

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

National Library of Medicine (NLM)

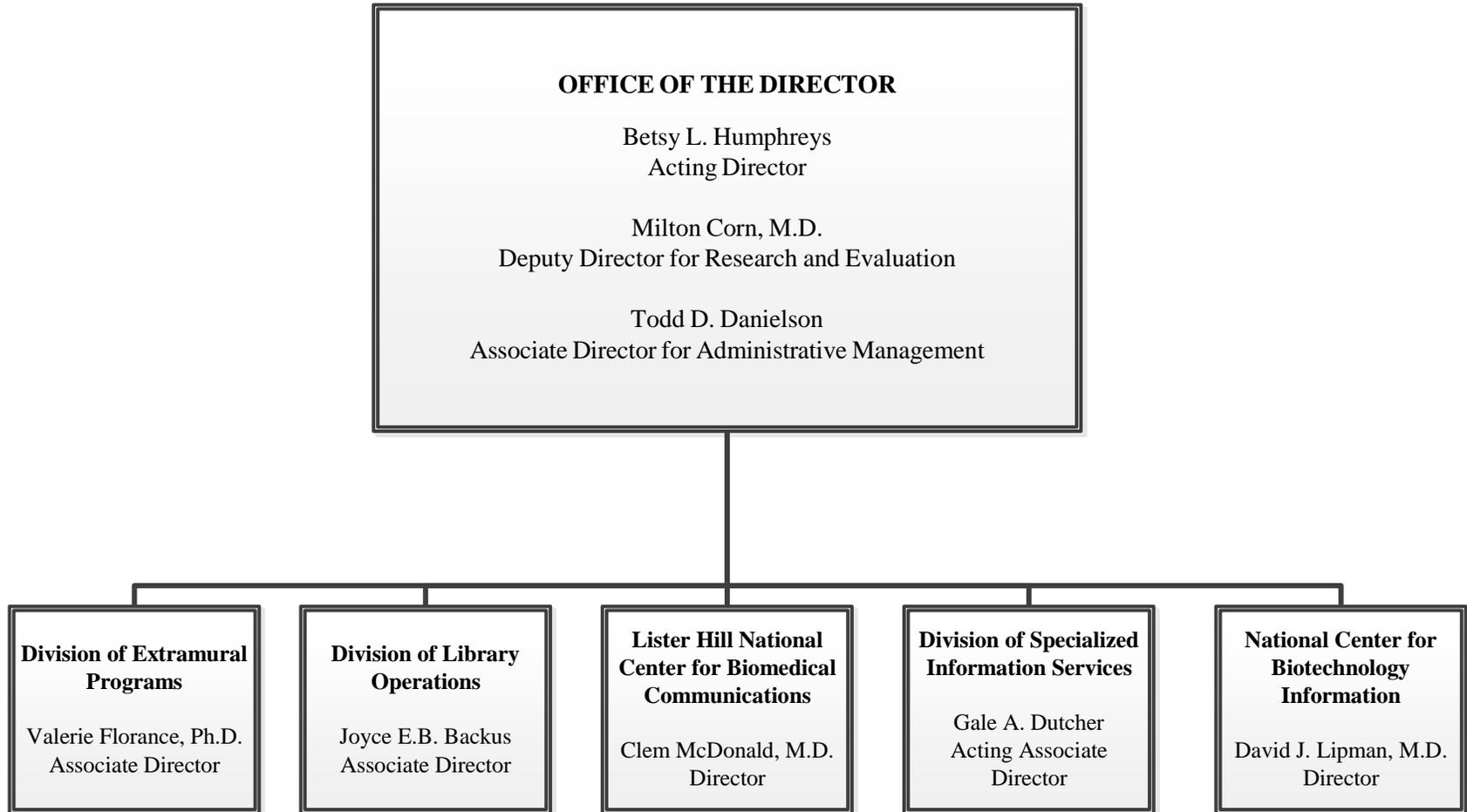
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NOTE: The FY 2016 Enacted funding amounts cited throughout this chapter reflect the effects of OAR HIV/AIDS Transfers.

NATIONAL INSTITUTES OF HEALTH

National Library of Medicine

ORGANIZATION STRUCTURE



NATIONAL INSTITUTES OF HEALTH

National Library of Medicine

For carrying out section 301 and title IV of the PHS Act with respect to health information communications, [~~\$394,664,000~~]~~\$395,110,000~~: Provided, That of the amounts available for improvement of information systems, \$4,000,000 shall be available until September 30, [~~2017~~]~~2018~~: Provided further, That in fiscal year [~~2016~~]~~2017~~, the National Library of Medicine may enter into personal services contracts for the provision of services in facilities owned, operated, or constructed under the jurisdiction of the National Institutes of Health (referred to in this title as “NIH”).

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Amounts Available for Obligation¹

(Dollars in Thousands)

Source of Funding	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Appropriation	\$336,939	\$394,664	\$395,684
Mandatory Appropriation: (non-add)			
<i>Type 1 Diabetes</i>	(0)	(0)	(0)
<i>Other Mandatory financing</i>	(0)	(0)	(574)
Rescission	0	0	0
Sequestration	0	0	0
FY 2015 First Secretary's Transfer	0	0	0
FY 2015 Second Secretary's Transfer	0	0	0
Subtotal, adjusted appropriation	\$336,939	\$394,664	\$395,684
OAR HIV/AIDS Transfers	385	1,020	0
National Children's Study Transfers	0	0	0
Subtotal, adjusted budget authority	\$337,324	\$395,684	\$395,684
Unobligated balance, start of year	1,500	2,000	0
Unobligated balance, end of year	-2,000	0	0
Subtotal, adjusted budget authority	\$336,824	\$397,684	\$395,684
Unobligated balance lapsing	-171	0	0
Total obligations	\$336,653	\$397,684	\$395,684

¹ Excludes the following amounts for reimbursable activities carried out by this account:

FY 2015 - \$68,130 FY 2016 - \$68,130 FY 2017 - \$68,130

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

Budget Mechanism - Total¹

(Dollars in Thousands)

MECHANISM	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget ³		FY 2017 +/- FY 2016	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	57	\$18,739	53	\$18,184	55	\$19,323	2	\$1,139
Administrative Supplements		41		240		240		
Competing:								
Renewal	3	1,614	3	1,533	2	840	-1	-693
New Supplements	17	6,005	19	7,010	19	6,610		-400
Subtotal, Competing	20	\$7,618	22	\$8,543	21	\$7,450	-1	-\$1,093
Subtotal, RPGs	77	\$26,398	75	\$26,967	76	\$27,013	1	\$46
SBIR/STTR	6	815	6	927	6	1,013		86
Research Project Grants	83	\$27,212	81	\$27,894	82	\$28,026	1	\$132
Research Centers:								
Specialized/Comprehensive Clinical Research								
Biotechnology								
Comparative Medicine								
Research Centers in Minority Institutions								
Research Centers								
Other Research:								
Research Careers	15	\$1,847	16	\$1,758	11	\$1,252	-5	-\$506
Cancer Education								
Cooperative Clinical Research								
Biomedical Research Support								
Minority Biomedical Research Support								
Other	36	13,159	42	24,507	42	24,746		239
Other Research	51	\$15,005	58	\$26,265	53	\$25,998	-5	-\$267
Total Research Grants	134	\$42,218	139	\$54,159	135	\$54,024	-4	-\$135
Ruth L. Kirchstein Training Awards:								
Individual Awards					1	\$160	1	\$160
Institutional Awards								
Total Research Training					1	\$160	1	\$160
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)²</i>	10	\$15,323 (1)		\$6,466		\$6,466		
Intramural Programs	701	\$265,686	708	\$320,621	708	\$320,445		-\$176
Res. Management & Support <i>Res. Management & Support (SBIR Admin) (non-add)²</i>	102	14,097 (22)	103	14,438	103	14,589		151
<i>Office of the Director - Appropriation²</i>								
Office of the Director - Other								
ORIP/SEPA (non-add) ²								
Common Fund (non-add) ²								
Buildings and Facilities								
Appropriation								
Type 1 Diabetes								
Program Evaluation Financing								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						-574		-574
Subtotal, Labor/HHS Budget Authority		\$337,324		\$395,684		\$395,110		-\$574
Interior Appropriation for Superfund Res.								
Total, NIH Discretionary B.A.		\$337,324		\$395,684		\$395,110		-\$574
Type 1 Diabetes								
Proposed Law Funding								
Cancer Initiative Mandatory Financing								
Other Mandatory Financing						574		574
Total, NIH Budget Authority		\$337,324		\$395,684		\$395,684		
Program Evaluation Financing								
Total, Program Level		\$337,324		\$395,684		\$395,684		

¹ All Subtotal and Total numbers may not add due to rounding.
² All numbers in italics and brackets are non-add.
³ Includes mandatory financing.

Major Changes in the Fiscal Year 2017 President's Budget Request

There are no major changes by budget mechanism and/or budget activity in the FY 2017 President's Budget request for NLM, which is the same as the FY 2016 Enacted Level at \$395.684 million.

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Summary of Changes

(Dollars in Thousands)

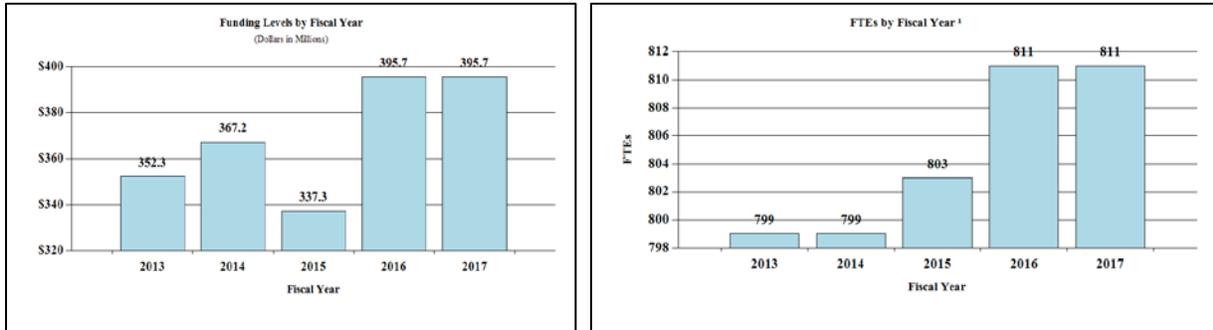
FY 2016 Enacted				\$395,684
FY 2017 President's Budget				\$395,684
Net change				\$0
CHANGES	FY 2017 President's Budget ¹		Change from FY 2016	
	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:				
1. Intramural Programs:				
a. Annualization of January 2016 pay increase & benefits		\$107,274		\$494
b. January FY 2017 pay increase & benefits		107,274		1,483
c. Two less days of pay		107,274		-855
d. Differences attributable to change in FTE		107,274		0
e. Payment for centrally furnished services		5,207		127
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		207,964		-1,425
Subtotal				-\$176
2. Research Management and Support:				
a. Annualization of January 2016 pay increase & benefits		\$11,194		\$58
b. January FY 2017 pay increase & benefits		11,194		172
c. Two less days of pay		11,194		-113
d. Differences attributable to change in FTE		11,194		0
e. Payment for centrally furnished services		854		21
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		2,541		13
Subtotal				\$151
Subtotal, Built-in				-\$25

CHANGES	FY 2017 President's Budget ¹		Change from FY 2016	
	No.	Amount	No.	Amount
B. Program:				
1. Research Project Grants:				
a. Noncompeting	55	\$19,563	2	\$1,139
b. Competing	21	7,450	-1	-1,093
c. SBIR/STTR	6	1,013	0	86
Subtotal, RPGs	82	\$28,026	1	\$132
2. Research Centers	0	\$0	0	\$0
3. Other Research	53	25,998	-5	-267
4. Research Training	1	160	1	160
5. Research and development contracts	0	6,466	0	0
Subtotal, Extramural		\$60,650		\$25
6. Intramural Programs	<u>FTEs</u> 708	\$320,445	<u>FTEs</u> 0	\$0
7. Research Management and Support	103	14,589	0	0
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	811	\$395,684	0	\$25
Total changes				\$0

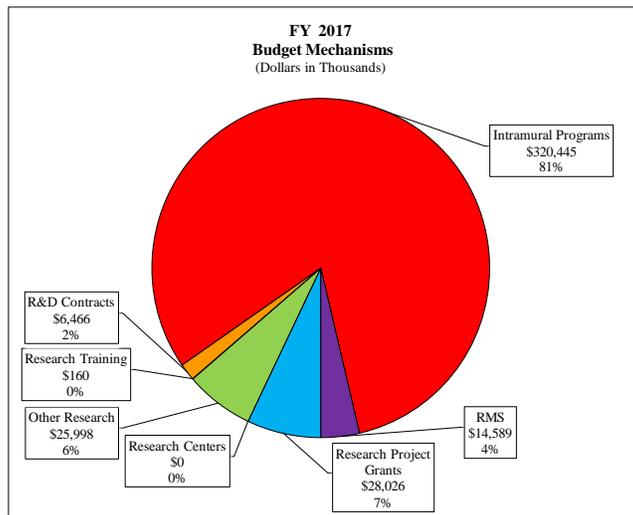
¹ Includes mandatory financing.

Fiscal Year 2017 Budget Graphs

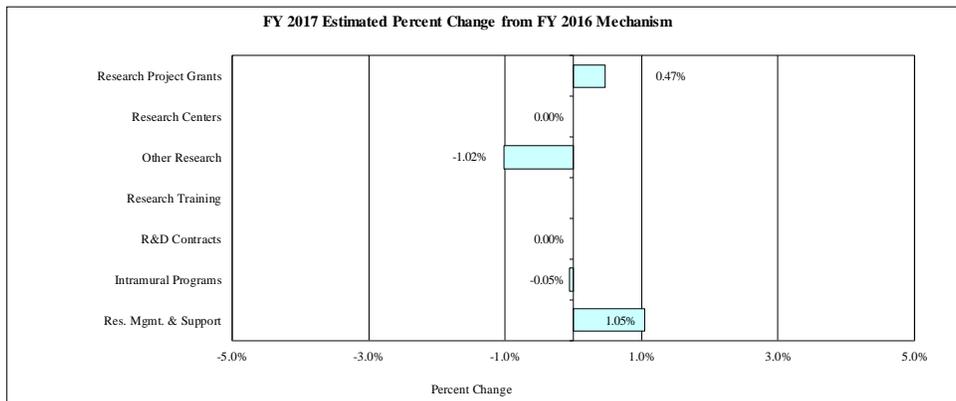
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanism:



**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Budget Authority by Activity¹
(Dollars in Thousands)

	FY 2015 Actual		FY 2016 Enacted		FY 2017 President's Budget ²		FY 2017 +/- FY2016	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Extramural Research								
Health Information for Health Professionals and the Public		\$8,891		\$11,891		\$11,891		\$0
Informatics Resources for Biomedicine and Health		21,437		20,840		20,733		-107
Biomedical Informatics Research		27,212		27,894		28,026		132
Subtotal, Extramural		\$57,541		\$60,625		\$60,650		\$25
Intramural Programs	701	\$265,686	708	\$320,621	708	\$320,445	0	-\$176
Research Management & Support	102	\$14,097	103	\$14,438	103	\$14,589	0	\$151
TOTAL	803	\$337,324	811	\$395,684	811	\$395,684	0	\$0

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

² Includes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2016 Amount Authorized	FY 2016 Enacted	2017 Amount Authorized	FY 2017 President's Budget¹
Research and Investigation	Section 301	42§241	Indefinite	\$395,684,000	Indefinite	\$395,110,000
National Library of Medicine	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$395,684,000		\$395,110,000

¹Excludes mandatory financing.

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2007	\$313,269,000	\$313,269,000	\$315,294,000	\$320,850,000
Rescission				\$0
2008	\$312,562,000	\$325,484,000	\$327,817,000	\$326,669,000
Rescission				\$5,707,000
2009	\$323,046,000	\$331,847,000	\$329,996,000	\$330,771,000
Rescission				\$0
Supplemental				\$1,705,000
2010	\$334,347,000	\$342,585,000	\$336,417,000	\$339,716,000
Rescission				\$0
2011	\$364,802,000		\$364,254,000	\$339,716,000
Rescission				\$2,982,909
2012	\$387,153,000	\$387,153,000	\$358,979,000	\$338,278,000
Rescission				\$639,345
2013	\$372,651,000		\$381,981,000	\$337,638,655
Rescission				\$675,277
Sequestration				(\$16,947,139)
2014	\$382,252,000		\$387,912,000	\$327,723,000
Rescission				\$0
2015	\$372,851,000			\$336,939,000
Rescission				\$0
2016	\$394,090,000	\$341,119,000	\$402,251,000	\$394,664,000
Rescission				\$0
2017 ¹	\$395,684,000			

¹ Includes mandatory financing.

Justification of Budget Request

National Library of Medicine

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

Budget Authority (BA):

	<u>FY 2015 Actual</u>	<u>FY 2016 Enacted</u>	<u>FY 2017 President's Budget</u>	<u>FY 2017 +/- FY 2016</u>
BA	\$336,653,000	\$395,684,000	\$395,684,000	\$0
FTE	803	811	811	0

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

Director's Overview

The National Library of Medicine (NLM), the world's largest medical library, is the most visible face of NIH across the United States and around the globe. Through its information systems, a cutting-edge informatics research portfolio, extensive training programs, and many partnerships, NLM plays an essential role in catalyzing and supporting the translation of basic science into new treatments, new products, improved practice, useful decision support for health professionals and patients, and effective disaster and emergency preparedness and response. NLM coordinates a 6,400 member National Network of Libraries of Medicine (NN/LM) that provides a field force for improving access to high quality health information in communities nationwide, with an emphasis on populations with health disparities.

Millions of scientists, health professionals, and members of the public use NLM's electronic information sources billions of times each year. The range of information that NLM organizes and disseminates is enormous, including genetic, genomic, and biochemical data; images; published and unpublished research results; historical archives; decision support resources; scientific and health data standards; informatics tools for system developers; and health information for the public. Every day, primary databases at NLM experience researchers submitting 5 terabytes of data and users downloading more than 50 terabytes. Anyone can search or download information directly from an NLM web site, find it via an Internet search engine, or use an "app" that provides value-added access to NLM data. Thousands of commercial and non-profit system developers regularly use the applications programming interfaces (APIs) that NLM provides to fuel private sector innovation and to embed access to NLM information services within electronic health records (EHRs).

As part of NIH efforts to build data infrastructure that will support the future of biomedical research, the Advisory Committee to the Director, NIH (ACD) was tasked to review NLM's mission, organization, and program priorities and to recommend a strategy for maintaining NLM's status as an international leader in biomedical and health information. In June 2015, the

ACD articulated a strategic vision for NLM that recognizes the need for NLM to serve as the epicenter for biomedical data science within NIH and to expand its activities involving extramural funded institutions. In FY 2017, NLM will work toward this vision with the Office of the Associate Director for Data Science.

Priorities for FY 2017

Foundation for Discoveries: Basic Research. High-quality, cost-effective science builds upon evidence in previously published papers, uses existing scientific data effectively, and then produces data and published evidence that in turn promote new science and new discoveries. NLM's rapidly growing and richly linked databases and systems will continue to promote scientific breakthroughs by playing an essential role in all phases of this process.

NLM itself actively conducts and supports basic research in computational biology and informatics and also funds development of computational tools and methods for analysis of scientific data, electronic health records, images, and publications. In FY 2015, NLM intramural scientists were key members of an international CRISPR-Cas research team that identified three new naturally occurring systems that show potential for genome editing.

The Promise of Precision Medicine. The acquisition and use of new knowledge about the health effects of an individual's genetic makeup, environmental exposures, and lifestyle choices and constraints are necessary prerequisites to precision medicine. NLM supports both the acquisition and the direct clinical application of such knowledge. The *Database of Genotypes and Phenotypes (dbGaP)* includes the results of more than 600 studies of the interaction between genetic makeup and observable traits (high blood pressure, for example) associated with many diseases, such as cancers, heart disease, and autism. The *ClinVar* database makes knowledge about the clinical significance of genetic variations available, as it is determined by scientists. The *Genetic Testing Registry* provides detailed information about genetic tests that are available for clinical and research use. *ClinicalTrials.gov* includes an increasing number of studies that identify the genetic variations associated with different outcomes to provide confirming evidence for precision medicine.

Applying Big Data and Technology to Improve Health. Although immense quantities of scientific data are already available from NLM and other sources, the amount of data valuable for research, health care, and prevention continues to increase dramatically. The NIH Precision Medicine Initiative (PMI) Cohort will capitalize on relatively inexpensive genome sequencing technology, the growing availability of EHRs (many employing standard clinical vocabularies developed or supported by NLM), and participants' ability to provide data directly via smart phones, sensors, and other mobile devices. The FY 2017 Budget provides an increase for the NIH Common Fund of \$100 million, to an initiative total of \$300 million for the Precision Medicine Initiative to continue making progress. NLM has redesigned many web information services to display effectively for the expanding user base with smartphones. NLM intramural scientists are actively investigating the use of mobile technology to diagnose tuberculosis and malaria in low resource settings and are using a challenge mechanism to support development of algorithms that can correctly identify pills from pictures taken on smartphones. They are also gaining experience with the analysis of Big Data from multiple sources of de-identified

prescription and patient outcome data, applying deep knowledge of clinical terminology and natural language processing, as well NLM's rich terminology resources and tools.

NLM continues to work with the Office of the NIH Associate Director of Data Science on trans-NIH planning, management, and oversight of the Big Data to Knowledge (BD2K) program to improve data discovery mechanisms and data standardization; advance data sustainability; develop additional sophisticated data integration and analysis tools; and expand the cadre of biomedical data scientists – all of which will be necessary to gain the greatest benefit from the PMI Cohort data.

Stewardship to Inspire Public Trust. As its responsibilities for trans-NIH data science increase, NLM will evaluate how its investments can best augment – and not duplicate – investments by other NIH ICs, other government agencies, and external funders. NLM's extensive training programs will continue to be an important source of informatics and data science researchers and a mechanism for promoting research rigor and reproducibility in these fields. NLM will play an important role in ensuring the greatest benefit from the NIH clinical trial portfolio by facilitating registration and submission of the results of all NIH-funded trials to *ClinicalTrials.gov*. NLM continues to partner with other agencies to increase funding available for ongoing maintenance and enhancement of clinical terminology standards and related tools and with private organizations, such as the Wellcome Trust, to expand support for digitization of important historical materials.

Overall Budget Policy:

The FY 2017 President's Budget request is \$395.684 million, the same amount as the FY 2016 Enacted Level. Funds are included in the NLM budget for continued processing and organizing of the deluge of new genomic data resulting from NIH-wide investments in high throughput sequencing technologies by the National Center for Biotechnology Information. NLM's highest priority is maintaining the quality and integrity of the Library's national collection of biomedical information and its many heavily used electronic databases. NLM's intramural program focuses on building and providing public access to these essential services and comprises 81 percent of the NLM budget request. The Library will continue to support the National Network of Libraries of Medicine and its role in improving U.S.-wide access and use of health information in communities across the nation; to support pre- and post-doctoral informatics research training and career transition for its trainees; to foster special projects that disseminate information to reduce health disparities; to support scholarship in the history and philosophy of biomedicine and ethics; and to invest in new informatics research through competing RPGs awarded to early stage, new and experienced investigators.

Funds are included in R&D contracts to support trans-NIH initiatives, such as the Big Data to Knowledge (BD2K) and Diveristy initiatives.

Program Descriptions and Accomplishments

Intramural Programs

The intramural programs at NLM focus on the development and maintenance of data services, as well as basic and applied research in computational biology, information technology, data

standards, and access to information by scientists, health professionals, patients, and the general public.

Delivering Reliable, High Quality Biomedical and Health Information Services:

In FY 2015, NLM greatly expanded the quantity and range of high quality information readily available to scientists, health professionals, and the general public. Advances included:

- indexing of more than 806,000 new journal articles for PubMed/MEDLINE, NLM's most heavily used database, which contains more than 25 million references to articles in the biomedical and life sciences journals and delivers information to more than 2 million users per day;
- growth in the PubMed Central (PMC) digital archive, which now provides public access to the full-text versions of more than 3.6 million research articles, including those produced by researchers funded by NIH and other government agencies;
- expansion of *ClinicalTrials.gov*, the world's largest clinical trials registry, which now includes more than 200,000 registered studies and summary results for more than 18,700 trials, including many not available elsewhere;
- the addition of cancer tests to the Genetic Testing Registry, where users can find detailed information on more than 32,000 genetic tests;
- enhancement of Genetics Home Reference (GHR), which provides consumer-level information about genetics and attracted 2.2 million visitors per month in FY 2015, with 132 new summaries of genetic conditions, genes, gene families, and chromosomes, bringing the total to 2,649 summaries;
- more than 20 percent growth in the database of Genotypes and Phenotypes (dbGaP), which connects individual-level genomic data with individual-level clinical information and now contains 600 studies involving more than one million people;
- continued growth of PubChem, an archive of chemical and biological data on small molecules; PubChem contains information on more than 60 million unique chemical structures and more than 1.1 million bioassays;
- expansion of the RefSeq database of curated reference sequences, which has nearly 15 million genomic records, an 88 percent increase in FY 2015, and more than 51 million protein records from over 54,000 organisms;
- addition of two new archive collections to NLM's Profiles in Science® web site, which serves as an authoritative and reliable information resource on prominent figures in science for students and researchers. Historical materials were added for John Edward Fogarty (1913-1967), an American legislator and advocate of federal funding for medical research, health education, and health care services; and Michael E. DeBakey (1908-2008), a legendary surgeon, whose work transformed cardiovascular surgery; and
- improved dissemination methods and new tools to aid the use of the U.S. clinical terminology standards required for interoperability of electronic health records.

NLM also continued to expand access to its rare and unique historical collections by digitizing rare books, manuscripts, pictures, and historical films. In FY 2015, over 3,000 printed historic books were digitized and added to NLM's Digital Collections, a free online archive of biomedical books and videos. These collections are heavily used by scholars, the media, and the general public.

NLM is redesigning many of its web interfaces so that the information display adjusts automatically to the size of the device, including smart phones. In FY 2015, the Library released new “responsive design” versions of MedlinePlus and MedlinePlus en español, bringing authoritative patient and consumer information from NIH, HHS, and other authoritative sources. NLM continued to be a leading player in social media amongst HHS agencies with active Facebook, Twitter, Flickr, Pinterest, and YouTube accounts; several online newsletters; and its NN/LM, which covers the U.S. and hosts 8 Facebook pages, 9 Twitter feeds and 12 blogs. NLM is consistently ranked among the most liked, most followed, and most mentioned organizations amongst small government agencies with social media accounts.

Program Portrait: Enhancing the Interoperability of Electronic Health Records (EHRs)

FY 2016 Level: \$17.5 million

FY 2017 Level: \$17.5 million

Change: \$0.0 million

In close collaboration with the Office of the National Coordinator for Health Information Technology within HHS and with assistance from Centers for Medicare and Medicaid Services (CMS), the Veterans Health Administration, and FDA, NLM develops, funds, and disseminates the clinical terminologies designated as U.S. standards for meaningful use of EHRs and health information exchange. NLM produces a range of tools that help EHR developers and users to implement these standards and makes them available in multiple formats, including via application programming interfaces (APIs). NLM’s technical and financial support enables clinical terminology standards to be updated regularly to reflect new drugs, tests, devices, and changes in medical knowledge and health practice – and also allows them to be used free-of-charge in U.S. health care, public health, biomedical research, and product development.

The inclusion of standard terminology in EHRs enables more effective clinical decision support by making it easier to use information in a patient’s record to retrieve knowledge relevant to that record. In FY 2015, NLM’s MedlinePlus Connect service increased its utility to EHR vendors seeking to connect their products directly to NLM’s high quality information relevant to a patient’s problems, medications, and test results by expanding its links to standard terminologies and billing codes. Standardized EHRs are also an increasingly important source of data for cost-effective observational, clinical and translational research and will enhance the value of the PMI cohort. NLM continued its work to facilitate the inclusion of standard clinical terminology in common data elements and patient assessment instruments used in NIH and HHS-funded comparative effectiveness and clinical research. NLM’s Unified Medical Language System (UMLS) resources provide essential infrastructure for advanced clinical decision support by connecting standard clinical terminologies to billing codes and more than 120 other important biomedical vocabularies, such as those used in information retrieval and gene annotation. By linking the many different terms used to represent the same concepts and by providing associated natural language processing programs, NLM’s UMLS resources help computer programs interpret biomedical text correctly. These resources are heavily used in NIH-funded research; in commercial product development; and in many electronic information services, including those produced by NLM.

Budget Policy:

The FY 2017 President’s Budget estimate for delivering reliable, high quality biomedical and health information services is \$142.242 million, the same as the FY 2016 Enacted level. In FY 2017, the Library will concentrate on maintaining its current level of services and its most heavily used resources, including PubMed/MEDLINE and PubMed Central, which provide critical access to published biomedical research results worldwide. Keeping MedlinePlus current with new consumer health and maintaining and improving the Hazardous Substances Data Bank are also high priorities for FY 2017. The Library will also continue to serve and to act as an HHS coordinating center for standard clinical vocabularies; to support, develop, or

license for nationwide use key clinical vocabularies, including SNOMED CT®; and to develop and test tools and subsets to promote meaningful use of electronic health records.

Promoting Public Awareness and Access to Information: The NLM has extensive outreach programs to enhance awareness of NLM's diverse information services among biomedical researchers, health professionals, librarians, patients, and the public. To improve access to high quality health information, NLM works with the NN/LM and has formal outreach partnerships, including the Partners in Information Access for the Public Health Workforce and the Environmental Health Information Outreach Partnership with Historically Black Colleges and Universities, tribal colleges, and other minority serving institutions.

Program Portrait: National Network of Libraries of Medicine (NN/LM)

FY 2016 Level: \$11.9 million

FY 2017 Level: \$11.9 million

Change: \$0.0 million

The 6,400 member institutions of the NN/LM are valued partners in ensuring that health information, including NLM's many services, is available to scientists, health professionals, and the public. NN/LM is coordinated by eight Regional Medical Libraries and is comprised of academic health sciences libraries, hospital libraries, public libraries, and community-based organizations.

Following stakeholder feedback from an FY 2014 Request for Information, in FY 2015, NLM changed the mechanism used to support the Regional Medical Libraries from contracts to cooperative agreements (grants). Under these cooperative agreements, to be awarded in FY 2016, NN/LM will be governed by a National Network Steering Committee (NNSC). This Committee will ensure better coordination among regions and less duplication of effort for services that can be delivered nationwide by one library to all regions, such as the development of materials used to educate different groups of health professionals about how to access information services and tools that are most relevant to them. NN/LM will continue to play a pivotal role in outreach by exhibiting and demonstrating NLM's products and services at national, regional, and state health professional and consumer oriented meetings, coordinating efforts to improve access to electronic publications for the public health workforce, improving awareness and access to high quality health information for the general public, and addressing health literacy and health disparities.

With an excellent track record of providing access to health information for clinicians and patients displaced by disasters, NN/LM will continue as the backbone of NLM's strategy to promote more effective use of libraries and librarians in local, state, and national disaster preparedness and response efforts. NN/LM also plays an important role in NLM efforts to increase the capacity of research libraries and librarians to support data science and improve institutional capacity in biomedical big data management and analysis.

In FY 2015, dozens of community-based projects were funded across the country to enhance awareness and access to health information, including in disaster and emergency situations, and to address health literacy issues.

NLM also fosters more informal community partnerships and uses exhibitions, the media, and new technologies in its efforts to reach underserved populations and to promote interest among young people in careers in science, medicine, and technology. NLM continues to expand its successful traveling exhibitions program as another means to enhance access to the NLM's services and promote interest in careers in science and medicine in communities across the country. Examples include: *Confronting Violence: Improving Women's Lives* (opened in

October 2015), Native Voices: Native Peoples' Concepts of Health and Illness; Opening Doors: Contemporary African American Academic Surgeons; Binding Wounds, Pushing Boundaries: African Americans in Civil War Medicine; Every Necessary Care and Attention: George Washington and Medicine; and Surviving and Thriving: AIDS, Politics, and Culture.

With assistance from other NIH components and outside partners, NLM continues to increase the distribution of the *NIH MedlinePlus* magazine, and its Spanish counterpart, *NIH Salud*. The magazine, which is also available online in Spanish and English, is distributed to doctors' offices, health science libraries, Congress, the media, federally supported community health centers, select hospital emergency and waiting rooms, and other locations where the public receives health services nationwide. In FY 2015, NLM and NIH partnered with the National Hispanic Medical Association, the American Diabetes Association, the Peripheral Arterial Disease Coalition, among others, to extend the distribution of the magazine to the audiences they serve.

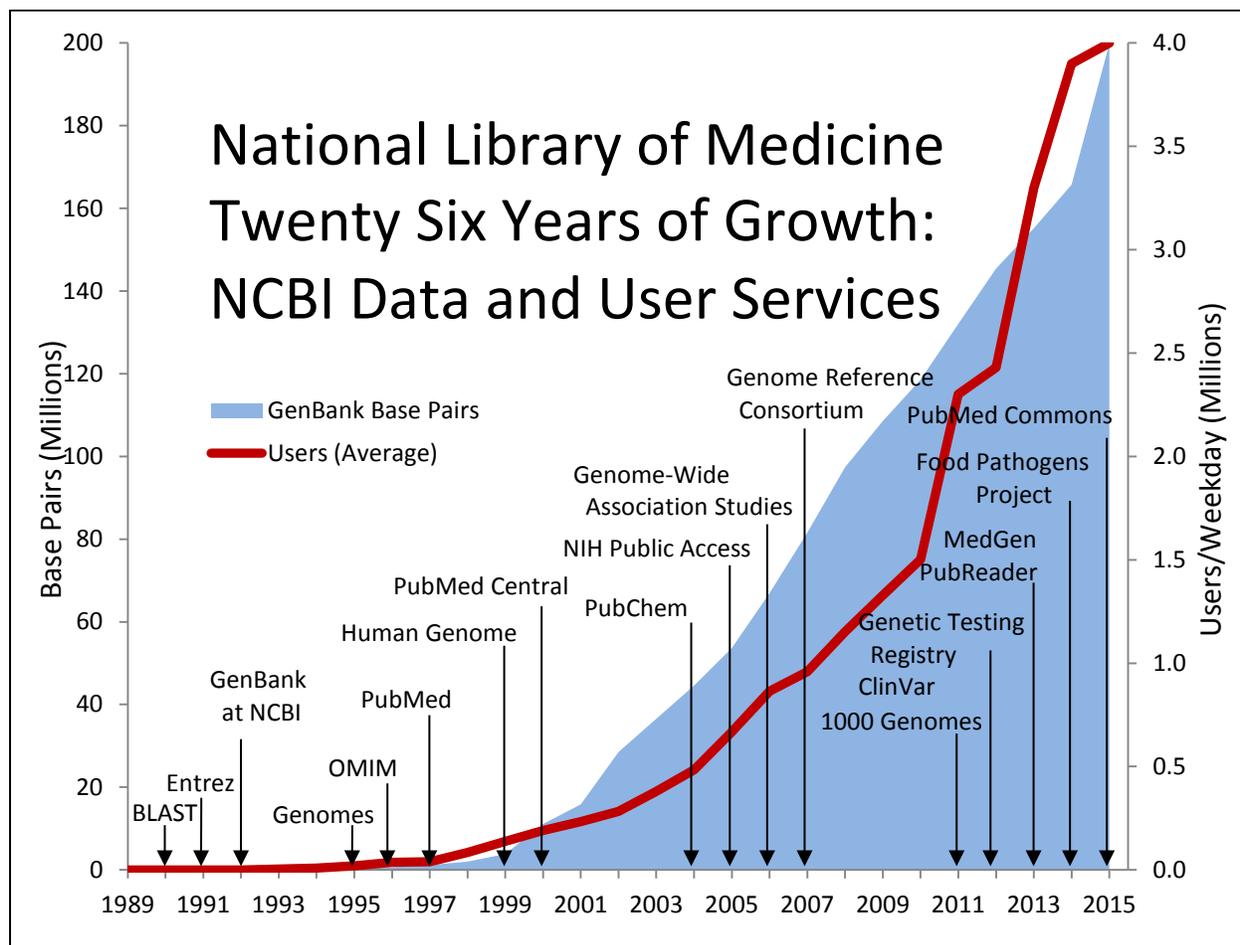
Budget Policy:

The FY 2017 President's Budget estimate for promoting public awareness and access to information is \$5.001 million, a decrease of \$0.176 million or 3.4 percent below the FY 2016 Enacted level of \$5.177 million. In FY 2017, NLM will continue its outreach programs with a special emphasis on those aimed at underserved and minority populations. As recommended by its 2006-2016 Long Range Plan, NLM continues to develop and test innovative outreach methods, including infrastructure improvements to enable ubiquitous health information access in homes, schools, public libraries, and work places. Also as recommended in the Plan, the Library will continue to use its major historical exhibitions as a means for improving science and health literacy and promoting interest in biomedical careers, as well as increasing awareness and use of NLM information services.

Developing Advanced Information Systems, Standards, and Research Tools: NLM's advanced information services have long benefitted from its intramural research and development (R&D) programs. The Library has two organizations that conduct advanced R&D on different aspects of biomedical informatics – the Lister Hill National Center for Biomedical Communications (LHC) and the National Center for Biotechnology Information (NCBI).

LHC, established by joint resolution of Congress in 1968, conducts and supports research in such areas as the development and dissemination of health information technology standards; the capture, processing, dissemination, and use of high quality imaging data; medical language processing; high-speed access to biomedical information; and advanced technology for emergency and disaster management. Research includes use of large clinical databases to predict patient outcomes from patient factors including medication usage. In FY 2015, a huge dataset from CMS was obtained for studies about epidemiology of drug-drug interactions, and association between Simvastatin use and dementia/Alzheimer's disease. In addition, research was initiated using MIMIC-III, the latest version of a large de-identified database from Massachusetts Institute of Technology of intensive care data, now covering nearly 58,000 hospital admissions for over 48,000 distinct patients.

LHC has also been a leader in promoting open data and open software. LHC leverages its imaging research and analysis expertise to address critical clinical and global health needs, in collaboration with NCI and NIAID, as well as other biomedical research and healthcare delivery organizations. LHC developed novel imaging data sets as well as open software for three-dimensional (3D) analysis of biomedical imaging data (the ITK toolkit), which have advanced research and product development in anatomical imaging. NLM collaborated with NIAID in launching the NIH 3D Print Exchange, including collections and models useful to radiologists, surgeons, and prosthetics and robotics experts. LHC also developed the Open-iSM biomedical image search engine, which provides access to more than 3.2 million images and attracts 10,000 unique visitors per day (as of FY 2015).



NCBI, established by law in 1988, conducts R&D on the representation, integration, and retrieval of molecular biology data and biomedical literature, in addition to providing an integrated, genomic information resource consisting of more than 40 databases for biomedical researchers at NIH and around the world. NCBI's development of large-scale data integration techniques with advanced information systems is key to its expanding ability to support the accelerated pace of research made possible by new technologies such as next-generation DNA sequencing, microarrays, and small molecule screening. GenBank at NCBI, in collaboration with partners in the U.K. and Japan, is the world's largest annotated collection of publicly available DNA sequences. GenBank contains 185 million sequences from more than

365,000 different species. NCBI's web services for access to these data provide the information and analytic tools for researchers to accelerate the rate of genomic discovery and facilitate the translation of basic science advances into new diagnostics and treatments.

As part of the 2014 presidential initiative to combat antibiotic resistant bacteria, NCBI continues to collaborate with FDA, the CDC, the Department of Agriculture, and other groups to maintain a database of whole genome sequencing (WGS) data for antibiotic-resistant bacteria along with tools to facilitate analyses of such data. The database provides an important resource for surveillance and research into the mechanisms underlying the emergence of antibacterial resistance. This program builds upon a successful collaborative project among these same agencies to use WGS to more quickly and accurately identify and investigate outbreaks of disease caused by foodborne bacteria.

NLM was also a pioneer in developing and sharing novel medical language resources and innovative algorithms and tools, including the UMLS, MetaMap, Medical Text Indexer (MTI), and SemRep, to advance research in natural language understanding and biomedical text mining. This research has been applied to indexing, information retrieval, question answering, and literature-based discovery to assist NLM's high volume data creation and service operations, to help other NIH components to identify and summarize new knowledge useful in updating clinical guidelines, and to add standard terminology and codes to clinical data to enhance their research value. There is growing evidence of the utility of text mining techniques in the clinical domain; for example, combining genotype information with phenotype information extracted from electronic medical records via natural language processing is a viable, cost-effective way to study the relationship between genome-wide genetic variation and common human traits.

NLM has many joint research activities with other NIH components and other Federal agencies, including CDC, CMS, the Department of Veterans Affairs, and FDA. In FY 2015, NLM collaborated with NIDDK to develop and publish guidance for improving chronic disease care, using management of chronic kidney disease through EHRs as a model. Nationwide newborn screening efforts – led by HRSA, CDC, NICHD, and state public health programs – rely on NLM to help develop and implement standard coding and messaging, which will improve the ability to collect data and conduct research for more than 30 rare diseases that affect newborns and children. With the National Institute of Neurological Disorders and Stroke (NINDS) Human Motor Control Section, NLM developed a mobile health application for people with Parkinsons Disease. In FY 2015, NLM provided FDA safety officers timely information about specific adverse drug events via PubMed Early Alerts pilot project then expanded service to eight other FDA teams. NLM is also working closely with FDA to encourage the use of clinical standards – developed and supported by NLM – in instrument labels and drug trial submissions.

NLM has made advances that will facilitate health information exchange and meaningful use of EHRs. Researchers have developed advanced and heavily used APIs for medication data, nomenclature, and high quality pill images; produced novel algorithms for validating vocabulary components of electronic clinical quality measure specifications; and analyzed frequency data from multiple health care organizations to produce manageable subsets of large standard clinical vocabularies. RxNorm and other NLM-developed medication information resources anticipate receiving one billion queries in CY 2015. NLM researchers have also developed effective

techniques for mapping clinical vocabularies to administrative code sets and have established partnerships to test the use and impact of personal health records.

Budget Policy:

The FY 2017 President's Budget estimate for developing advanced information systems, standards and research tools is \$173.202 million, the same as the FY 2016 Enacted level. Funds are used by NCBI to process, and provide public access to, the enormous quantities of data emanating from new NIH-funded sequencing, microarray, and small molecule screening technologies and to handle an anticipated significant increase in clinical trials results submissions in response to HHS regulations and new NIH policy. NLM will continue to maintain ClinicalTrials.gov in FY 2017 to accommodate increasing submissions of summary results in accordance with the Food and Drug Administration Amendments Act of 2007. In accordance with its 2006-2016 Long Range Plan, NLM's research divisions will engage in critical R&D projects that are important to today's scientific community and that will have even greater influence in the future. In addition to NCBI's trans-NIH collaborations, other NLM intramural researchers will continue to improve access to clinical trials data; to develop advanced imaging tools for cancer diagnosis in cooperation with the National Cancer Institute; and to work with NIH-funded Clinical and Translational Research Centers on health data standardization issues.

Extramural Programs

NLM funds research and training programs that provide important foundations for the burgeoning field of biomedical informatics, which brings the methods and concepts of computational, information, and engineering sciences to bear on problems related to basic biomedical/behavioral research, health care, public health, and consumer use of health-related information. NLM's extramural research grant and workforce development programs focus on the development and testing of approaches for acquiring, integrating, managing, mining, analyzing and presenting biomedical data, information, and knowledge. In addition to standard research and training offerings, NLM sponsors several unique grant programs that provide early support for biomedical knowledge resources. To accomplish its extramural goals in FY 2017, NLM will offer grants in four categories: research project grants; training/career support; information resource awards; and small business grants. In FY 2015, NLM used its base appropriation to award 135 grants, of which 31 percent were new awards. In 2017, NLM expects to use its base appropriation to award 136 grants, of which 30 percent will be new awards.

Informatics Workforce and Resources for Biomedicine and Health: Many of today's informatics researchers and health information technology leaders are graduates of NLM-funded university-based training programs. NLM's 14 active university-based programs train nearly 200 individuals each year. All of these programs offer post-doctoral training in health care informatics, translational informatics or clinical research informatics, supporting recommendations of a working group of the NIH ACD to expand the number of clinicians involved in research. NLM's university-based training program will hold a new competition in FY 2016, expanding its emphasis on data science and support for clinician researchers. Two career transition programs are offered to NLM's trainees and others ready to launch their informatics research careers. In FY 2015, six new career transition awards were made, and one new predoctoral fellowship was awarded. Taken together, NLM's commitment to training and career transition in FY 2015 represents about 32 percent of the total extramural grants budget. In

FY 2017, NLM expects to make new five-year awards to up to 15 institutional training programs, 4 new career transition grants, and 1 individual fellowship.

NLM has two unique resource grant programs offered by no other Federal agency: 1) Grants for Scholarly Works in Biomedicine and Health support researchers in the history and philosophy of medicine, biomedical science, and bioethics. Six new awards were made in FY 2015 on timely topics such as prescription drug abuse and cultural factors affecting diabetes; and 2) NLM Administrative Supplements for Informationist Services provide supplemental funds to existing NIH research grantees who want to add an information specialist to their research team. Eleven new awards were funded in FY 2015 in this program, three of them partially or fully funded by other ICs. By fostering better management of biomedical research data, the work of these awardees is foundational for the application of big data to improve health.

Program Portrait: Training the Workforce for Biomedical Informatics and Data Science

FY 2016 Level: \$12.616 million
FY 2017 Level: \$12,855 million
Change: +\$0.239 million

For more than 30 years, NLM's Extramural Programs Division has been the principal source of NIH support for research training in biomedical informatics, which brings computer and information sciences approaches to bear on problems in basic biomedical research, health care, and public health administration. A model for new NIH training programs for biomedical big data, NLM's university-based programs produce interdisciplinary, cross-trained researchers who understand fundamental problems of knowledge representation, decision support, translational research, human-computer interaction, and social and organizational factors that influence effective adoption of health information technology in biomedical domains.

NLM supports 14 five-year institutional training grants for biomedical informatics at universities across the United States. In 2015, these programs trained approximately 200 predoctoral and postdoctoral trainees. Another NIH IC, NIDCR, provides funds to support nine additional trainees at three of NLM's programs. Two of NLM's programs received supplemental funds from the NIH BD2K Initiative, to offer predoctoral training for data scientists. Each NLM training program has a plan to enhance diversity in the field through special recruitment efforts in target populations. For example, since the 1990s, the percentage of women trainees has increased from less than 25 percent to more than 40 percent. The use of short-term training appointments to provide practicum experiences for prospective trainees has been an effective approach for enhancing diversity in recruitment; fourteen short term trainees were supported in 2015. In addition to its university-based training, responding to the ACD Workforce recommendations on predoctoral training, NLM now supports individual fellowships in the area of biomedical informatics. The first of these fellowships was awarded in 2015. NLM expects to award 2 additional fellowships in 2016 and 1 new fellowship in 2017.

In a program unique at NIH, NLM provides supplemental funds to research grantees of other NIH ICs so they can bring librarians and other information specialists onto their research teams. This initiative funded 11 new awards in 2015, supporting 19 informationists. In a sense, the Informationist program provides two kinds of training experiences: 'on the job' training in research data management for biomedical researchers and research internships for health sciences librarians. NLM expects to award 6 new informationist supplements in 2016 and 5 new ones in 2017.

In addition, NLM's program for Information Resources to Reduce Health Disparities has a unique focus on development of information resources; four new awards were made in FY 2015, supporting development of information resources tailored to needs of Alaska Native, Navajo, and other underserved populations. Resources like these support long-term goals of the PMI to engage a large cohort of active participants. In FY 2017, NLM expects to award up to five new

informationist supplements and up to two new grants each for scholarly works and information resource projects.

In FY 2015, NLM's resource support program expanded to incorporate awardees of the NIH BD2K training initiative who will develop open access curriculum materials covering topics related to the management of biomedical research data. Five awards were issued in FY 2015, using BD2K funds, to support teaching/learning resources librarians can use to train students and researchers about research data management. Any new awards made in this program in FY 2017 will be supported with BD2K funds.

Budget Policy:

The FY 2017 President's Budget estimate includes \$20.733 million, a decrease of \$0.107 million, or 0.5 percent, below the FY 2016 Enacted level of \$20.840 million. This program builds the informatics expertise and information resources needed to support biomedical scientists, health care providers, public health administrators, and health services researchers. In FY 2017, NLM will continue extramural support for its unique resource grant programs, career transition programs, and for its highly regarded university-based training programs. Trainee stipends for predoctoral and postdoctoral trainees are expected to increase by 2 percent in 2016 and by 2 percent again in 2017.

Biomedical Informatics Research: NLM research project grants (RPGs) have supported pioneering research and development in computational intelligence in medicine, clinical decision support, protection of privacy in electronic medical records, secondary use of routine clinical data for research purposes, regional health data integration, consumer health information access, health applications of advanced telecommunications networks, automated bio-surveillance, and information management in disasters. At the core, these projects advance the science of biomedical informatics, by applying concepts from computer, information, and engineering sciences to problems in medicine, public health, and biological/behavioral sciences. Biomedical informatics research is the foundation for sophisticated systems in which data from biological research and health care are stored, managed, and displayed. The pan-NIH BD2K Initiative recognizes this, focusing funding research and tools for analyzing, integrating and sharing huge and heterogeneous data sets. Complementing the BD2K program and informatics-friendly initiatives at other NIH ICs, NLM research grant programs continue to support both basic and applied research ranging from major research collaborations to small proof-of-concept projects. In all research supported by NLM, needs of the future users must be taken into account, whether they are researchers, students, clinicians, health administrators, patients or consumers. Investigator-initiated projects are funded, as are projects from focused funding announcements that target areas important to NLM's mission.

In FY 2015, NLM issued 17 new RPGs and three exploratory/developmental research grants. Among the newly funded research awards made with appropriated funds are several that support the PMI, including strategies for simplifying text for use by patients; adaptive computer-based testing for consumers, health literacy for online diabetes communication and 'smart' electronic health record systems. Others support goals relating to application of big data and technology, including merger of climate, population and viral genetics for zoonotic surveillance, techniques for estimating the risk of foodborne illness, and novel modeling approaches for large multimodal

data sets. In FY 2015, NLM became home to a new NIH Director's New Innovator award focused on technologies to train clinicians in more effective decision making. In FY 2017, NLM expects to award at least 21 new RPGs, including partial support for an NIH Director's Early Independence Award and for an NCATS Recruitment Innovation Center.

Like all granting agencies, NLM sets aside funds to support small business innovation and research and technology transfer (SBIR/STTR). Most years, NLM concentrates its small SBIR/STTR funds on Phase 1 concept development projects. However, in FY 2015, NLM awarded four Phase 1 and one Phase 2 projects, and expects to award six SBIR/STTR awards in FYs 2016 and 2017. NLM will make sufficient awards to meet its SBIR/STTR set aside, which increases in FY 2017.

Budget Policy:

The FY 2017 President's Budget estimate is \$28.026 million, an increase of \$0.132 million, or 0.5 percent, over the FY 2016 Enacted level of \$27.894 million. Informatics research is fundamental to the sophisticated systems in which research and health data are stored, managed, and displayed. NLM plans to continue to strengthen and diversify its RPG portfolio in coordination with the pan-NIH Big Data to Knowledge (BD2K) initiative, and through engagement in selected multi-IC initiatives on health literacy, genome, and the environment, and consumer use of health information. NLM will continue to accept investigator-initiated grants through NIH parent-grant announcements as well as applications submitted to its own funding announcements. In FY 2017, NLM will award up to 21 new research project grants and will continue to support early stage and new investigators on RPG awards at success rates comparable to those of established investigators submitting new RPG applications. As it has in the past, in FY 2017, NLM will provide new research funding to its K99/R00 NIH Pathway to Independence awardees who have obtained research positions.

Research Management and Support (RMS)

RMS activities provide administrative, budgetary, logistical, and scientific support for basic library services, intramural research programs, and the review, award, and monitoring of research grants and training awards. RMS functions also include strategic planning, coordination, and evaluation of NLM's programs, regulatory compliance, policy development, and international coordination and liaison with other Federal agencies, Congress, and the public. These activities are conducted by the NLM Director and his immediate staff, as well as NLM personnel from the Office of Extramural Programs, the Office of Administrative Management, the Office of Health Information Programs Development, and the Office of Communications and Public Liaison.

Budget Policy:

The FY 2017 President's Budget estimate is \$14.589 million, an increase of \$0.151 million, or 1.0 percent, over the FY 2016 Enacted level of \$14.438 million. The focus of RMS will continue to be the coordination of NLM's activities and policies and the development and administration of NLM's grant activities. These funds will support the same number of FTE as in FY 2016.

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2016 Enacted	FY 2017 President's Budget²	FY 2017 +/- FY 2016
Total compensable workyears:			
Full-time employment	811	811	0
Full-time equivalent of overtime and holiday hours	2	2	0
Average ES salary	\$175	\$176	\$1
Average GM/GS grade	11.4	11.4	0.0
Average GM/GS salary	\$96	\$97	\$1
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$107	\$108	\$1
Average salary of ungraded positions	\$137	\$138	\$1
OBJECT CLASSES	FY 2016 Enacted	FY 2017 President's Budget²	FY 2017 +/- FY 2016
Personnel Compensation			
11.1 Full-Time Permanent	\$75,179	\$75,752	\$573
11.3 Other Than Full-Time Permanent	11,653	11,742	89
11.5 Other Personnel Compensation	887	895	8
11.7 Military Personnel	18	19	1
11.8 Special Personnel Services Payments	1,426	1,437	11
11.9 Subtotal Personnel Compensation	\$89,163	\$89,845	\$682
12.1 Civilian Personnel Benefits	\$28,051	\$28,607	\$556
12.2 Military Personnel Benefits	15	16	1
13.0 Benefits to Former Personnel	0	0	0
Subtotal Pay Costs	\$117,229	\$118,468	\$1,239
21.0 Travel & Transportation of Persons	\$1,144	\$1,166	\$22
22.0 Transportation of Things	130	134	4
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	188	192	4
23.3 Communications, Utilities & Misc. Charges	1,062	1,082	20
24.0 Printing & Reproduction	444	453	9
25.1 Consulting Services	\$49,598	\$50,492	\$894
25.2 Other Services	30,579	25,574	-5,005
25.3 Purchase of goods and services from government accounts	89,151	90,998	1,847
25.4 Operation & Maintenance of Facilities	\$2,427	\$2,472	\$45
25.5 R&D Contracts	0	0	0
25.6 Medical Care	0	0	0
25.7 Operation & Maintenance of Equipment	11,827	12,041	214
25.8 Subsistence & Support of Persons	0	0	0
25.0 Subtotal Other Contractual Services	\$183,582	\$181,577	-\$2,005
26.0 Supplies & Materials	\$1,934	\$1,970	\$36
31.0 Equipment	35,809	36,455	646
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	54,159	54,184	25
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	3	3	0
44.0 Refunds	0	0	0
Subtotal Non-Pay Costs	\$278,455	\$277,216	-\$1,239
Total Budget Authority by Object Class	\$395,684	\$395,684	\$0

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

² Includes mandatory financing.

NATIONAL INSTITUTES OF HEALTH
National Library of Medicine

Salaries and Expenses
(Dollars in Thousands)

OBJECT CLASSES	FY 2016 Enacted	FY 2017 President's Budget	FY 2017 +/- FY 2016
Personnel Compensation			
Full-Time Permanent (11.1)	\$75,179	\$75,752	\$573
Other Than Full-Time Permanent (11.3)	11,653	11,742	89
Other Personnel Compensation (11.5)	887	895	8
Military Personnel (11.7)	18	19	1
Special Personnel Services Payments (11.8)	1,426	1,437	11
Subtotal Personnel Compensation (11.9)	\$89,163	\$89,845	\$682
Civilian Personnel Benefits (12.1)	\$28,051	\$28,607	\$556
Military Personnel Benefits (12.2)	15	16	1
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	\$117,229	\$118,468	\$1,239
Travel & Transportation of Persons (21.0)	\$1,144	\$1,166	\$22
Transportation of Things (22.0)	130	134	4
Rental Payments to Others (23.2)	188	192	4
Communications, Utilities & Misc. Charges (23.3)	1,062	1,082	20
Printing & Reproduction (24.0)	444	453	9
Other Contractual Services:			
Consultant Services (25.1)	49,598	50,492	894
Other Services (25.2)	30,579	25,574	-5,005
Purchases from government accounts (25.3)	80,741	82,462	1,721
Operation & Maintenance of Facilities (25.4)	2,427	2,472	45
Operation & Maintenance of Equipment (25.7)	11,827	12,041	214
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	\$175,172	\$173,041	-\$2,131
Supplies & Materials (26.0)	\$1,934	\$1,970	\$36
Subtotal Non-Pay Costs	\$180,074	\$178,038	-\$2,036
Total Administrative Costs	\$297,303	\$296,506	-\$797

**NATIONAL INSTITUTES OF HEALTH
National Library of Medicine**

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2015 Actual			FY 2016 Est.			FY 2017 Est.		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Programs									
Direct:	22		22	22		22	22		22
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	22	-	22	22	-	22	22	-	22
Division of Library Operations									
Direct:	302		302	303		303	303		303
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	302	-	302	303	-	303	303	-	303
Division of Specialized Information Services									
Direct:	41		41	41		41	41		41
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	41	-	41	41	-	41	41	-	41
Lister Hill National Center for Biomedical Communications									
Direct:	63		63	63		63	63		63
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	63	-	63	63	-	63	63	-	63
National Center for Biotechnology Information									
Direct:	8	1	9	300	1	301	300	1	301
Reimbursable:	286	-	286	-	-	-	-	-	-
Total:	294	1	295	300	1	301	300	1	301
Office of the Director/Administration									
Direct:	61		61	69		69	70		70
Reimbursable:	19	-	19	12	-	12	11	-	11
Total:	80	-	80	81	-	81	81	-	81
Total	802	1	803	810	1	811	810	1	811
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0
FISCAL YEAR	Average GS Grade								
2013	11.2								
2014	11.2								
2015	11.4								
2016	11.4								
2017	11.4								

**NATIONAL INSTITUTES OF HEALTH
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Detail of Positions¹

GRADE	FY 2015 Actual	FY 2016 Enacted	FY 2017 President's Budget
Total, ES Positions	5	5	5
Total, ES Salary	\$859,769	\$874,987	\$882,249
GM/GS-15	32	32	32
GM/GS-14	54	54	54
GM/GS-13	140	148	148
GS-12	134	134	134
GS-11	31	31	31
GS-10	0	0	0
GS-9	34	34	34
GS-8	44	44	44
GS-7	12	12	12
GS-6	5	5	5
GS-5	3	3	3
GS-4	4	4	4
GS-3	10	10	10
GS-2	4	4	4
GS-1	3	3	3
Subtotal	510	518	518
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	0	0	0
Senior Grade	0	0	0
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	1	1	1
Subtotal	1	1	1
Ungraded	302	302	302
Total permanent positions	495	503	503
Total positions, end of year	818	826	826
Total full-time equivalent (FTE) employment, end of year	803	811	811
Average ES salary	\$171,954	\$174,997	\$176,450
Average GM/GS grade	11.4	11.4	11.4
Average GM/GS salary	\$94,343	\$96,013	\$96,810

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