

NATIONAL INSTITUTE ON BODY SYSTEMS

CONGRESSIONAL JUSTIFICATION
FY 2026

Department of Health and Human Services
National Institutes of Health

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Institute on Body Systems

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General Notes

1. The proposed National Institute on Body Systems (NIBS) will consolidate the research activities of the National Heart, Lung, and Blood Institute (NHLBI), the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Figures for FY 2024 and FY 2025 in this document aggregate NHLBI, NIAMS, and NIDDK to provide for comparability to the FY 2026 estimates for NIBS.
2. FY 2025 Enacted levels cited in this document reflect the FY 2025 full-year continuing resolution (Public Law 119-4) and include the effects of the FY 2025 HIV/AIDS transfer.
3. FY 2026 FTE levels reflect estimates and are subject to change.
4. Detail in this document may not sum to the subtotals and totals due to rounding.

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Summary

The National Institute on Body Systems (NIBS) will be a newly streamlined Institute consisting of the existing National Heart, Lung, and Blood Institute (NHLBI), National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), and National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The missions of these three Institutes will be integrated into NIBS.

NHLBI supports research to prevent and treat heart, lung, blood, and sleep disorders. Many of the conditions in the NHLBI's portfolio are complex, multifactorial, and chronic, often worsening over time unless carefully managed. To address this, the Institute's research includes basic science, epidemiological (population) studies, and clinical trials, as well as implementation and translational science. It is the interplay and progression of science across these research areas that leads to the development of new therapies and cures and their integration into clinical care.

NIAMS is the primary institute supporting biomedical research on diseases of the bones, joints, muscles, and skin. Its mission is to support research into the causes, treatment, and prevention of arthritis, musculoskeletal, and skin diseases; the training of basic and clinical scientists to carry out this research; and the dissemination of information on research progress in these diseases.

NIDDK's mission is to support and conduct research to combat diabetes and other endocrine and metabolic diseases; liver and other digestive diseases; nutritional disorders; obesity; and kidney, urologic, and hematologic diseases. This includes some of the most chronic, common, and costly diseases and conditions affecting the United States, as well as rarer conditions that, while less widespread, are still devastating. NIDDK's priorities are to maintain a vigorous investigator-initiated research portfolio, support pivotal clinical studies and trials, promote a steady pool of talented new investigators, foster exceptional research training and mentoring opportunities, and ensure knowledge dissemination through outreach and communications.

The Institutes comprising NIBS represent the leading causes of death in the United States and invest significantly in research to address chronic diseases. Through continued investments across a broad range of scientific approaches, goals, and objectives, NIBS's research will hold enormous promise not only to envision, but to realize a future in which clinicians can deliver the best treatment to the appropriate person at the right time, wherever they may live.

The FY 2026 budget request for NIBS is \$4,152.1 million in discretionary funding, along with \$159.0 million of mandatory funding from a one-year reauthorization of the mandatory Type 1 Diabetes program.

Major Changes in the Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanisms and activity detail; and these highlights may not sum exactly to the total change for the FY 2026 budget request for the National Institute of Body Systems (NIBS), which is \$4,152.1 million, a decrease of \$2,833.8 million compared with the FY 2025 full-year CR level. The request also includes \$159.0 million for a one-year reauthorization of the mandatory Type 1 Diabetes program. Within the framework of the Administration's fiscal policy and goals, NIBS will continue to pursue its highest research priorities through strategic investments and careful stewardship of the appropriated funds.

Research Project Grants (RPGs) (-\$1,948.6 million; total \$2,749.2 million):

The FY 2026 request supports 589 competing RPGs, 4,643 noncompeting RPG awards, and 125 awards to small businesses to stimulate research technology in key strategic areas. The request is a 37.4 percent decrease to noncompeting RPGs for \$2,114.5 million, in comparison to \$3,375.8 million in the FY 2025 full-year CR level. RPG funding reflects implementation of a limit on indirect costs to no more than 15 percent of direct costs. The FY 2026 request will continue the FY 2025 NIH policy of allocating half of the budget for competing RPGs for awards that fully fund their outyear commitments as part of the initial grant awards. Funding for competing RPGs, a 52.8 percent decrease from FY 2025, provides for 589 new awards reflecting this mix of fully-funded and incrementally-funded awards. Awards for small business are funded at a 43.4 percent decrease in comparison to FY 2025. The total funding will provide continuous support to prior fiscal year research investments, as well as some support for new research in response to the NIH Notice of Funding Announcements focused on investigator research.

Research Centers (-\$84.2 million; total \$80.1 million):

NIBS will decrease funding for Research Centers by 51.3 percent, which is a \$84.2 million decrease compared to the FY 2025 full-year CR level of \$164.4 million. This funding level reflects the effects of the 15 percent limit on indirect costs for Research Center awards. The request will support current investments for several specialized research centers that conduct large-scale analysis that leads to prevention, diagnosis, and treatment of body systems.

Other Research (-\$307.1 million; total \$214.5 million):

Funding for Other Research decreases by 58.9 percent and \$307.1 million compared to the FY 2025 full-year CR level of \$521.6 million. This funding level reflects the effects of the 15 percent limit on indirect costs for Other Research awards. The request will provide continuous support for many high impact cutting-edge research initiatives fostering scientific creativity that leads to prevention, diagnosis, and treatment of various diseases and disorders that impacts the human body system.

Research Training (-\$77.5 million; total \$130.6 million):

NIBS will reduce funding for Research Training by 37.2 percent, as part of the reduction in the overall NIBS budget request for FY 2026. This level is a \$77.5 million decrease compared to the FY 2025 full-year CR level of \$208.1 million. The request will support current commitments to

pre- and post-doctoral trainees, in an effort to continue stimulating research training focused on strategic priorities and programmatic goals.

Research and Development (R&D) Contracts (-\$154.9 million; total \$323.1 million):

Support for Research and Development Contracts will decrease by 32.4 percent, from the FY 2025 full-year CR level of \$478.0 million as part of the reduction in the overall NIBS budget request. These funds will provide continuous support to research cohorts, and research resources and data repositories which facilitate access to and sharing of biomedical data and biospecimens, thereby advancing scientific discovery and improving public health outcomes through collaborative research efforts.

Intramural Research (IR) (-\$163.7 million; total \$445.2 million):

NIBS will reduce funding for Intramural Research by 26.9 percent, as part of the reduction in the overall NIBS budget request for FY 2026. This level is a \$163.7 million decrease compared to the FY 2025 full-year CR level of \$608.8 million. The request accommodates personnel-related costs for IR staff, changes in NIH-wide assessments for the IR program, and other inflationary costs, as appropriate.

Research Management and Support (RMS) (-\$97.8 million; total \$209.5 million):

NIBS will reduce funding for Research Management Support by 31.8 percent, which is a \$97.8 million decrease compared to the FY 2025 full-year CR level of \$307.3 million. The request accommodates personnel-related costs for IR staff, changes in NIH-wide assessments for the RMS program, and other inflationary costs, as appropriate.

BUDGET MECHANISM TABLE

NATIONAL INSTITUTES OF HEALTH

National Institute on Body Systems

Budget Mechanism *

(Dollars in Thousands)

Mechanism	FY 2024 Final		FY 2025 Full-Year CR		FY 2026 President's Budget		FY 2026 +/- FY 2025	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
<u>Research Projects:</u>								
Noncompeting	5,649	\$3,329,261	5,525	\$3,375,786	4,643	\$2,114,475	-882	-\$1,261,311
Administrative Supplements	(407)	\$45,411	(195)	\$19,683	(0)	\$0	-(195)	-\$19,683
<u>Competing:</u>								
Renewal	289	\$183,556	188	\$212,915	112	\$94,403	-76	-\$118,512
New	1,584	\$910,871	880	\$872,996	477	\$417,765	-403	-\$455,231
Supplements	1	\$569	0	\$0	0	\$0	0	\$0
Subtotal, Competing	1,874	\$1,094,996	1,068	\$1,085,911	589	\$512,168	-479	-\$573,743
Subtotal, RPGs	7,523	\$4,469,668	6,593	\$4,481,381	5,232	\$2,626,643	-1,361	-\$1,854,738
SBIR/STTR	318	\$220,751	268	\$216,355	125	\$122,513	-143	-\$93,842
Research Project Grants	7,841	\$4,690,419	6,861	\$4,697,736	5,357	\$2,749,156	-1,504	-\$1,948,580
<u>Research Centers</u>								
Specialized/Comprehensive	132	\$163,680	134	\$163,802	85	\$79,766	-49	-\$84,036
Clinical Research	0	\$0	0	\$0	0	\$0	0	\$0
Biotechnology	0	\$0	0	\$0	0	\$0	0	\$0
Comparative Medicine	0	\$550	0	\$550	0	\$340	0	-\$210
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	132	\$164,230	134	\$164,352	85	\$80,106	-49	-\$84,246
<u>Other Research:</u>								
Research Careers	1,489	\$242,019	1,465	\$242,020	838	\$131,842	-627	-\$110,178
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	19	\$4,592	19	\$4,393	19	\$3,272	0	-\$1,121
Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Other Biomedical Research Support	0	\$1,808	0	\$1,143	0	\$220	0	-\$923
Other	347	\$266,663	350	\$273,998	135	\$79,122	-215	-\$194,876
Other Research	1,855	\$515,082	1,834	\$521,554	992	\$214,456	-842	-\$307,098
Total Research Grants	9,828	\$5,369,730	8,829	\$5,383,642	6,434	\$3,043,718	-2,395	-\$2,339,924
<u>Ruth L Kirschstein Training Awards:</u>	<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>		<u>FTTPs</u>	
Individual Awards	854	\$43,971	838	\$43,675	351	\$18,423	-487	-\$25,252
Institutional Awards	2,321	\$163,577	2,284	\$164,465	1,546	\$112,190	-738	-\$52,275
Total Research Training	3,175	\$207,548	3,122	\$208,140	1,897	\$130,613	-1,225	-\$77,527
Research & Develop. Contracts	1,138	\$510,934	1,065	\$477,973	883	\$323,093	-182	-\$154,880
SBIR/STTR (non-add)	(4)	(\$4,688)	(4)	(\$3,442)	(2)	(\$313)	-(2)	-(83,130)
Intramural Research	1,019	\$595,853	1,020	\$608,832	899	\$445,168	-121	-\$163,664
Res. Management & Support	928	\$301,829	891	\$307,308	705	\$209,470	-186	-\$97,838
SBIR Admin. (non-add)		(\$866)		(\$700)		(\$1,310)		(\$610)
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, NIBS	1,947	\$6,985,895	1,911	\$6,985,895	1,604	\$4,152,062	-307	-\$2,833,833

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

NATIONAL INSTITUTES OF HEALTH

Type 1 Diabetes

Budget Mechanism *

(Dollars in Thousands)

Mechanism	FY 2024 Final		FY 2025 Full-Year CR		FY 2026 President's Budget		FY 2026 +/- FY 2025	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Research Projects:								
Noncompeting	98	\$121,107	74	\$65,497	117	\$91,721	43	\$26,224
Administrative Supplements	(6)	\$6,098	(2)	\$3,000	(0)	\$0	-(2)	-\$3,000
Competing:								
Renewal	0	\$0	0	\$0	0	\$0	0	\$0
New	40	\$48,723	38	\$44,250	136	\$42,975	98	-\$1,275
Supplements	0	\$0	0	\$0	0	\$0	0	\$0
Subtotal, Competing	40	\$48,723	38	\$44,250	136	\$42,975	98	-\$1,275
Subtotal, RPGs	138	\$175,928	112	\$112,747	253	\$134,696	141	\$21,949
SBIR/STTR	17	\$7,145	10	\$4,347	14	\$5,804	4	\$1,457
Research Project Grants	155	\$183,073	122	\$117,094	267	\$140,500	145	\$23,406
Research Centers								
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	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers in Minority Institutions	0	\$0	0	\$0	0	\$0	0	\$0
Research Centers	0	\$0	0	\$0	0	\$0	0	\$0
Other Research:								
Research Careers	1	\$2,567	0	\$0	0	\$0	0	\$0
Cancer Education	0	\$0	0	\$0	0	\$0	0	\$0
Cooperative Clinical Research	0	\$2,000	0	\$2,000	0	\$2,000	0	\$0
Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Other Biomedical Research Support	0	\$0	0	\$0	0	\$0	0	\$0
Other	5	\$8,113	0	\$0	10	\$16,500	10	\$16,500
Other Research	6	\$12,680	0	\$2,000	10	\$18,500	10	\$16,500
Total Research Grants	161	\$195,753	122	\$119,094	277	\$159,000	155	\$39,906
Ruth L Kirschstein Training Awards:	FTTPs		FTTPs		FTTPs		FTTPs	
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	0	\$0	0	\$0	0	\$0	0	\$0
<i>SBIR/STTR (non-add)</i>	<i>(0)</i>	<i>(\$0)</i>	<i>(0)</i>	<i>(\$0)</i>	<i>(0)</i>	<i>(\$0)</i>	<i>(0)</i>	<i>(\$0)</i>
Intramural Research	0	\$0	0	\$0	0	\$0	0	\$0
Res. Management & Support	0	\$0	0	\$0	0	\$0	0	\$0
<i>SBIR Admin. (non-add)</i>		<i>(\$0)</i>		<i>(\$0)</i>		<i>(\$0)</i>		<i>(\$0)</i>
Construction		\$0		\$0		\$0		\$0
Buildings and Facilities		\$0		\$0		\$0		\$0
Total, T1D	0	\$195,753	0	\$119,094	0	\$159,000	0	\$39,906

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

SUMMARY OF CHANGES

NATIONAL INSTITUTES OF HEALTH National Institute on Body Systems

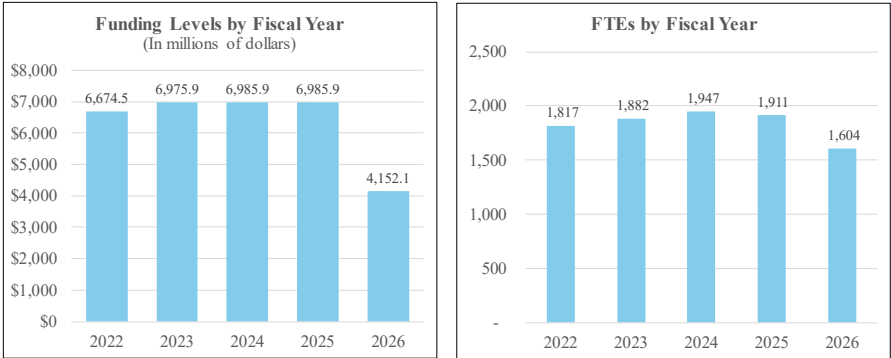
Summary of Changes (Dollars in Thousands)

FY 2025 Full-Year CR	\$6,985,895
FY 2026 President's Budget	\$4,152,062
Net change	-\$2,833,833

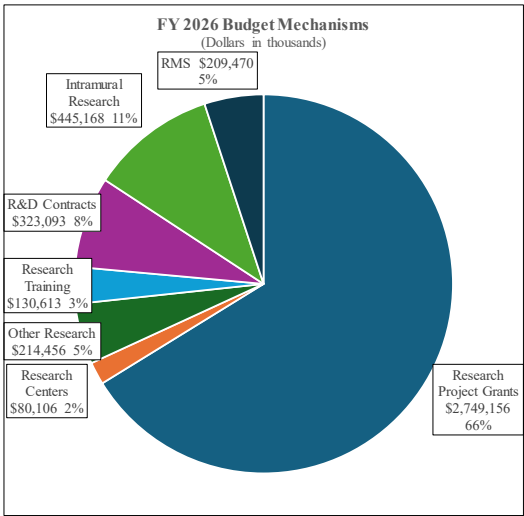
CHANGES	FY 2025 Full-Year CR		FY 2026 President's Budget		Built-In Change from FY 2025 Full-Year CR	
	FTEs	Budget Authority	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:						
1. Intramural Research:						
a. Annualization of FY 2025 pay and benefits increase		\$272,274		\$213,713		\$1,693
b. FY 2026 pay and benefits increase		\$272,274		\$213,713		\$743
c. Paid days adjustment		\$272,274		\$213,713		\$0
d. Differences attributable to change in FTE		\$272,274		\$213,713		-\$31,750
e. Payment for centrally furnished services		\$90,758		\$72,606		-\$18,152
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$245,801		\$158,850		-\$15,591
Subtotal						-\$63,057
2. Research Management and Support:						
a. Annualization of FY 2025 pay and benefits increase		\$192,281		\$129,725		\$1,172
b. FY 2026 pay and benefits increase		\$192,281		\$129,725		\$468
c. Paid days adjustment		\$192,281		\$129,725		\$0
d. Differences attributable to change in FTE		\$192,281		\$129,725		-\$40,208
e. Payment for centrally furnished services		\$8,701		\$6,960		-\$1,740
f. Cost of laboratory supplies, materials, other expenses, and non-recurring costs		\$106,326		\$72,784		-\$9,037
Subtotal						-\$49,345
Subtotal, Built-in						-\$112,402
CHANGES	FY 2025 Full-Year CR		FY 2026 President's Budget		Program Change from FY 2025 Full-Year CR	
	No.	Amount	No.	Amount	No.	Amount
B. Program:						
1. Research Project Grants:						
a. Noncompeting	5525	\$3,395,470	4643	\$2,114,475	-882	-\$1,280,995
b. Competing	1068	\$1,085,911	589	\$512,168	-479	-\$573,743
c. SBIR/STTR	268	\$216,355	125	\$122,513	-143	-\$93,842
Subtotal, RPGs						-\$1,948,580
2. Research Centers	134	\$164,352	85	\$80,106	-49	-\$84,246
3. Other Research	1834	\$521,554	992	\$214,456	-842	-\$307,098
4. Research Training	3122	\$208,140	1897	\$130,613	-1225	-\$77,527
5. Research and development contracts	1065	\$477,973	883	\$323,093	-182	-\$154,880
Subtotal, Extramural						-\$2,572,331
6. Intramural Research	1020	\$608,832	899	\$445,168	-121	-\$102,455
7. Research Management and Support	891	\$307,308	705	\$209,470	-186	-\$48,493
8. Construction	0	\$0	0	\$0	0	\$0
9. Buildings and Facilities	0	\$0	0	\$0	0	\$0
Subtotal, program changes						-\$2,721,431
Total built-in and program changes	1911	\$6,985,895	1604	\$4,152,062	-307	-\$2,833,833

BUDGET GRAPHS

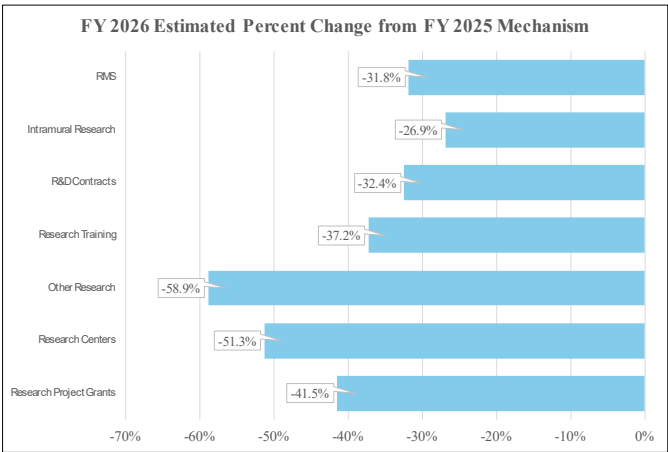
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanisms:



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JUSTIFICATION OF BUDGET REQUEST

National Institute on Body Systems

Budget Authority (BA):

	<u>FY 2024 Final</u>	<u>FY 2025 Enacted</u>	<u>FY 2026 President's Budget</u>	<u>FY 2026 +/- FY 2025</u>
BA	\$7,181,648,000	\$7,104,989,000	\$4,311,062,000	-\$2,793,927,000
Less Type 1 Diabetes Mandatory:				
	<u>-\$195,753,000</u>	<u>-\$119,094,000</u>	<u>-\$159,000,000</u>	<u>-\$39,906,000</u>
Labor/HHS	\$6,985,895,000	\$6,985,895,000	\$4,152,062,000	-\$2,833,833,000
FTE ¹	1,947	1,911	1,604	-307

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

Overall Budget Policy: The FY 2026 President's Budget request for the National Institute of Body Systems is \$4,152.1 million, excluding mandatory Type 1 Diabetes funding, a decrease of \$2,833.8 million or 40.6 percent compared with the FY 2025 full-year CR level. The newly formed National Institutes on Body Systems (NIBS) will focus on the comprehensive study and research of human body systems, aiming to advance understanding and treatment of systemic health issues. Through interdisciplinary collaboration, the Institute seeks to integrate knowledge across various body systems to improve overall health outcomes and innovative medical solutions. Despite advances in research, diseases related to the body systems remain prevalent and complex, necessitating fundamental research to develop effective, culturally appropriate health interventions. In FY 2026, NIBS will translate basic research into new, precisely tailored strategies to identify causes, treatments, and prevention of various diseases and disorders that affect the human body system; and improving health outcomes for all Americans. The Budget proposes to reauthorize the Special Type 1 Diabetes Program through FY 2026 at a level of \$159.0 million, an increase of \$39.9 million from FY 2025.

Program Descriptions and Accomplishments

Bringing Care to Rural Areas

Approximately 60 million people, or one in five Americans, live in rural areas of the United States. There is no higher burden of disease than in rural America. NIH strongly supports finding ways to bring care to where people are, which includes funding research to address health disparities experienced by rural populations. NIH uses a community-based approach to engage everyone in the research endeavor in order to improve public health and create more resilient communities.

¹ FY 2026 FTE levels reflect estimates and are subject to change.

The Risk Underlying Rural Areas Longitudinal (RURAL) cohort study, founded in 2019, helps address the high burden of chronic disease in America’s heartland.² RURAL is addressing the high burden of chronic heart and lung disease in ten rural counties in Alabama, Kentucky, Louisiana, and Mississippi by using community-engaged partners and high-tech mobile research units to collect data, including medical histories, as well as familial, lifestyle, and behavioral factors. The study will follow more than 4,600 participants over the course of 6 years.

RURAL’s state-of-the-art mobile exam unit (MEU) brings to the region badly needed health technologies that make it possible for researchers to get the information they need.³ The MEU has the functionality of an urban primary care office, housing a high-tech medical imaging room, examination room, laboratory, and waiting room.

The Microbiome

NIH-funded research has highlighted the crucial roles of bacteria in maintaining health and contributing to disease. The microbiome includes a diverse collection of bacteria and other microbes that live in and on the human body, and imbalances in these microorganisms are associated with many conditions. For example, NIH-supported investigators identified a causal relationship between systemic lupus erythematosus and unstable gut microbiota, as well as potential pathogenic properties of the microbiota in people who have disease flares and lupus-associated kidney disease. The gut, skin, and nasal microbiomes of individuals with recombination-activating gene deficiency—a genetic disorder also affecting the immune system—were found to be enriched in antimicrobial resistance genes. These and other findings highlight the impact of immune deficiencies on microbiome composition and raise concerns about the risk of multi-drug-resistant infections in people with immune-mediated diseases.

The Microbiome in Early Life

Results from NIH-funded research using human tissue and animal models revealed that synergistic interactions between bacteria and a specialized subset of dendritic cells critically support establishment of tolerance to bacteria on the skin in infancy. NIH-funded researchers and their collaborators developed the Early-Life Skin Genomes catalog of species comprising the skin microbiome in infants, providing a comprehensive view of human skin microbiome diversity, function, and development in early life.⁴ Another recent study found that a diet formulated to nurture the gut microbiome can increase growth in infants who experience malnutrition early in life. These findings underscore the importance of early-life microbial interactions.

The Microbiome in the Clinic

Skin bacteria also play a role in the development of infections elsewhere in the body. An NIH-supported study of people with spinal surgical site infections demonstrated that many infections originated from each person’s own skin microbiome rather than from bacteria in the hospital environment, suggesting a potential need to revise infection prevention strategies on a presurgical basis. Researchers also found that human skin hosts diverse species of staphylococci, a common risk factor for surgical infections. Genomic analysis provides evidence that different

² theruralstudy.org

³ nhlbi.nih.gov/news/2024/high-tech-research-clinic-wheels

⁴ research.nhgri.nih.gov/projects/ELSG/

types of staphylococci appear to prefer specific skin sites across the body. By better characterizing the bacteria that exist on human skin, the research community can further examine bacteria's adaptation to different skin environments and how skin interacts with its microbiome throughout the life course.

Improving Health Through Laboratory and Clinical Research

NIH research begins at basic science but also moves research out of the lab by conducting and funding clinical research yielding science-based therapeutic interventions. NIH's clinical research performs the balancing act of searching for curative treatments while also helping patients find relief in managing symptoms from the diseases and conditions they are experiencing, many of which are chronic in nature.

Addressing Chronic Diseases in Children

Previous research has shown that the development of chronic disease in later life is greatly influenced by environmental exposures and risk factors present in childhood. To advance understanding of the biologic, social, and environmental drivers of youth-onset type 2 diabetes, a research consortium, called DISCOVERY of Risk Factors for Type 2 Diabetes in Youth, is recruiting a cohort of youth at risk for developing the disease. Ultimately, this research will enable the ability to determine which children are at highest risk for disease development and offer better prevention, screening, and management of type 2 diabetes in young people. In another study with clinical implications, researchers created new prediction models to improve differentiation of type 1 and type 2 diabetes at diagnosis in young people. Accurate diagnosis is necessary for health care providers to appropriately treat children with diabetes.

Additionally, the Chronic Kidney Disease (CKD) in Children Study created a pediatric risk calculator that is being used by health care providers to help predict when a child diagnosed with CKD may require dialysis or a kidney transplant. Research is also underway to better characterize risk factors that lead to obesity in infancy and early childhood, as well as to understand how exposures before birth can affect health throughout life. For example, a recent study in mice showed that the hematopoietic system (organs and tissues involved in blood production) plays a role in linking gestational diabetes mellitus (GDM) to the later development of atherosclerosis in adult offspring. This finding may lead to future strategies to mitigate the negative effects of GDM. Related to childhood digestive diseases, a clinical trial is investigating why a common treatment resolves gut inflammation in some children with Crohn's disease but not in others, and the Childhood Liver Disease Research Network is facilitating discovery of new diagnostic, etiologic, and treatment options for children with liver disease.

Rare Diseases

NIH's portfolio spans from many of the leading causes of mortality in the country to several rare diseases, whose research sometimes gets less attention and subsequently limits the development of effective treatment options. In some cases, NIH research is key, even lifesaving, for people with these rare conditions. For example, in 2024, using high-throughput gene expression technology, NIH-supported researchers identified an existing drug that could be repurposed to treat arterial calcification from an extremely rare genetic disorder.⁵ NIH researchers were able to

⁵ journals.sagepub.com/doi/10.1177/1358863X241235669

effectively treat all seven known patients. Just as valuable, these findings may also inform therapies for other, more common conditions such as atherosclerosis, which affects more than 19 million people in the United States.⁶

NIH also is advancing rare disease research in other areas. For example, NIH-supported researchers previously identified the cause of one rare muscle disease as inappropriate activation of the double homeobox 4 (*DUX4*) gene. More recently, NIH-supported researchers validated a correlation between MRI measurements of a lower leg muscle, the tibialis anterior (TA), and the *DUX4* signature. They found that the expression of genes regulated by *DUX4*, even in patients with mild disease, was distinct from healthy samples. Another NIH team has been studying myositis—a group of rare autoimmune diseases where the immune system attacks healthy muscle tissue. They found that myositis autoantibodies can enter muscle cells and disrupt the normal function of the proteins to which they bind. This discovery reveals a novel mechanism of how autoantibodies contribute to the disease process of myositis.

Screening

Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of death and disability in the United States, affecting people living in rural areas twice as much as those living in urban areas. The COPD Assessment in Primary Care to Identify Undiagnosed Respiratory Disease & Exacerbation Risk (CAPTURE) program is developing a screening tool that will allow primary care physicians to more easily identify patients who would benefit from being tested for COPD.⁷

Nutrition and Obesity Research

Obesity is a major public health concern, as it is a driver for many costly, chronic health conditions. The Nutrition Obesity Research Center (NORC) program was specifically designed to combat the serious public health problem of obesity and support research that provides a better understanding of the relationship between health and nutrition. The NORC program supports 11 university-based centers aimed at improving the quality and multidisciplinary nature of research in nutritional sciences and obesity by providing shared access to specialized services, resources, and expertise.

The overall goal of the program is to bring together basic science, clinical, and translational investigators to advance innovative nutrition and obesity-related research. In recent years, the centers have produced exciting results, including: a clinical trial that found restricting food intake to earlier in the day aided in weight loss; research demonstrating that over the past 100 years, the energy needed for the body's normal functions such as breathing and maintenance of body temperature has decreased while the energy expended in physical activity has increased, contrary to popular thought; and research examining consumer purchasing patterns of sugar in the United States over the past 20 years that showed, while sugar purchasing has decreased, disparities remain. These studies and others are advancing our knowledge of nutrition and obesity science while translating scientific discoveries into clinical advances to support healthier communities. Additionally, the centers aim to attract and retain early-stage investigators to ensure a robust workforce pursuing research on nutrition and obesity. Looking to the future, NIH plans to add

⁶ pmc.ncbi.nlm.nih.gov/articles/PMC10168648/#bb0005

⁷ jamanetwork.com/journals/jama/fullarticle/2801317?resultClick=1#google_vignette

support for a coordinating center to facilitate collaborations and working groups among NORCs, promoting innovative research and partnerships in the fields of nutrition and obesity.

Liver disease is also an increasing public health concern, as more Americans, including children, are being diagnosed with fatty liver diseases. These can progress to more severe conditions, including nonalcoholic steatohepatitis or NASH (also referred to as metabolic dysfunction-associated steatohepatitis or MASH), which can result in scarring and liver cancer. NIH supports the NASH Clinical Research Network to increase understanding of NASH and develop improved means of diagnosis, treatment, and clinical management. Recent research by the Network is already improving the lives of those with NASH, as researchers found that a non-invasive measurement of liver stiffness – an indicator of fibrosis and tissue damage – could replace invasive, uncomfortable biopsies as a means of monitoring liver health.

Obesity Treatments

Past NIH research to understand the underlying mechanisms of health and disease provided a critical foundation that led to FDA-approved drugs called glucagon-like peptide-1 (GLP-1) receptor agonists, which increase feelings of fullness to limit food intake. These drugs also protect heart and kidney health in people with type 2 diabetes. While they are making dramatic differences, GLP-1 receptor agonists have adverse side effects, including nausea. Recently, researchers uncoupled the therapeutic benefits of these medications from the adverse side effects and discovered a population of brain cells that controls food intake without causing nausea in a mouse model. This finding could help scientists develop more precise drugs in the future.

The Effects of Obesity on Sleep

NIH-funded researchers examined the relationship between obesity and sleep and found that energy metabolism, which generally is lowest at night during sleep, is actually lowest during the day and while awake in those with obesity.⁸ This means that people with obesity showed heightened glucose intolerance during the day and produced less insulin at night, which may not be in alignment with biological energy needs. This research highlights new approaches as described in the NIH Sleep Research Plan that focus on circadian rhythms and chronobiological to prevent chronic disease and poor health outcomes.⁹

A lack of quality sleep is a risk factor for obesity, and obesity is known to be a risk factor for poor sleep.¹⁰ For children, limited sleep is linked to stress, depression, anxiety, impaired memory and learning,¹¹ and has been associated with worse daytime blood pressure.¹² There are many environmental factors that affect sleep quality, such as light, noise, temperature, and safety. Recently, NIH-supported researchers studied indoor air quality in the homes of children ages 6 to 12 years in the Boston area.¹³ They compared levels of indoor fine particulate matter to sleep disordered breathing (e.g., snoring, sleep apnea). After accounting for several other

⁸ onlinelibrary.wiley.com/doi/10.1002/oby.23940

⁹ nhlbi.nih.gov/sleep-research-plan

¹⁰ nhlbi.nih.gov/health/overweight-and-obesity/causes

¹¹ sciencedirect.com/science/article/pii/S2352464222001882?via%3Dihub

¹² publications.aap.org/pediatrics/article/154/1/e2023062940/197500/Sleep-Duration-and-Blood-Pressure-in-Youth?autologincheck=redirected

¹³ sciencedirect.com/science/article/pii/S2352721824001335

environmental factors such as economic status and seasonality, children who slept in an environment with high levels of indoor fine particulate matter were 3.5-times more likely to have sleep disordered breathing compared to children in environments with low levels of indoor fine particulate matter. These findings suggest that poor indoor air quality in urban housing environments affects sleep quality and may contribute to disparities in sleep quality, even among children.

Women's Health

The Women's Health Initiative

The Women's Health Initiative (WHI), founded in 1991, is a long-term national health study focused on strategies to prevent heart disease, osteoporosis, and certain cancers in postmenopausal women. While initial data collection finished in 2005, the initiative's extension studies collect long-term data from more than 50,000 volunteers to complement the original WHI study. The current extension study focuses on heart disease, cardiovascular events, and aging.

A summary of key findings from the WHI over the last 30 years was published in 2024.¹⁴ Researchers found that estrogen or a combination of estrogen and progestin, two types of hormone replacement therapies, had varying outcomes with chronic conditions; evidence does not support the use of these therapies to reduce risks for chronic diseases, such as heart disease, stroke, cancer, and dementia. Additionally, a combined calcium and vitamin D supplement was not associated with reduced risks for hip fractures among postmenopausal women at average risk for osteoporosis. However, supplements may help fill nutrient gaps among women who do not meet the daily recommended intake. Lastly, a low-fat dietary pattern with at least five daily servings of fruits and vegetables and increased grains was associated with a reduced risk of death from breast cancer.

Overall, the researchers encourage women and physicians to work together to make shared and individualized decisions based on a woman's medical history, age, lifestyle, disease risks, symptoms, and health needs and preferences, among other factors.

Menopause

WHI also seeks to understand how and why menopause increases cardiovascular disease risk.¹⁵ To bolster and expand this research, NIH is leveraging its Trans-Omics for Precision Medicine (TOPMed) artificial intelligence (TOPMed-AI) initiative,¹⁶ launched in FY 2024, to pair NIH's genomic data resources with the power of AI and machine learning to analyze complex data. This could lead to new insights and interventions for the prevention, diagnosis, and management of women's health issues not only during menopause, but across a woman's lifespan. This approach will also be used with another long-running program, the Atherosclerosis Risk in Communities (ARIC) study, which is investigating proteins that drive changes in biological processes during menopause.¹⁷ In addition, NIH continues to advance research on osteoporosis, a bone disease that predominantly affects women, including studies to identify alternatives to low-dose x-rays (DXA scans) for measuring bone quality. Recently, NIH-supported researchers used

¹⁴ jamanetwork.com/journals/jama/fullarticle/2818206?guestAccessKey=1393cab2-41d6-473b-9252-0c23e2cb4f74

¹⁵ whi.org/about-whi

¹⁶ topmed.nhlbi.nih.gov/

¹⁷ ncbi.nlm.nih.gov/pmc/articles/PMC9509415/

high-resolution peripheral CT to assess bone quality in post-menopausal women before and after spinal fusion surgery and showed that low bone quality was associated with a higher rate of post-surgical complications. Advancements in alternative imaging methods will create early opportunities to screen patients for bone weakening that otherwise would likely be missed.

Autoimmune Diseases

Nearly 80 percent of those with an autoimmune disease are women. To better understand and mitigate this health disparity, the NIH created the Team Science Leadership Scholars Program (LSP) in Women's Health, Autoimmune, and Immune-Mediated Diseases, a collaborative effort that focuses on improving the health of women by advancing the research and career development of scientists who specialize in women's health. Because environmental factors may contribute to the increased prevalence of autoimmune diseases in women, NIH is working to better understand the effect of environmental exposures on autoimmune diseases. For example, NIH continues to participate in the EXposome in Autoimmune Disease Collaborating Teams (EXACT) Network, a national collaborative research team focused on environmental exposures. EXACT has funded several awards, allowing institutions to develop a research framework to better understand how environmental exposures influence autoimmune disease. To further this effort, NIH is a partner in the newly established Network for Exposomics in the U.S. (NEXUS) Coordinating Center in research on the human exposome.

Leveraging Artificial Intelligence and Machine Learning

Research supported by NIH has generated a wealth of biomedical data, which, combined with advances in computing power and technology, provides a unique opportunity to use artificial intelligence (AI) and machine learning (ML) to cultivate knowledge and improve treatments.

Utilizing Data

NIH takes full advantage of the extraordinary new research capabilities offered by AI/ML tools to integrate and analyze vast amounts of health information and datasets from multiple sources and studies. Thanks to thousands of study participants, the vast data sets on diseases and conditions collected by researchers over the last several decades hold great potential to be mined for new discoveries. In 2024, NIH hosted workshops on the use of AI in research and healthcare, including “Artificial Intelligence in Precision Medicine for Diabetes and Other Chronic Diseases” and “Contextualizing Cellular Physiology Workshop.”

The Molecular Atlas of Lung Development Program (LungMAP) program and the Kidney Precision Medicine Project (KPMP) are other NIH-funded initiatives that use advanced analytic tools to combine and analyze vast amounts of lung- and kidney-related data. LungMAP offers researchers an open-source repository of molecular and cellular maps of the lung to better understand the genetic contributors, pathophysiological mechanisms, and cellular dynamics in lung diseases. Expanding on existing maps of adult lungs, LungMAP recently released the first molecular map of human newborn lung cells, which will give researchers valuable insight into how lungs develop.¹⁸ KPMP integrates cellular, genetic, and molecular information in three dimensions to provide a detailed portrait of kidneys. It provides an interactive resource for the global research community to pursue cutting-edge kidney disease research and may lead to new

¹⁸ mdpi.com/2073-4425/15/3/298

and individualized ways to treat kidney diseases. KPMP's kidney "atlas" helped propel the recent discovery of fibrotic molecular signatures of disease onset and progression that appear even before obvious fibrosis occurs.

In the quest to advance the collection, integration, and examination of a diverse array of health information, NIH is beginning to fund "digital twin" research. This type of research uses AI/ML technologies to integrate and analyze multiple types of data to build a virtual working replica, or digital twin, of a biological system or organ, such as the heart. NIH is excited for this new avenue of research, which opens the door to exploring the effectiveness of medicines and procedures designed for patients.

The NIH's extensive data repositories, such as the BioData Catalyst and Accelerating Medicines Partnership, allow the Agency to grant greater access to data. These resources foster trust in the value of scientific inquiry among the people who participate in biomedical research and give other researchers access to data repositories that can be used for additional analyses that will ultimately lead to better disease prediction, prevention, diagnosis, and treatment.

Addressing Unanswered Questions

To investigate why some people experience rheumatoid arthritis (RA) pain without inflammation, NIH-funded researchers developed an ML approach that could pinpoint pain-associated patterns of gene activity in the soft tissue lining the spaces of arthritic joints. They discovered that in some people with RA, the joint lining may direct the growth of pain-sensing neurons to cause pain even without inflammation, suggesting potential ways to treat this painful disease in the future.

Another research team developed deep learning (DL) risk assessment models to predict the progression of early knee osteoarthritis (OA) to total knee replacement (TKR) using baseline knee x-rays and magnetic resonance images. Their models performed markedly better in predicting TKR than traditional models using baseline clinical risk factors, thereby addressing a significant unmet need, and potentially changing how people with knee OA are treated.

Improving Data

Recognizing the challenges in analyzing sequencing data, another research team developed a DL framework for removing noise from single-cell RNA sequencing data and arranging them in a meaningful order for analysis. Their method captures optimal features from input data and enhances the preservation of features such as cell type-specific gene expression patterns, thus improving the quality and reliability of the results.

Mining Population Studies

By combining the wealth of health-related data that has come from NIH-funded longitudinal and populations studies with advanced analytic platforms, researchers now have an opportunity to construct a more comprehensive understanding of disease risk, onset, and treatment. These findings can be used to better understand how disease differs across populations, or, with the addition of individual genomic information, between people.

NIH population studies such as the Framingham and Jackson Heart studies contribute data into the NIH's TOPMed analytic platform, which can integrate whole-genome sequencing and omics data with molecular, behavioral, imaging, environmental, and clinical data to find interactions and correlations that protect from or predict disease development. Along with the cloud-based ecosystem of BioData Catalyst, vetted researchers can access NIH datasets and leverage its innovative analytic tools, applications, and workflows that support researchers' needs, and accelerate their research efforts.

Reproducibility

By increasing access to data and innovative analytic capabilities (including the use of AI, DL, and digital twins), NIH is accelerating the reproducibility of biomedical research to drive scientific advances. The research community is already utilizing NIH-provided data to conduct their own analyses. For example, researchers used data to test the effectiveness of using deep learning to identify interstitial pneumonia.¹⁹ Their new tool may increase the efficiency of screening and diagnosis of this condition.

¹⁹ [sciencedirect.com/science/article/pii/S0012369223055691?via%3Dihub#abs0015a](https://www.sciencedirect.com/science/article/pii/S0012369223055691?via%3Dihub#abs0015a)

NATIONAL INSTITUTES OF HEALTH
National Institute on Body Systems

Appropriations History¹

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2017 Rescission	\$5,471,505,000	\$5,607,748,000	\$5,698,468,000	\$5,635,035,000 \$0
2018 Rescission	\$4,402,235,000	\$5,722,769,000	\$5,834,549,000	\$5,940,659,000 \$0
2019 Rescission	\$5,622,960,000	\$6,011,600,000	\$6,126,446,000	\$6,123,223,000 \$0
2020 Rescission Supplemental	\$5,270,018,000	\$6,422,486,000	\$6,487,195,000	\$6,363,461,000 \$0 \$103,400,000
2021 Rescission	\$5,790,695,000	\$6,423,189,000	\$6,542,565,000	\$6,431,078,000 \$0
2022 Rescission	\$6,745,165,000	\$6,784,863,000	\$6,734,240,000	\$6,668,119,000 \$0
2023 Rescission	\$6,705,295,000	\$6,903,586,000	\$6,923,380,000	\$6,968,531,000 \$0
2024 Rescission	\$6,975,895,000	\$6,968,531,000	\$6,978,531,000	\$6,978,531,000 \$0
2025 Rescission	\$6,996,774,000		\$7,028,531,000	\$6,978,531,000 \$0
2026	\$4,152,062,000			

¹ Does not include Type 1 Diabetes. FY 2017 Budget Estimate to Congress includes mandatory financing.

BUDGET AUTHORITY BY OBJECT CLASS

**NATIONAL INSTITUTES OF HEALTH
National Institute on Body Systems**

Budget Authority by Object Class ¹

(Dollars in Thousands)

	FY 2025 Full-Year CR	FY 2026 President's Budget	FY 2026 +/- FY 2025
Total compensable workyears:			
Full-time equivalent	1,911	1,604	-307
Full-time equivalent of overtime and holiday hours	3	3	0
Average ES salary	\$227	\$228	\$0
Average GM/GS grade	12.8	12.8	0.0
Average GM/GS salary	\$142	\$142	\$0
Average salary, Commissioned Corps (42 U.S.C. 207)	\$136	\$138	\$2
Average salary of ungraded positions	\$160	\$153	-\$7
OBJECT CLASSES	FY 2025 CR	FY 2026 President's Budget	FY 2026 +/- FY 2025
Personnel Compensation			
11.1 Full-Time Permanent	\$175,217	\$118,335	-\$56,882
11.3 Other Than Full-Time Permanent	\$116,917	\$93,962	-\$22,955
11.5 Other Personnel Compensation	\$14,868	\$12,886	-\$1,982
11.7 Military Personnel	\$4,889	\$5,083	\$195
11.8 Special Personnel Services Payments	\$34,125	\$24,122	-\$10,002
11.9 Subtotal Personnel Compensation	\$346,015	\$254,389	-\$91,626
12.1 Civilian Personnel Benefits	\$114,140	\$86,374	-\$27,767
12.2 Military Personnel Benefits	\$954	\$993	\$38
13.0 Benefits to Former Personnel	\$3,446	\$1,683	-\$1,763
Subtotal Pay Costs	\$464,555	\$343,438	-\$121,117
21.0 Travel & Transportation of Persons	\$5,457	\$4,552	-\$904
22.0 Transportation of Things	\$1,021	\$855	-\$166
23.1 Rental Payments to GSA	\$7	\$7	\$0
23.2 Rental Payments to Others	\$10	\$5	-\$6
23.3 Communications, Utilities & Misc. Charges	\$294	\$223	-\$70
24.0 Printing & Reproduction	\$1	\$1	\$0
25.1 Consulting Services	\$132,048	\$101,838	-\$30,210
25.2 Other Services	\$161,374	\$96,654	-\$64,721
25.3 Purchase of Goods and Services from Government Accounts	\$480,705	\$335,688	-\$145,017
25.4 Operation & Maintenance of Facilities	\$11,418	\$3,236	-\$8,182
25.5 R&D Contracts	\$123,139	\$73,768	-\$49,371
25.6 Medical Care	\$3,505	\$3,081	-\$424
25.7 Operation & Maintenance of Equipment	\$19,491	\$7,843	-\$11,649
25.8 Subsistence & Support of Persons	\$0	\$0	\$0
25.0 Subtotal Other Contractual Services	\$931,682	\$622,107	-\$309,575
26.0 Supplies & Materials	\$30,277	\$22,447	-\$7,830
31.0 Equipment	\$9,755	\$7,064	-\$2,691
32.0 Land and Structures	\$5,851	\$5,793	-\$57
33.0 Investments & Loans	\$0	\$0	\$0
41.0 Grants, Subsidies & Contributions	\$5,536,940	\$3,145,527	-\$2,391,413
42.0 Insurance Claims & Indemnities	\$0	\$0	\$0
43.0 Interest & Dividends	\$46	\$44	-\$2
44.0 Refunds	\$0	\$0	\$0
94.0 Financial Transfers	\$0	\$0	\$0
Subtotal Non-Pay Costs	\$6,521,340	\$3,808,624	-\$2,712,716
Total Budget Authority by Object Class	\$6,985,895	\$4,152,062	-\$2,833,833

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

NATIONAL INSTITUTES OF HEALTH
National Institute on Body Systems

Detail of Positions ¹

GRADE	FY 2024 Final	FY 2025 Full-Year CR	FY 2026 President's Budget
Total, ES Positions	3	3	3
Total, ES Salary	\$649,366	\$681,926	\$683,067
General Schedule			
GM/GS-15	201	193	169
GM/GS-14	316	306	253
GM/GS-13	423	404	366
GS-12	173	166	132
GS-11	86	80	66
GS-10	8	6	3
GS-9	51	48	34
GS-8	8	6	6
GS-7	25	19	14
GS-6	5	4	1
GS-5	14	12	12
GS-4	9	7	5
GS-3	10	8	7
GS-2	3	3	3
GS-1	1	1	1
Subtotal	1,333	1,263	1,072
Commissioned Corps (42 U.S.C. 207)			
Assistant Surgeon General	1	1	1
Director Grade	8	8	8
Senior Grade	11	11	11
Full Grade	6	6	6
Senior Assistant Grade	2	2	2
Assistant Grade	0	0	0
Junior Assistant	0	0	0
Subtotal	28	28	28
Ungraded	647	636	537
Total permanent positions	1,452	1,386	1,177
Total positions, end of year	2,011	1,930	1,640
Total full-time equivalent (FTE) employment, end of year	1,947	1,911	1,604
Average ES salary	\$216,455	\$227,309	\$227,689
Average GM/GS grade	12.7	12.8	12.8
Average GM/GS salary	\$137,784	\$141,533	\$142,023

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