative technology to cost-effectively expedite treatment of PFAS at Superfund sites. The technology includes a mobile unit that combines a wash cycle using a non-toxic sugar, followed by an intense extraction and destruction process. Their results show more than 99 percent removal. Yet another innovative tool is being developed by SRP grantee Lynntech, Inc., of Texas, and utilizes plasma-based technology to decompose PFAS in water. Additionally, Michigan State University and Texas A&M University SRP Centers are developing strategies to remediate PFAS via energy efficient nanoreactors capable of breaking the carbon-fluorine bond, as well as hydrogel sorbents to extract PFAS, respectively.

SRP grantees at the University of Arizona are developing groundwater modeling tools to predict how PFAS move in the subsurface, helping to understand where to target remediation approaches. These grantees have continued to work closely with Federal and State officials to translate scientifically defensible findings to guide best practices for PFAS monitoring and management, including several outreach efforts within regions impacted by PFAS, such as the New England States (Northeast Waste Management Officials' Association), as well as Michigan, North Carolina, and New York. These outreach efforts also extend to communities grappling with the complexities of PFAS exposure and the uncertainties of risk.

NIH/NIEHS Worker Training Program (WTP)

WTP provides the Nation with a workforce trained in the safe handling of hazardous materials and waste. This includes thousands of workers employed at Superfund sites across the United States. This vital training is conducted in all regions of the country and for all relevant target populations through a network of non-profit organizations, including labor-based health and safety organizations and academic institutions. These organizations are committed to protecting workers and their communities by creating and delivering high-quality, peer-reviewed safety and health curricula. WTP has built a national workforce ready to handle hazardous materials, address environmental concerns, and clean up hazardous waste and debris after disasters strike.

⁴ NIH Grant No. R43ES029401. Remediation of Perfluorinated Chemicals in Water Using Novel High-Affinity Polymer Adsorbents. Barin, Gokhan. CycloPure, Inc. Awarded March 22, 2018. NIH RePORTER Link.

WTP: Response and Preparedness for Natural Disasters

WTP funds training for workers who may face a hazardous work environment. This includes training in disaster response, preparedness, and resilience involving natural disasters such as hurricanes, floods, and wildfires. For example, in Northern California, the International Brotherhood of Teamsters Worker Training Program provided six 40-hour HAZWOPER courses to residents who were involved in wildfire cleanup activities. There were 69 students in the classes for a total of 2,760 contact hours. Many of these students were able to secure temporary jobs as a result of the training they received from these classes. As another example, the University of Minnesota, under the Midwest Consortium/University of Cincinnati, conducted mold training in Minnesota in response to spring flooding, which provided important instruction to help workers remediate flood damage properly and safely.

WTP: Health and Safety in the Industrial Sector

WTP supports large and small industrial businesses across the United States in helping to avoid costly workplace accidents, illnesses, and injuries, and in keeping worksites and communities safer. Through a multi-state agreement with Ford Motor Company, Emergency Response Solutions International of Plymouth, Michigan – which is part of the Midwest Consortium – delivers courses at Ford plants located in Ohio, New York, Michigan, and several other states. Classes include confined space rescue, emergency response, and proper use of PPE. In 2018, owing to the training received from this program, a fire was quickly extinguished by an employee at the Ford Dearborn Truck Plant in Dearborn, Michigan, protecting lives and equipment as well as 15 minutes of production time that saved the company \$150,000.

The United Steelworkers' Tony Mazzocchi Center for Health, Safety, and Environmental Education provides training to local union members and management throughout the United States. The Center has trained workers in high-hazard industry sectors, such as the paper, rubber, oil, and chemical sectors. Many facilities, such as the 3M Company Plant in Guin, Alabama, are part of the Union's labor-management cooperative health and safety program called the Triangle of Prevention. Through the Program, union health and safety leaders engage entire plant populations, including managers, to deliver training, conduct safety incident investigations, develop, and share lessons learned, and implement systematic improvements. The 3M facility initiated the Program in 2003 and has completed more than 6,700 corrective actions since then.

WTP: American Indian/Alaska Native (AI/AN) Training

WTP grantee Alabama Fire College (AFC) in Tuscaloosa, Alabama, has enjoyed a growing relationship with the Saint Regis Mohawk Tribe in Akwesasne, New York. In recent years, AFC has provided hazardous waste worker and hazardous materials response training at the awareness, operations, and technician levels. In 2019, Tribal members were trained in the Federal Emergency Management Agency's ICS 300 – Intermediate Incident Command System for Expanding Incidents – and ICS 400 – Advanced Incident Command System for Complex Incidents. Additional courses are planned such as an eight-hour radiation and nuclear awareness course. These courses prepare Tribal members to participate more effectively and completely in EPA regional exercises, which test the readiness of response capabilities and procedures, as well as allow first responders to better coordinate and operate together. The Assistant Director of the

Environmental Division of the Tribe stated that AFC training over the years has contributed greatly to the Tribe’s capacity to participate in EPA emergency response exercises.

WTP: Job Readiness Training

The WTP’s Environmental Career Worker Training Program (ECWTP) provides job and life skills training for unemployed and underemployed individuals who go on to obtain employment in environmental remediation and construction fields. The ECWTP provides job certifications for successful participants that helps them find a career or continue their occupations in environmental remediation, construction, or other similar trades. The program has maintained a high job placement rate of over 70 percent.

ECWTP is implemented in St. Paul, Minnesota through the Center for Construction Research and Training (CPWR), a WTP grantee. CPWR, in collaboration with the St. Paul Building Trades and Construction Careers Foundation, the Minnesota Building and Construction Trades Council, and state and local partner organizations, provides training in environmental hazards, construction, and life skills as well as mentoring and career guidance. Through this unique partnership, the community members develop marketable skills and receive assistance with job placement. The graduates of this pre-apprenticeship program use their certifications and training to go directly to work, thereby meeting the high demand for construction workers in Minnesota. Prior trainees are now earning an average of \$18.26 an hour and, last year, had 100 percent job placement.

Budget Policy:

The FY 2021 President’s Budget request is \$23.4 million, a decrease of \$3.2 million or 13.8 percent compared with the FY 2020 Enacted level.

Program Portrait: WTP and Opioids — Prevention of Occupational Exposure, and Workforce Training on Use and Abuse.

NIEHS WTP is at the forefront of addressing the opioid crisis from the worker health and safety perspective, combating this national-level threat to our workers and communities. WTP developed a training tool titled “Prevention of Occupational Exposure to Fentanyl and Other Opioids,” available since 2018, which provides awareness-level training to workers who have the potential for occupational exposure. The training tool is designed for emergency medical services, law enforcement, crime laboratories, environmental cleaners, and health care workers but can be helpful to a broad range of workers. Another training tool, “Opioids and the Workplace: Prevention and Response,” has been recently developed that covers primary prevention of workplace injury, avoidance of opioid misuse and addiction, and effective treatment and recovery programs.⁵

In addition, WTP has held two recent workshops that address opioids. The Fall 2018 workshop, “Opioid-Related Hazards in the Workplace,” shaped a training framework and response that is raising awareness of the issue and helping to protect workers and

⁵ <https://tools.niehs.nih.gov/wetp/index.cfm?id=2587>

communities.⁶ The Spring 2019 workshop, “Exploring Workplace Interventions Addressing Workplace Stress and Addiction,” focused on interventions, training initiatives, and best practices in the United States and internationally.⁷

WTP grantees have also been using their funding to combat the opioid epidemic across the United States. For example, the International Union, United Auto Workers (UAW) implemented opioid awareness training at their annual health and safety training conference. They were able to deliver four five-hour training sessions in March 2019, that focused on health and safety implications and workplace strategies around opioids.

CPWR continues to work with WTP staff on addressing the opioid epidemic. Their Executive Director is the Chairperson of the National Association of Building Trades Unions, Opioid Task Force and provides input to the Task Force and NIEHS from the construction industry perspective, which has been impacted hardest by this epidemic.

The New England Consortium-Civil Service Employees Association, organized at the University of Massachusetts, Lowell, worked with the City of Syracuse, New York Department of Public Works to train sanitation and codes crews on the danger of opioids in the workplace. The focus of the training was primarily on workplace exposures and addressed the dangers of opioid addiction from common cleanup injuries and how to avoid those injuries. The Town of Hempstead, New York, has been conducting similar training with an emphasis on opioids in the workplace.

Research Management and Support (RMS):

The RMS allocation provides administrative, logistical, and scientific support in the review, award, and monitoring of SRP research grants and WTP training grants. Other RMS functions include program planning, coordination, and evaluation, as well as liaison with other Federal agencies, stakeholders, and the public. For example, RMS support funded an analysis that used a case study approach to identify how SRP-funded basic research has had an impact on science, health, and society. RMS also supports the National Clearinghouse for Worker Safety and Health Training, a national resource for curricula, technical reports, and weekly news that provides technical assistance to hazardous waste workers, WTP staff, program awardees, and the public.

Budget Policy:

The FY 2021 President’s Budget request is \$4.2 million, a decrease of \$222,000 or 5.0 percent compared with the FY 2020 Enacted level.

⁶ https://www.niehs.nih.gov/news/events/pastmtg/hazmat/2018/fall_WTP_meeting/index.cfm

⁷ https://www.niehs.nih.gov/news/events/pastmtg/hazmat/2019/Spring_meeting/

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2020 Enacted	FY 2021 President's Budget	FY 2021 +/- FY 2020
Total compensable workyears:			
Full-time equivalent	0	0	0
Full-time equivalent of overtime and holiday hours	0	0	0
Average ES salary	\$0	\$0	\$0
Average GM/GS grade	0.0	0.0	0.0
Average GM/GS salary	\$0	\$0	\$0
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$0	\$0	\$0
Average salary of ungraded positions	\$0	\$0	\$0
OBJECT CLASSES	FY 2020 Enacted	FY 2021 President's Budget	FY 2021 +/- FY 2020
Personnel Compensation			
11.1 Full-Time Permanent	1,212	1,226	14
11.3 Other Than Full-Time Permanent	214	217	2
11.5 Other Personnel Compensation	21	21	0
11.7 Military Personnel	0	0	0
11.8 Special Personnel Services Payments	0	0	0
11.9 Subtotal Personnel Compensation	\$1,447	\$1,463	\$17
12.1 Civilian Personnel Benefits	509	529	20
12.2 Military Personnel Benefits	0	0	0
13.0 Benefits to Former Personnel	0	0	0
Subtotal Pay Costs	\$1,956	\$1,992	\$36
21.0 Travel & Transportation of Persons	170	152	-19
22.0 Transportation of Things	0	0	0
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	0	0	0
23.3 Communications, Utilities & Misc. Charges	0	0	0
24.0 Printing & Reproduction	0	0	0
25.1 Consulting Services	128	114	-14
25.2 Other Services	1,187	1,057	-130
25.3 Purchase of goods and services from government accounts	989	892	-97
25.4 Operation & Maintenance of Facilities	0	0	0
25.5 R&D Contracts	0	0	0
25.6 Medical Care	0	0	0
25.7 Operation & Maintenance of Equipment	0	0	0
25.8 Subsistence & Support of Persons	0	0	0
25.0 Subtotal Other Contractual Services	\$2,303	\$2,063	-\$240
26.0 Supplies & Materials	9	9	0
31.0 Equipment	0	0	0
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	76,562	69,472	-7,090
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	\$79,044	\$71,696	-\$7,348
Total Budget Authority by Object Class	\$81,000	\$73,688	-\$7,312

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

**NATIONAL INSTITUTES OF HEALTH
Superfund**

Salaries and Expenses

(Dollars in Thousands)

OBJECT CLASSES	FY 2020 Enacted	FY 2021 President's Budget	FY 2021 +/- FY 2020
Personnel Compensation			
Full-Time Permanent (11.1)	\$1,212	\$1,226	\$14
Other Than Full-Time Permanent (11.3)	214	217	2
Other Personnel Compensation (11.5)	21	21	0
Military Personnel (11.7)	0	0	0
Special Personnel Services Payments (11.8)	0	0	0
Subtotal Personnel Compensation (11.9)	\$1,447	\$1,463	\$17
Civilian Personnel Benefits (12.1)	\$509	\$529	\$20
Military Personnel Benefits (12.2)	0	0	0
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	\$1,956	\$1,992	\$36
Travel & Transportation of Persons (21.0)	\$170	\$152	-\$19
Transportation of Things (22.0)	0	0	0
Rental Payments to Others (23.2)	0	0	0
Communications, Utilities & Misc. Charges (23.3)	0	0	0
Printing & Reproduction (24.0)	0	0	0
Other Contractual Services:			
Consultant Services (25.1)	128	114	-14
Other Services (25.2)	1,187	1,057	-130
Purchases from government accounts (25.3)	989	892	-97
Operation & Maintenance of Facilities (25.4)	0	0	0
Operation & Maintenance of Equipment (25.7)	0	0	0
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	\$2,303	\$2,063	-\$240
Supplies & Materials (26.0)	\$9	\$9	\$0
Subtotal Non-Pay Costs	\$2,482	\$2,224	-\$258
Total Administrative Costs	\$4,438	\$4,216	-\$222

**National Institutes of Health
Budget Request by Institute and Center**

(Dollars in Thousands) ⁵	FY 2019 Final	FY 2020 Enacted ⁶	FY 2021 President's Budget
NCI.....	\$6,121,288	\$6,440,438	\$5,881,173
NHLBI.....	\$3,482,377	\$3,625,258	\$3,298,004
NIDCR.....	\$460,644	\$477,679	\$434,559
NIDDK ¹	\$2,175,511	\$2,265,146	\$2,074,211
NINDS.....	\$2,246,308	\$2,446,577	\$2,245,110
NIAID.....	\$5,545,135	\$5,876,195	\$5,445,886
NIGMS ²	\$2,821,880	\$2,937,218	\$2,672,074
NICHD.....	\$1,501,251	\$1,556,909	\$1,416,366
NEL.....	\$793,783	\$823,325	\$749,003
NIEHS ³	\$850,966	\$883,598	\$803,835
NIA.....	\$3,080,077	\$3,545,869	\$3,225,782
NIAMS.....	\$602,918	\$624,889	\$568,480
NIDCD.....	\$472,996	\$490,692	\$446,397
NIMH.....	\$1,871,685	\$2,042,966	\$1,844,865
NIDA.....	\$1,408,216	\$1,457,724	\$1,431,770
NIAAA.....	\$525,316	\$546,696	\$497,346
NINR.....	\$163,169	\$172,363	\$156,804
NHGRI.....	\$575,387	\$604,118	\$550,116
NIBIB.....	\$388,113	\$404,638	\$368,111
NIMHD.....	\$313,211	\$335,812	\$305,498
NCCIH.....	\$145,961	\$151,877	\$138,167
NCATS.....	\$815,603	\$832,888	\$787,703
FIC.....	\$77,921	\$80,827	\$73,531
NLM.....	\$440,847	\$456,911	\$415,665
OD.....	\$2,103,986	\$2,404,387	\$2,208,063
B&F.....	\$199,313	\$200,000	\$300,000
NIRSQ ⁴	---	---	\$355,112
Total, NIH Program Level.....	\$39,183,862	\$41,685,000	\$38,693,631
Special Type 1 Diabetes Research.....	-\$150,000	-\$150,000	-\$150,000
PHS Program Evaluation.....	-\$1,146,821	-\$1,230,821	-\$741,000
Interior Approp. (Superfund Research).....	-\$79,000	-\$81,000	-\$73,688
Patient-Centered Outcomes Research Trust Fund.....	---	---	-\$98,452
Total, NIH Labor/HHS Budget Authority.....	\$37,808,041	\$40,223,179	\$37,630,491

¹ Includes enacted or requested Type 1 Diabetes Research mandatory funding of \$150.0 million in each of FY 2019 through FY 2021.

² Includes Program Evaluation financing of \$1,146.8 million in FY 2019, \$1,230.8 million in FY 2020, and \$741.0 million in FY 2021.

³ Includes Interior Appropriation for Superfund Research activities of \$79.0 million in FY 2019, \$81.0 million in FY 2020, and \$73.7 million in FY 2021.

⁴ Figure for FY 2021 reflects the proposed consolidation of Agency for Healthcare Research and Quality activities into NIH as the National Institute for Research on Safety and Quality (NIRSQ). Includes Patient-Centered Outcomes Research Trust Fund (PCORTF) funding of \$98.5 million.

⁵ Includes funding derived by transfer from the NIH Innovation Account under the 21st Century Cures Act.

⁶ Amounts for FY 2020 reflect directive transfer of \$5.0 million from OD to the HHS Office of Inspector General, HIV/AIDS transfers across ICs under the authority of the Office of AIDS Research, and \$150.0 million for Type 1 Diabetes Research (enacted amount of \$96.575 million through May 22, 2020 plus extension request of \$53.425 million).

**NATIONAL INSTITUTES OF HEALTH
FY 2021 Congressional Justification**

Budget Mechanism - Total^{1,2,3}

(Dollars in Thousands) ^{1,2,3}	FY 2019 Final ⁴		FY 2020 Enacted ⁵		FY 2021 President's Budget ⁶		FY 2021 +/- FY 2020	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	27,624	\$14,564,519	29,508	\$16,004,065	30,109	\$15,631,587	601	-\$372,478
Administrative Supplements ³	(2,341)	437,486	(2,300)	501,907	(1,517)	277,780	(-783)	-224,127
Competing	11,020	\$6,313,647	11,379	\$6,224,996	9,505	\$5,144,843	-1,874	-\$1,080,153
Subtotal, RPGs	38,644	\$21,315,652	40,887	\$22,730,968	39,614	\$21,054,209	-1,273	-\$1,676,758
SBIR/STTR	2,023	1,052,394	2,140	1,118,874	1,993	1,035,570	-147	-83,304
Research Project Grants	40,667	\$22,368,046	43,027	\$23,849,842	41,607	\$22,089,780	-1,420	-\$1,760,062
Research Centers:								
Specialized/Comprehensive	998	\$1,927,569	1,021	\$1,895,832	926	\$1,693,289	-95	-\$202,542
Clinical Research	70	420,992	67	427,137	66	397,046	-1	-30,091
Biotechnology	85	142,465	79	134,917	75	122,935	-4	-11,982
Comparative Medicine	50	136,741	49	131,392	47	124,233	-2	-7,159
Research Centers in Minority Institutions	19	63,189	21	74,500	21	68,250	0	-6,250
Research Centers	1,222	\$2,690,957	1,237	\$2,663,777	1,135	\$2,405,752	-102	-\$258,024
Other Research:								
Research Careers	4,222	\$790,182	4,445	\$824,556	4,168	\$773,975	-277	-\$50,581
Cancer Education	77	20,459	101	26,890	96	25,546	-5	-1,345
Cooperative Clinical Research	257	468,112	277	461,252	232	398,865	-45	-62,387
Biomedical Research Support	131	81,134	128	80,408	119	74,706	-9	-5,702
Minority Biomedical Research Support	286	100,758	280	98,477	240	84,534	-40	-13,943
Other	2,134	1,113,725	2,277	1,171,899	2,159	1,082,833	-118	-89,066
Other Research	7,107	\$2,574,370	7,508	\$2,663,482	7,014	\$2,440,458	-494	-\$223,024
Total Research Grants	48,996	\$27,633,373	51,772	\$29,177,100	49,756	\$26,935,990	-2,016	-\$2,241,110
Ruth L. Kirchstein Training Awards:								
	FTTPs		FTTPs		FTTPs		FTTPs	
Individual Awards	3,654	\$170,240	3,814	\$183,810	3,598	\$172,660	-216	-\$11,151
Institutional Awards	13,221	695,065	13,833	726,112	12,707	675,043	-1,126	-51,069
Total Research Training	16,875	\$865,305	17,647	\$909,923	16,305	\$847,703	-1,342	-\$62,220
Research & Develop. Contracts (SBIR/STTR) (non-add) ³	2,455 (129)	\$3,164,921 (91,059)	2,663 (113)	\$3,349,392 (81,196)	2,409 (103)	\$3,077,107 (74,359)	-254 (-10)	-\$272,285 (-6,836)
Intramural Research		\$4,143,842		\$4,445,880		\$4,076,559		-\$369,321
Res. Management & Support Res. Management & Support (SBIR Admin) (non-add) ³		1,883,396 (8,175)		2,014,642 (11,219)		1,926,132 (8,426)		-88,510 (-2,793)
Office of the Director - Appropriation ^{3,7}		(2,103,986)		(2,404,387)		(2,208,063)		(-196,324)
Office of the Director - Other		1,196,712		1,477,063		1,343,000		-134,063
ORIP (non-add) ^{3,7}		(288,108)		(288,213)		(268,596)		(-19,617)
Common Fund (non-add) ^{3,7}		(619,166)		(639,111)		(596,467)		(-42,644)
Buildings and Facilities ⁸ Appropriation ³		217,313 (199,313)		230,000 (200,000)		315,000 (300,000)		85,000 (100,000)
Type 1 Diabetes ^{9,10}		-150,000		-150,000		-150,000		0
Program Evaluation Financing ⁹		-1,146,821		-1,230,821		-741,000		489,821
Subtotal, Labor/HHS Budget Authority		\$37,808,041		\$40,223,179		\$37,630,491		-\$2,592,688
Interior Appropriation for Superfund Research		79,000		81,000		73,688		-7,312
Total, NIH Discretionary Budget Authority		\$37,887,041		\$40,304,179		\$37,704,179		-\$2,600,000
Type 1 Diabetes ¹⁰		150,000		150,000		150,000		0
Patient-Centered Outcomes Research Trust Fund (PCORF)		0		0		98,452		98,452
Total, NIH Budget Authority		\$38,037,041		\$40,454,179		\$37,952,631		-\$2,501,548
Program Evaluation Financing		1,146,821		1,230,821		741,000		-489,821
Total, Program Level		\$39,183,862		\$41,685,000		\$38,693,631		-\$2,991,369

1 All Subtotal and Total numbers may not add due to rounding.
2 Includes 21st Century Cures Act funding and excludes hurricane-related supplemental financing.
3 All numbers in italics and brackets are non-add.
4 Includes \$186.4 million of 21st Century Cures and \$76.5 million of Type 1 Diabetes funding appropriated in FY 2019 and carried over into FY 2020. Numbers of grants and dollars for carryover are distributed by mechanism.
5 Reflects transfer of \$5.0 million to the HHS OIG.
6 Includes the proposed consolidation of Agency for Healthcare Research and Quality activities into NIH as the National Institute for Research on Safety and Quality (NIRSQ), distributed by mechanism.
7 Number of grants and dollars for the Common Fund and ORIP components of OD are distributed by mechanism and are noted here as non-adds. Office of the Director - Appropriation is the non-add total of these amounts and the funds accounted for under OD - Other.
8 Includes B&F appropriation and monies allocated (\$18.0 million in FY 2019, \$30.0 million in FY 2020, and \$15.0 million in FY 2021) pursuant to appropriations acts provisions that funding may be used for facilities repairs and improvements at the NCI Federally Funded Research and Development Center in Frederick, Maryland.
9 Number of grants and dollars for mandatory Type 1 Diabetes (T1D) and NIGMS Program Evaluation financing are distributed by mechanism above; therefore, T1D and Program Evaluation financing amounts are deducted to provide subtotals for Labor/HHS Budget Authority.
10 FY 2020 reflects requested extension of Type 1 Diabetes Research from enacted amount of \$96.575 million through May 22, 2020 to full-year level of \$150.0 million.

NATIONAL INSTITUTES OF HEALTH
Detail of Full-Time Equivalent Employment (FTE)

Institutes and Centers	FY 2019 Actual	FY 2020 Estimate	FY 2021 Estimate
NCI.....	2,888	3,035	3,035
NHLBI.....	840	962	962
NIDCR.....	225	235	235
NIDDK.....	621	660	660
NINDS.....	496	532	532
NIAID.....	1,921	1,963	1,963
NIGMS.....	172	184	184
NICHD.....	525	561	561
NEL.....	257	273	273
NIEHS.....	611	662	662
NIA.....	417	435	435
NIAMS.....	217	238	238
NIDCD.....	129	140	140
NIMH.....	537	563	563
NIDA.....	357	382	382
NIAAA.....	225	238	238
NINR.....	89	96	96
NHGRI.....	321	349	349
NIBIB.....	93	102	102
FIC.....	56	61	61
NIMHD.....	70	68	68
NCCIH.....	71	73	73
NCAATS.....	172	167	167
NLM.....	659	741	741
OD.....	792	780	780
NIRSQ ¹	---	---	238
Central Services:			
OD - CS.....	760	841	841
CC.....	1,845	1,844	1,844
CSR.....	410	417	417
CIT.....	229	257	257
ORS.....	516	539	539
ORF.....	710	707	707
Subtotal Central Services².....	4,470	4,605	4,605
<i>PHS Trust Fund (non-add)³.....</i>	<i>4</i>	<i>4</i>	<i>4</i>
<i>CRADA (non-add)⁴.....</i>	<i>5</i>	<i>5</i>	<i>5</i>
PCOR Trust Fund ¹	---	---	7
Total.....	17,231	18,105	18,350

¹ Figures for FY 2021 reflect the proposed consolidation of Agency for Healthcare Research and Quality activities into NIH as the National Institute for Research on Safety and Quality (NIRSQ).

² Reflects FTE associated with Central Services positions whose payroll costs are financed from the NIH Management Fund and the NIH Service and Supply Fund.

³ PHS Trust Fund positions are incorporated within the IC's Direct-funded civilian FTE category and are treated as non-add values.

⁴ CRADA positions are distributed across multiple ICs and are treated as non-add values.