

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

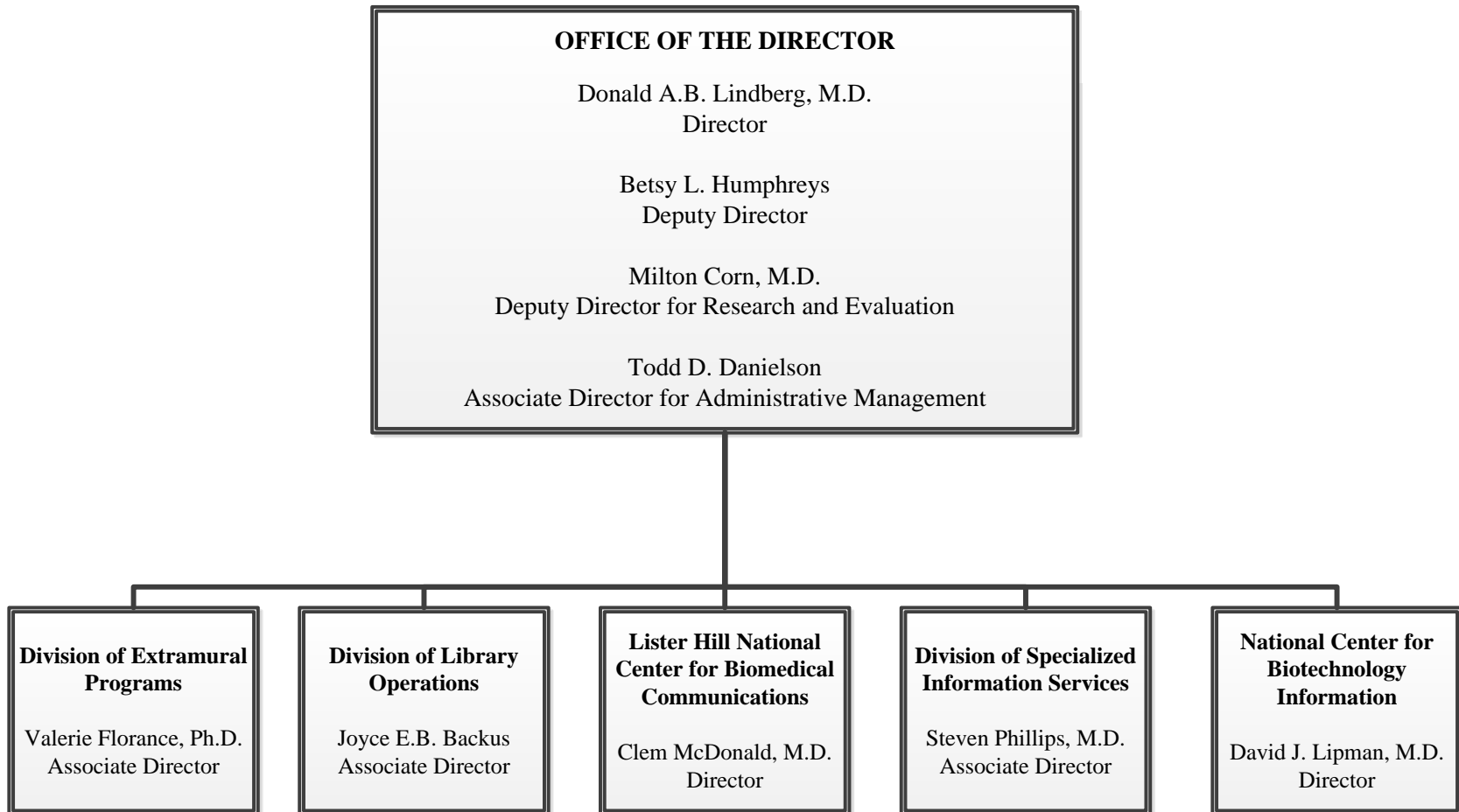
National Library of Medicine (NLM)

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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, ~~[\$336,939,000,]~~ \$394,090,000: Provided, That of the amounts available for improvement of information systems, \$4,000,000 shall be available u n t i l September 30, ~~[2016]~~ 2017: Provided further, That in fiscal year ~~[2015]~~ 2016, 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 2014 Actual	FY 2015 Enacted	FY 2016 President's Budget
Appropriation	\$327,723	\$336,939	\$394,090
Type 1 Diabetes	0	0	0
Rescission	0	0	0
Sequestration	0	0	0
FY 2014 First Secretary's Transfer	-823	0	0
FY 2014 Second Secretary's Transfer	-64	0	0
Subtotal, adjusted appropriation	\$326,836	\$336,939	\$394,090
OAR HIV/AIDS Transfers	500	385	0
National Children's Study Transfers	1,077	0	0
Subtotal, adjusted budget authority	\$328,413	\$337,324	\$394,090
Unobligated balance, start of year	1,353	1,500	0
Unobligated balance, end of year	-1,500	0	0
Subtotal, adjusted budget authority	\$328,266	\$338,824	\$394,090
Unobligated balance lapsing	-730	0	0
Total obligations	\$327,537	\$338,824	\$394,090

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

FY 2014 - \$58,721 FY 2015 - \$64,714 FY 2016 - \$19,215

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

Budget Mechanism - Total¹

(Dollars in Thousands)

MECHANISM	FY 2014 Actual		FY 2015 Enacted		FY 2016 President's Budget		FY 2016 +/- FY 2015	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Research Projects:								
Noncompeting	54	\$16,758	48	\$16,093	48	\$15,272	0	-\$821
Administrative Supplements	(0)	344	(0)	200	(0)	200	(0)	0
Competing:								
Renewal	5	2,180	4	1,830	4	1,880	0	50
New	20	7,869	20	6,480	26	7,785	6	1,305
Supplements	0	0	0	0	0	0	0	0
Subtotal, Competing	25	\$10,049	24	\$8,310	30	\$9,665	6	\$1,355
Subtotal, RPGs	79	\$27,151	72	\$24,603	78	\$25,137	6	\$534
SBIR/STTR	2	799	2	837	2	885	0	48
Research Project Grants	81	\$27,950	74	\$25,440	80	\$26,022	6	\$582
Research Centers:								
Specialized/Comprehensive	0	\$50	0	\$0	0	\$1,180	0	\$1,180
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	\$50	0	\$0	0	\$1,180	0	\$1,180
Other Research:								
Research Careers	12	\$1,777	17	\$2,136	22	\$2,410	5	\$274
Cancer Education	0	0	0	0	0	0	0	0
Cooperative Clinical Research	0	0	0	0	0	0	0	0
Biomedical Research Support	0	0	0	0	0	0	0	0
Minority Biomedical Research Support	0	0	0	0	0	0	0	0
Other	35	12,440	30	14,667	27	14,621	-3	-46
Other Research	47	\$14,217	47	\$16,803	49	\$17,031	2	\$228
Total Research Grants	128	\$42,217	121	\$42,243	129	\$44,233	8	\$1,990
Ruth L. Kirchstein Training Awards:	ETTPs		ETTPs		ETTPs		ETTPs	
Individual Awards	0	\$0	0	\$0	0	\$0	0	\$0
Institutional Awards	0	0	0	0	0	0	0	0
Total Research Training	0	\$0	0	\$0	0	\$0	0	\$0
Research & Develop. Contracts <i>(SBIR/STTR) (non-add)</i>	10 (0)	\$18,194 (0)	10 (0)	\$18,170 (0)	10 (0)	\$18,145 (0)	0 (0)	-\$25 (0)
Intramural Programs	696	254,030	701	262,801	701	317,470	0	54,669
Res. Management & Support	103	13,972	103	14,110	103	14,242	0	132
<i>Res. Management & Support (SBIR Admin) (non-add)</i>	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Construction		0		0		0		0
Buildings and Facilities		0		0		0		0
Total, NLM	799	\$328,413	804	\$337,324	804	\$394,090	0	\$56,766

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

Major Changes in the Fiscal Year 2016 President's Budget Request

Major changes by budget mechanism and/or budget activity detail are briefly described below. Note that there may be overlap between budget mechanism and activity detail and these highlights will not sum to the total change for the FY 2016 President's Budget for NLM, which is \$56.766 million over the FY 2015 Enacted Level, for a total of \$394.090 million.

Extramural Programs (+\$1.965 million; total \$62.378 million): Funds (\$0.786 million) have been added to the NLM budget request for new, competing RPGs. With these additional funds, NLM plans to award one new R01 (average cost of \$400,000) and two new R21 (average cost of \$200,000) RPGs. Additionally, funds (\$1.180 million) have been added to the NLM budget request for the NIH Precision Medicine Initiative. NIH proposes to launch a national research cohort of one million or more Americans—to propel our understanding of health and disease and set the foundation for a new way of doing research through engaged participants and open, responsible data sharing. Participants who voluntarily choose to join this effort will be able to share their genomic data, biological specimens, and behavioral data, and, if they choose, link it to their electronic health records (EHRs), taking advantage of the latest in social media and mobile applications, and with appropriate privacy protections in place. Bona fide researchers from across the country will have access to data voluntarily provided, thereby crowdsourcing rich data to the brightest minds in biomedical research. The cohort will be built largely by linking existing cohorts together taking advantage of infrastructure, data security and expertise already in place. NIH will help to connect these existing cohorts, but the current sponsors of the cohorts will maintain their ownership and management. Research on this scale promises to lead to new prevention strategies, novel therapeutics and medical devices, and improvements in how we prescribe drugs—on an *individual and personalized basis*.

Intramural Programs (+\$54.669 million; total \$317.470 million): Funds (\$54.300 million) have been specifically included in NLM's budget request to allow the National Center for Biotechnology Information (NCBI) to meet the challenge of collecting, organizing, analyzing, and disseminating the deluge of data emanating from research in molecular biology and genomics and to support the deposit of manuscripts in PubMed Central under the NIH Public Access Policy. Providing this increase in direct funding to NLM increases transparency and enhances NCBI's ability to provide an integrated, genomic information resource for biomedical researchers at NIH and around the world and to provide access to papers resulting from NIH-funded research. This funding will also enable the ClinicalTrials.gov program to accommodate the increased volume of trial reporting that will result from implementation of regulations for the Food and Drug Administration Amendments Act of 2007 (FDAAA) as well as a proposed expansion of NIH trial reporting policy. Results reporting at ClinicalTrials.gov is a key method of disseminating trial results to the public. Additionally, NLM will support the incremental cost of literature purchases and contractual services in order to maintain its national biomedical information services, including the development and dissemination of molecular biology and genomic information, clinical trials data, published literature, and other services that provide access to the results of research.

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

Summary of Changes

(Dollars in Thousands)

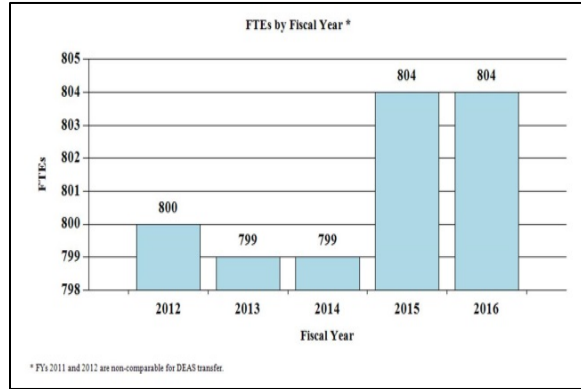
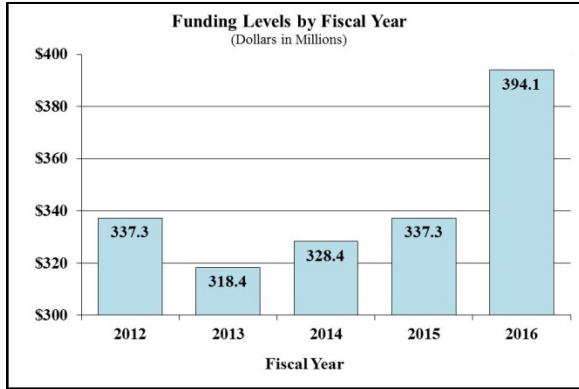
FY 2015 Enacted	\$337,324
FY 2016 President's Budget	\$394,090
Net change	\$56,766

CHANGES	FY 2016 President's Budget		Change from FY 2015	
	FTEs	Budget Authority	FTEs	Budget Authority
A. Built-in:				
1. Intramural Programs:				
a. Annualization of January 2015 pay increase & benefits		\$101,864		\$271
b. January FY 2016 pay increase & benefits		101,864		810
c. One more day of pay (n/a for 2015)		101,864		389
d. Differences attributable to change in FTE		101,864		0
e. Payment for centrally furnished services		5,343		130
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		210,263		14
Subtotal				\$1,614
2. Research Management and Support:				
a. Annualization of January 2015 pay increase & benefits		\$8,540		\$22
b. January FY 2016 pay increase & benefits		8,540		64
c. One more day of pay (n/a for 2015)		8,540		32
d. Differences attributable to change in FTE		8,540		0
e. Payment for centrally furnished services		866		21
f. Increased cost of laboratory supplies, materials, other expenses, and non-recurring costs		4,836		24
Subtotal				\$163
Subtotal, Built-in				\$1,777

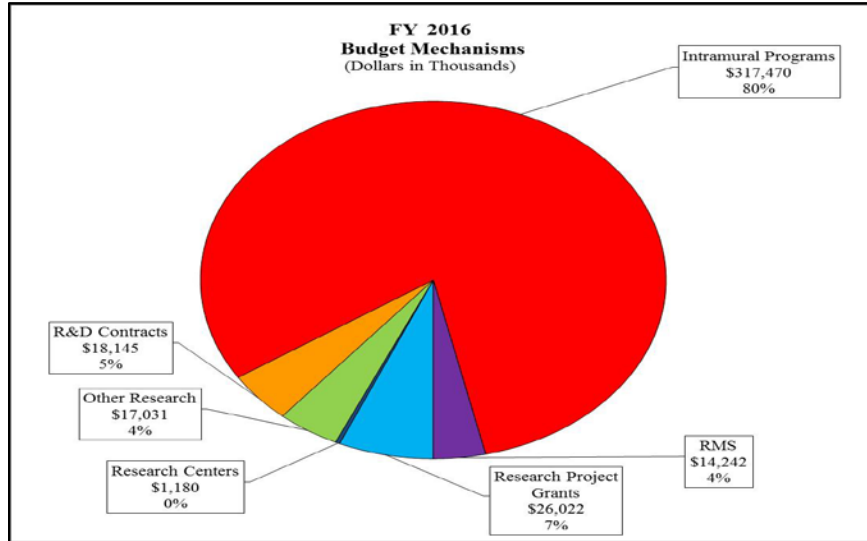
CHANGES	FY 2016 President's Budget		Change from FY 2015	
	No.	Amount	No.	Amount
B. Program:				
1. Research Project Grants:				
a. Noncompeting	48	\$15,472	0	-\$821
b. Competing	30	9,665	6	1,355
c. SBIR/STTR	2	885	0	48
Subtotal, RPGs	80	\$26,022	6	\$582
2. Research Centers	0	\$1,180	0	\$1,180
3. Other Research	49	17,031	2	228
4. Research Training	0	0	0	0
5. Research and development contracts	10	18,145	0	-25
Subtotal, Extramural		\$62,378		\$1,965
6. Intramural Programs	<u>FTEs</u> 701	\$317,470	<u>FTEs</u> 0	\$53,055
7. Research Management and Support	103	14,242	0	-31
8. Construction		0		0
9. Buildings and Facilities		0		0
Subtotal, Program	804	\$394,090	0	\$54,989
Total changes				\$56,766

Fiscal Year 2016 Budget Graphs

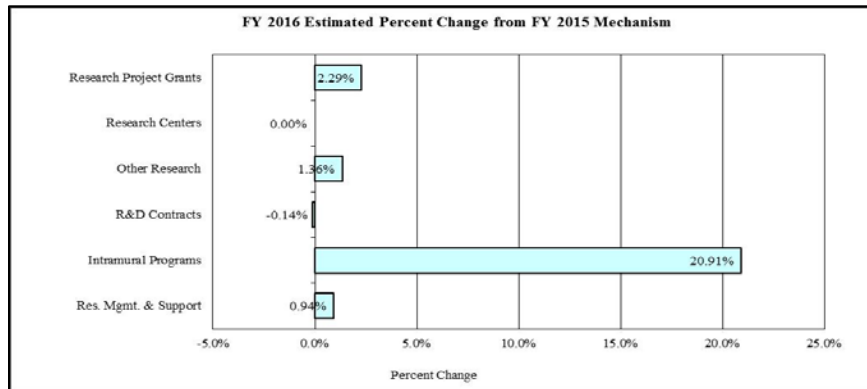
History of Budget Authority and FTEs:



Distribution by Mechanism:



Change by Selected Mechanism:



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

Budget Authority by Activity¹
(Dollars in Thousands)

	FY 2014 Actual		FY 2015 Enacted		FY 2016 President's Budget		FY 2016 +/- FY 2015	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Extramural Research								
<u>Detail</u>								
Health Information for Health Professionals and the Public		\$11,891		\$11,891		\$11,891		\$0
Informatics Resources for Biomedicine and Health		20,520		23,082		23,285		203
Biomedical Informatics Research		28,000		25,440		27,202		1,762
Subtotal, Extramural		\$60,411		\$60,413		\$62,378		\$1,965
Intramural Programs	696	\$254,030	701	\$262,801	701	\$317,470	0	\$54,669
Research Management & Support	103	\$13,972	103	\$14,110	103	\$14,242	0	\$132
TOTAL	799	\$328,413	804	\$337,324	804	\$394,090	0	\$56,766

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

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

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2015 Amount Authorized	FY 2015 Enacted	2016 Amount Authorized	FY 2016 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	\$337,324,000	Indefinite	\$394,090,000
National Library of Medicine	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$337,324,000		\$394,090,000

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

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2006	\$318,091,000	\$318,091,000	\$327,247,000	\$318,091,000
Rescission				(\$3,181,000)
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			

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 2014 Actual</u>	<u>FY 2015 Enacted</u>	<u>FY 2016 President's Budget</u>	<u>FY 2016 +/- FY 2015</u>
BA	\$328,413,084	\$337,324,000	\$394,090,000	+\$56,766,000
FTE	799	804	804	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 biomedical library:

- builds and provides electronic information resources used billions of times each year by millions of scientists, health professionals, and members of the public;
- creates and maintains information systems that provide free public access to results of biomedical research supported by NIH and by other government and private funders;
- supports and conducts research, development, and training in biomedical informatics, computational biology, data science, and health information technology; and
- coordinates a 6,300-member National Network of Libraries of Medicine that promotes and provides access to health information in communities across the United States.

Through its information systems, a cutting-edge informatics research portfolio, and extensive 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.

The range of information that NLM organizes and disseminates is enormous, including genetic, genomic, and biochemical data; images; published and unpublished research results; decision support resources; scientific and health data standards; informatics tools for system developers; and health information for the public. Scientists, health professionals and the public 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.

Increasing use of these APIs to embed access to NLM's expanding databases of research results, scientific data, and high quality health information within electronic health records offers exciting opportunities to speed the translation of research results into improved health and health care.

Priorities for FY 2016

Theme 1: Unraveling Life's Mysteries through 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 databases and systems promote scientific breakthroughs by playing an essential role in all phases of this process. Scientists rely heavily on NLM's rapidly growing and richly linked databases and tools to identify, access, and analyze existing published papers and important sources of research data. Many scientists use NLM information systems to make publications and data resulting from their own research readily available to the scientific community. The number of scientists who do so is increasing steadily as NIH, other Federal agencies, and private funders continue to expand requirements for data sharing and public access to research results.

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 publications, scientific data, electronic health records, and images.

Theme 2: Translating Discovery into Health. The acquisition and effective use of new knowledge about the health effects of an individual's genetic makeup, environmental exposures, and lifestyle choices and constraints facilitate the translation of discoveries into advances in health. NLM supports both the acquisition and the direct clinical application of such knowledge.

The Database of Genotypes and Phenotypes (dbGaP), developed by NLM's National Center for Biotechnology Information (NCBI), provides access to the results of studies that investigate the interaction between genotypes and phenotypes (observable traits such as high blood pressure). The 500 studies in the database cover a broad range of diseases, such as cancers, heart disease, and autism, and include some extensive long-term studies, such as the Framingham Heart Study. As scientists determine the clinical significance of genetic variations, this knowledge is made available through the ClinVar database. The Genetic Testing Registry, provides detailed information about genetic tests that are available for clinical and research use.

Clinical studies that analyze the genetic make-up of participants to identify genetic variations actually associated with different outcomes provide confirming evidence for precision medicine. NLM's ClinicalTrials.gov is the world's most comprehensive clinical research registry, with more than 175,000 studies conducted in more than 180 countries. As a result of requirements in the 2007 Food and Drug Administration (FDA) Amendments Act and other incentives to improve clinical trials transparency, ClinicalTrials.gov includes summary results data for more than 14,500 trials of drugs and devices and is the only public source of results data for many trials.

As part of the 2014 presidential initiative to combat antibiotic resistant bacteria, NLM's NCBI is collaborating with FDA, the Centers for Disease Control and Prevention (CDC), the Department of Agriculture and other groups to develop and maintain a database of whole genome sequencing (WGS) data for antibiotic-resistant bacteria as well as tools to facilitate analyses of such data. The database will provide an important resource for surveillance and research into the mechanisms underlying the emergence of antibacterial resistance. The initiative 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.

Patients are also a critical source of information that can lead to more precise and effective treatments. NLM supports informatics research on mechanisms for patients to share personal health data to improve care and advance research. NLM's intramural research program on personal health records builds on more than two decades of work on standard terminologies in the Unified Medical Language System. Researchers explore methods to help people use evidence to manage their own health, convey information to their health care teams, and generate standardized data to speed scientific discovery.

Theme 3: Harnessing Data and Technology to Improve Health. NLM's NCBI has been a focal point for "Big Data" in biomedicine for decades. NCBI is a leader in organizing and providing rapid access to massive amounts of genetic sequence data generated from high-throughput sequencing technologies. Each day users download 35 terabytes of data, drawing on these enormous data archives. Some of the largest datasets, such as those from NIH's 1000 Genomes Project, are also available through cloud providers, such as Amazon. This allows faster access and analysis by researchers who may be otherwise hampered by insufficient bandwidth or computing power.

Immense quantities of data are already collected in standardized ways, made available from NLM and other accessible sources, and heavily used by the scientific community, but there are additional categories of research data that are essentially inaccessible. The NIH Big Data to Knowledge (BD2K) initiative is designed to improve access to and use of a broader range of biomedical data so that the country receives a larger return on its investment in the research that produced the data.

NLM is actively engaged with the Office of the NIH Associate Director of Data Science in trans-NIH planning, management, and oversight of this multi-faceted program, which awarded its first grants for BD2K Centers, development of training courses and software, and design of a strategy for data discovery in FY 2014. BD2K aims to: 1) improve data citation, data discovery mechanisms, and data standardization; 2) to provide incentives and sustainable mechanisms for sharing more types of data; 3) to develop additional tools for sophisticated data integration and analysis; and 4) to expand the cadre of scientists with the strong combination of life sciences and computational training needed to exploit biomedical big data. In addition to significant contributions to BD2K workshops, requests for information, funding announcements, and funding priorities, NLM continues to maintain and update web directories of NIH data sharing policies, NIH-funded data repositories, and NIH-supported common data element initiatives (that promote more standardized collection of clinical and translational research data) to assist NIH-supported researchers as well as other agencies and organizations focused on improving data sharing and standardization. In FY 2016, NLM will continue to contribute to the development of more effective mechanisms for identifying and facilitating access to a broader spectrum of NIH-funded scientific data and coordinating NIH data access initiatives with those of other science agencies.

Theme 4: Preparing a Diverse and Talented Biomedical Research Workforce. Through extramural and intramural biomedical informatics and data science training programs, NLM offers training at many career stages and focuses on diversity in recruitment at every level. Graduates of NLM-supported programs have added to the quality and diversity of the NLM intramural staff and also increased the diversity in information-related disciplines in general. NLM's training programs, ranging from one week short courses to Ph.D. programs and postgraduate fellowships, have played a role in the development of many exemplary biomedical data scientists and health informatics leaders. In FY 2014, hundreds of people received informatics research training in NLM's extramural and intramural training programs.

Overall Budget Policy:

The FY 2016 President's Budget request is \$394.090 million, an increase of \$56.766 million, or 16.8 percent, over the FY 2015 Enacted Level. Increased funding in FY 2016 will be devoted primarily to processing and organizing the deluge of new genomic data resulting from NIH-wide investments in high throughput sequencing technologies by NLM's 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 80.6 percent of the NLM budget request. Increased funding in FY 2016 for extramural grants will provide an increase of \$0.786 million for three new, competing Research Project Grants (RPGs) and \$1.180 million for the NIH Precision Medicine Initiative. 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) initiative and the Basic Behavioral and Social Sciences Opportunity Network (OppNet).

Program Descriptions and Accomplishments

Intramural Programs

The primary focus of NLM's intramural programs is the development and maintenance of high-quality, heavily used biomedical and health information services. NLM also conducts intramural research in computational biology and on standards, systems, technologies, and networks for information access and use by scientists, health professionals, patients, and the general public.

Delivering Reliable, High Quality Biomedical and Health Information Services: Central to NLM services is the world's largest, continually expanding collection of biomedical literature in all media and a broad array of authoritative digital databases encompassing information for scientists, health professionals, the public, and the librarians and information specialists who serve them. NLM develops and uses sophisticated information systems to support the complex

operations necessary to acquire, describe, index, archive, and provide rapid access to physical and digital materials. Special attention is given to developing systems to build and refine electronic databases and services and to responding to changes in user needs and behaviors.

In FY 2014, 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 765,000 new journal articles for PubMed/MEDLINE, NLM's most heavily used database, which contains more than 24 million references to articles in the biomedical and life sciences journals and delivers information to about 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 3.3 million research articles, including those produced by NIH-funded researchers;
- expansion of ClinicalTrials.gov, which now includes more than 181,000 registered studies and summary results for more than 15,700 trials, including many not available elsewhere;
- a doubling of the number of tests in the Genetic Testing Registry, where users can find detailed information on more than 33,000 genetic tests;
- 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 nearly 600 studies involving more than 840,000 people;
- continued growth of PubChem, an archive of chemical and biological data on small molecules; PubChem now contains information on more than 63 million unique chemical structures and more than 1.1 million bioassays;
- expansion of the RefSeq database of curated reference sequences, which has nearly 8 million genomic records, an 85 percent increase in FY 2014, and more than 45 million protein records—a 36 percent increase—from over 40,000 organisms; 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 2014, 2,460 printed historic books, 4,319 historic images and 895 manuscripts 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.

As the percentage of users accessing NLM databases with mobile phones and tablets continues to rise, NLM is redesigning many of its web interfaces so that the information display adjusts automatically to the size of the device. In FY 2014, the Library released new “responsive design” versions of *AIDSinfo*, the Department of Health and Human Services authoritative source of HIV/AIDS treatment and prevention information, and DailyMed, which includes FDA-approved structured label information for medications marketed in the United States. NLM continued to be a leading player in social media amongst HHS agencies with active Facebook, Twitter, Flickr, Pinterest, and YouTube accounts (including the very popular [@medlineplus](#) Twitter feed and a Spanish-language counterpart), several online newsletters, and its National Network of Libraries of Medicine, which covers the United States and hosts eight Facebook

pages, 10 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: Standards for Interoperable Electronic Health Records

FY 2015 Level: \$17.3 million

FY 2016 Level: \$17.3 million

Change: \$0.0 million

In close collaboration with the Office of the National Coordinator for Health Information Technology (ONC) within HHS and with assistance from the Veterans Health Administration, NLM provides expertise and ongoing funding for the clinical terminologies designated as U.S. standards for meaningful use of electronic health records (EHRs) and health information exchange. NLM's support enables these standards to be updated regularly to reflect new drugs, tests, 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.

NLM produces and maintains a growing number of convenient vocabulary subsets that help EHR developers and users to use vocabulary standards, including subsets of frequently encountered patient problems, frequently ordered tests, and medications currently available in the U.S. market. In cooperation with ONC, the Centers for Medicare and Medicaid Services, and others, NLM maintains the Value Set Authority Center, which provides authoritative access to the standard vocabulary components of clinical quality measures. In FY 2014, NLM enhanced the Value Set Authority Center to support creation and maintenance of new value sets and improve search access to existing value sets for quality measures; updated key vocabulary mappings and subsets useful in achieving meaningful use; improved user support and educational resources for clinical terminology users; and further enhanced its suite of APIs for drug vocabulary. The inclusion of standard terminology in EHRs enables more effective clinical decision support by making it easier to link information in a patient's record to knowledge relevant to that record.

NLM's MedlinePlus Connect service continued to expand 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. Standardized EHRs are also an important source of data for cost-effective clinical and translational research. NLM continued its work to facilitate the use of standard clinical terminology in international genomic research databases and 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 2016 President's Budget estimate for delivering reliable, high quality biomedical and health information services is \$122.874 million, an increase of \$0.348 million or 0.3 percent over the FY 2015 Enacted level of \$122.526 million. In FY 2016, 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 2016. NLM will continue to maintain ClinicalTrials.gov in FY 2016 to accommodate increasing submissions of summary results in accordance with the Food and Drug Administration Amendments Act of 2007. 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 National Network of Libraries of Medicine and has formal partnerships such as 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

FY 2015 Level: \$11.9 million

FY 2016 Level: \$11.9 million

Change: \$0.0 million

The 6,300 member institutions of the National Network of Libraries of Medicine are valued partners in ensuring that health information, including NLM's many services, is available to scientists, health professionals, and the public. The network is coordinated by eight Regional Medical Libraries and is comprised of academic health sciences libraries, hospital libraries, public libraries, and community-based organizations.

The Network creates materials that libraries use to educate local and regional health professionals at all levels about how to easily access health information, both online and in person. Network members 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. These efforts expand outreach and services to the public and address health literacy and health disparities.

Network members partner with State and local government agencies and community-based organizations to expand awareness and use of free, high quality health information. With an excellent track record of providing access to health information for clinicians and patients displaced by disasters, the Network is 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. The Network 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 2014, 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. As part of its outreach efforts, NLM continually solicits feedback from users on how existing resources can be improved.

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 Library's

services and promote interest in careers in science and medicine in communities across the country. Examples include: *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, the Congress, the media, federally supported community health centers, select hospital emergency and waiting rooms, and other locations where the public receives health services nationwide. Via NLM's array of social media platforms, information about new issues and their contents is dispatched regularly to a potential audience of over 276,000 people. This past year, NLM and NIH continued to partner 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. Depending on partners for each issue, between 300,000 and 600,000 copies of the quarterly magazine are distributed and reach more than five million readers across America.

Budget Policy:

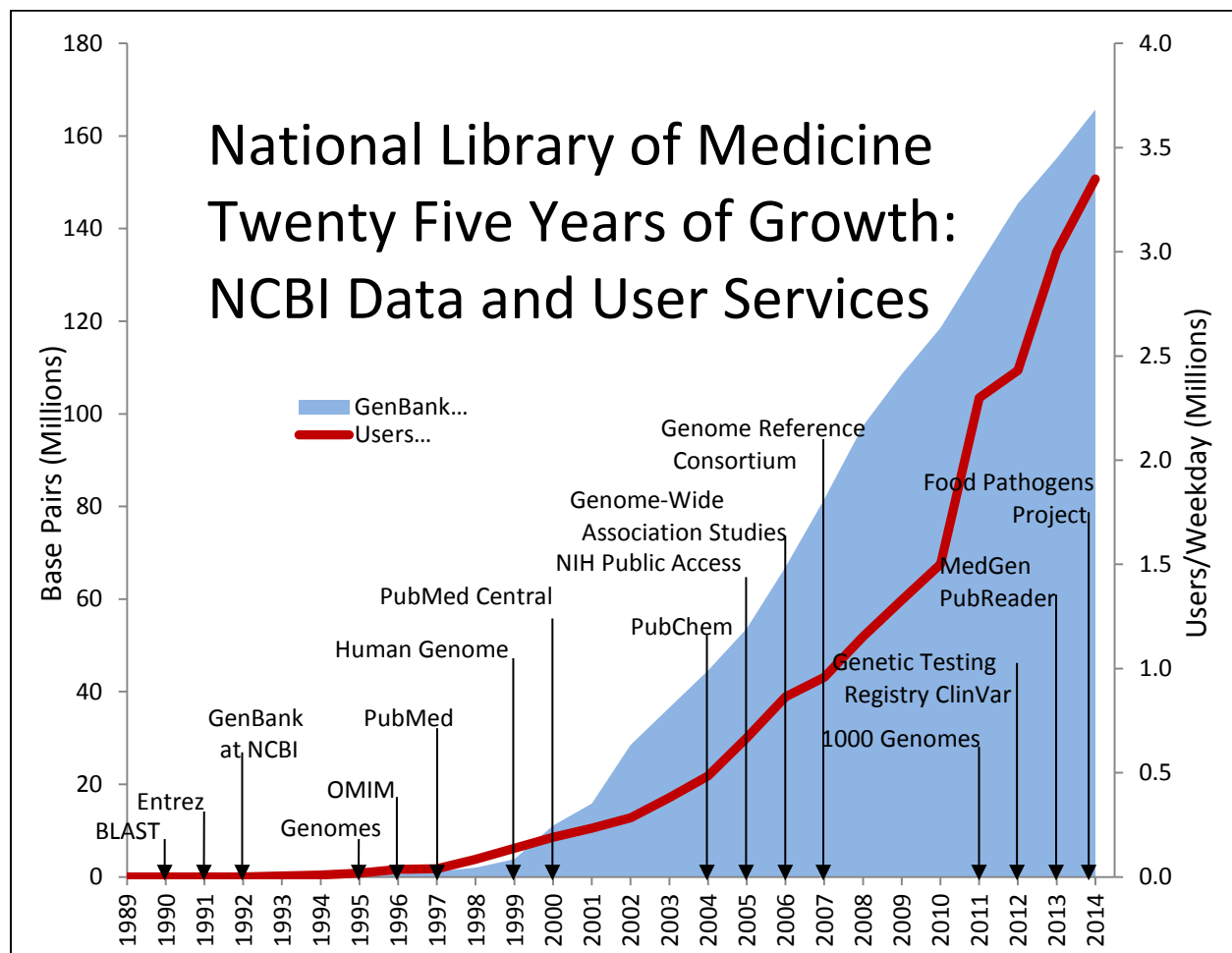
The FY 2016 President's Budget estimate for promoting public awareness and access to information is \$5.107 million, an increase of \$0.021 million or 0.4 percent over the FY 2015 Enacted level of \$5.086 million. In FY 2016, NLM will continue its outreach programs with a special emphasis on those aimed at underserved and minority populations. As recommended by its 2006-2016 Long Range Plan, NLM will develop and test innovative outreach methods, including infrastructure improvements (for example, PDAs, intelligent agents, and network techniques) 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 NCBI. Both apply their research results to the development of new information services and tools for scientists, informatics researchers, and software developers.

LHC, established 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.

NCBI, created 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 UK and Japan, is the world's largest annotated collection of publicly available DNA sequences. GenBank contains 175 million sequences from more than 310,000 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.



LHC has also been a leader in promoting open data and open software. LHC developed novel imaging data sets (the Visible Humans) and open software for three-dimensional (3D) analysis of biomedical imaging data (the ITK toolkit), which have advanced research and product development in anatomical imaging. Recently NLM collaborated with NIAID in launching the NIH 3D Print Exchange, including collections and models useful to radiologists, surgeons, and prosthetics and robotics experts. Other imaging research projects include work on automatic detection of the presence of tuberculosis in chest X-rays captured by portable digital devices in

Kenya, heavily used colposcopy teaching and proficiency testing tools, and techniques for counting malaria cells.

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 and clinical research 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 collaborations with FDA to use natural language processing and NLM terminology resources to extract adverse event data from publications indexed for PubMed/MEDLINE and drug-drug interactions from product labels submitted by manufacturers.

NLM has also made advances that will facilitate health information exchange and meaningful use of electronic health records (EHRs). NLM researchers have developed advanced and heavily used APIs for medication data, nomenclature, and high quality pill images, including information submitted to the FDA; produced novel algorithms for validating vocabulary components of electronic clinical quality measure specifications in cooperation with the Centers for Medicare and Medicaid Services; and analyzed frequency data from multiple private health care organizations and the Veteran's Health Administration to produce manageable subsets of large standard clinical vocabularies. They 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.

NLM's Personal Health Record (PHR) project has developed open source software components that can be used by PHR and EHR developers to provide capabilities that help individuals to manage health and health care for themselves and their families. The strong use of vocabulary standards in the NLM PHR software components enables many computer-generated features such as personalized reminders, automatic calculation of health measures, and direct links to information sources such as MedlinePlus. The use of standards in these components will also enable the direct importing of the consumer's own data from clinical sources.

Budget Policy:

The FY 2016 President's Budget estimate for developing advanced information systems, standards and research tools is \$189.489 million, an increase of \$54.300 million or 40.2 percent from the FY 2015 Enacted level of \$135.189 million. The additional funds will be 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. 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

For more than 40 years, NLM has funded research and training programs that provided the foundation for the field of biomedical informatics. NLM grants have supported seminal work on conceptual approaches and techniques for decision support, data mining, natural language understanding, intelligent systems, visualization, advanced statistical modeling, and translational science. NLM's extramural grant programs focus on three priority areas: 1) biomedical informatics research to develop and test sophisticated computational approaches for acquiring, integrating, managing, mining, and presenting biomedical data, information, and knowledge; 2) development of the research workforce through training and career transition support; and 3) early support for biomedical knowledge resources. To accomplish its extramural goals in FY 2016, NLM will offer grants in four categories: training/career support; research project grants; information resource, informationist supplement, and scholarship grants; and small business grants. In FY 2014, NLM made 134 grant awards using its base appropriation, of which 32 percent were new awards.

Informatics Resources for Biomedicine and Health: Many of today's informatics researchers and health information technology leaders are graduates of an NLM-funded university-based training program. NLM's 14 active university-based programs train nearly 200 individuals each year. All but one of the 14 programs offer training in health care informatics or clinical research informatics. Two career transition programs are offered to NLM's trainees and other informaticians ready to launch their informatics research careers. In FY 2014, eight new career transition awards were made, a success rate of more than 25 percent. In FY 2016, NLM expects to make up to six new career transition awards. Taken together, NLM's commitment to training and career transition represents about 34 percent of the total extramural grants budget.

NLM has three unique resource grant programs offered by no other federal agency: 1) NLM Information Resources to Reduce Health Disparities issues a new funding announcement every other year. No awards were made in FY 2014 and no new awards will be made in FY 2016. 2) Grants for Scholarly Works in Biomedicine and Health support scholars doing research in the history and philosophy of medicine, biomedical science, and bioethics. Five new awards were made in FY 2014, three planned awards on the history of the case study, glial biology, and the human genome project, and two additional awards on high priority topics relating to research methods in biomedical research. 3) 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. Five planned awards were made in FY 2014 in this program plus six additional awards co-funded by other Institutes. In FY 2016, NLM expects to make up to five new informationist supplements and up to three new awards for scholarly works.

Budget Policy:

The FY 2016 President's Budget estimate includes \$23.285 million, an increase of \$0.203 million, or 0.9 percent, above the FY 2015 Enacted level of \$23.082 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 2016, 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.

Biomedical Informatics Research: NLM research project grants (RPG) have supported pioneering research and development in medical computational intelligence, clinical decision support, protection of privacy in electronic medical records, secondary use of routine clinical data for research purposes, regional health data integration, health applications of advanced telecommunications networks, automated bio-surveillance, and information management in disasters. These projects advance the science of biomedical informatics, which is the intersection of computer, information, and engineering sciences with medicine, public health, and biological/behavioral sciences. Biomedical informatics research is fundamental to the sophisticated systems in which data from biological research and health care are stored, managed, and displayed. Recognizing this, NIH launched its pan-NIH Big Data to Knowledge (BD2K) initiative, focused on funding research and tools for analyzing and managing huge and heterogeneous data sets, and Centers of Excellence in Big Data Research. Complementing the BD2K program and other informatics-friendly initiatives, NLM research grant programs will continue to support both basic and applied research ranging from major research collaborations to small proof-of-concept projects. Investigator-initiated projects are funded, as are projects from focused funding announcements that target areas important to NLM's mission.

In FY 2014, NLM issued 18 new research project grants and six exploratory/developmental research grants. Among the newly funded research awards made with appropriated funds: two grants on computational modeling of cell physiology; one grant on triage in chemical mass casualty incidents; two grants on discovery of drug-drug interactions; several grants on improved support for real-time clinical decisions; and two projects on anomaly detection in clinical records systems. In FY 2014, NLM funded two new research grants focused on recording and analyzing consumer attitudes about research use of clinical data and personal health information.

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 2013, a Phase 2 project was awarded on integrated decision support across multiple electronic health records. In FY 2014, NLM continued to support this Phase 2 award and made one new SBIR/STTR award. In FY 2016, NLM expects to make 30 new research project grants.

Program Portrait: Basic and Applied Research in Health Care Informatics

FY 2015 Level: \$25.4 million

FY 2016 Level: \$26.0 million

Change: +\$0.6 million

For decades, NLM's Extramural Programs Division has been a principal source at NIH of support for development of informatics methods and approaches that support health care, public health administration, and clinical decisions. On average, about 50 percent of NLM's research grant investments are made in this area. Such research encompasses areas ranging from the de-identification of patient data and protection of confidential health information to novel statistical and computational approaches for modeling, to extracting and analyzing textual and numeric data found in publications and electronic health records (EHRs). NLM's research portfolio continues to include automated mining of EHRs for evidence of adverse drug interactions, the use of aggregated data from individual patients for clinical trials on rare diseases, and real-time tracking of data about global health and epidemics. These approaches are now being used in national initiatives, such as Patient-Centered Outcomes Research Institute (PCORI) and flu.gov, and in research funded by other NIH institutes. Approaches for using electronic health record data to identify patients with disease and matching them to controls, an important extramural investment area in clinical research informatics, as is the development of computational models of health and disease based on health data collected about actual patients. NLM also supports translational informatics through awards on mapping gene-disease associations. Additionally, NLM is the leading NIH supporter of research into the management of information in disasters.

An important role of NLM's research project grant funding and career transition awards is the support of early stage investigators and new graduates working in their first professional position. In FY 2014, 28 percent of NLM's new research project grants were awarded to new or early stage investigators and ten percent to Pathway to Independence R00 awardees transitioning to their first jobs, for projects in the areas of pharmacovigilance, mining knowledge in electronic health records, supporting decisions of clinicians, and modeling cellular processes.

Budget Policy:

The FY 2016 President's Budget estimate is \$27.202 million, an increase of \$1.762 million, or 6.9 percent, over the FY 2015 Enacted level of \$25.440 million, to fund three additional new, competing RPGs and NLM's portion of the NIH Precision Medicine Cohort Initiative. 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 2016, NLM will award up to 30 new research project grants including an NIH Pioneer Award 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 2016, 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)

Research Management and Support (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 2016 President's Budget estimate is \$14.242 million, an increase of \$0.132 million, or 0.9 percent, over the FY 2015 Enacted level of \$14.110 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 2015.

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

Budget Authority by Object Class¹
(Dollars in Thousands)

	FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
Total compensable workyears:			
Full-time employment	804	804	0
Full-time equivalent of overtime and holiday hours	2	2	0
Average ES salary	\$169	\$171	\$2
Average GM/GS grade	11.3	11.3	0.0
Average GM/GS salary	\$93	\$94	\$1
Average salary, grade established by act of July 1, 1944 (42 U.S.C. 207)	\$89	\$90	\$1
Average salary of ungraded positions	\$128	\$129	\$1
OBJECT CLASSES	FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
Personnel Compensation			
11.1 Full-Time Permanent	\$42,196	\$44,342	\$2,146
11.3 Other Than Full-Time Permanent	10,094	40,489	30,395
11.5 Other Personnel Compensation	848	859	11
11.7 Military Personnel	15	16	1
11.8 Special Personnel Services Payments	901	913	12
11.9 Subtotal Personnel Compensation	\$54,054	\$86,619	\$32,565
12.1 Civilian Personnel Benefits	\$15,628	\$23,777	\$8,149
12.2 Military Personnel Benefits	8	8	0
13.0 Benefits to Former Personnel	0	0	0
Subtotal Pay Costs	\$69,690	\$110,404	\$40,714
21.0 Travel & Transportation of Persons	\$1,097	\$1,114	\$17
22.0 Transportation of Things	153	155	2
23.1 Rental Payments to GSA	0	0	0
23.2 Rental Payments to Others	181	184	3
23.3 Communications, Utilities & Misc. Charges	1,127	1,144	17
24.0 Printing & Reproduction	266	270	4
25.1 Consulting Services	\$98,892	\$100,380	\$1,488
25.2 Other Services	26,821	35,434	8,613
25.3 Purchase of goods and services from government accounts	56,008	59,497	3,489
25.4 Operation & Maintenance of Facilities	\$2,906	\$2,906	\$0
25.5 R&D Contracts	11,025	11,025	0
25.6 Medical Care	0	0	0
25.7 Operation & Maintenance of Equipment	11,088	11,265	177
25.8 Subsistence & Support of Persons	0	0	0
25.0 Subtotal Other Contractual Services	\$206,740	\$220,507	\$13,767
26.0 Supplies & Materials	\$1,583	\$1,608	\$25
31.0 Equipment	14,244	14,471	227
32.0 Land and Structures	0	0	0
33.0 Investments & Loans	0	0	0
41.0 Grants, Subsidies & Contributions	42,243	44,233	1,990
42.0 Insurance Claims & Indemnities	0	0	0
43.0 Interest & Dividends	0	0	0
44.0 Refunds	0	0	0
Subtotal Non-Pay Costs	\$267,634	\$283,686	\$16,052
Total Budget Authority by Object Class	\$337,324	\$394,090	\$56,766

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

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

Salaries and Expenses
(Dollars in Thousands)

OBJECT CLASSES	FY 2015 Enacted	FY 2016 President's Budget	FY 2016 +/- FY 2015
Personnel Compensation			
Full-Time Permanent (11.1)	\$42,196	\$44,342	\$2,146
Other Than Full-Time Permanent (11.3)	10,094	40,489	30,395
Other Personnel Compensation (11.5)	848	859	11
Military Personnel (11.7)	15	16	1
Special Personnel Services Payments (11.8)	901	913	12
Subtotal Personnel Compensation (11.9)	\$54,054	\$86,619	\$32,565
Civilian Personnel Benefits (12.1)	\$15,628	\$23,777	\$8,149
Military Personnel Benefits (12.2)	8	8	0
Benefits to Former Personnel (13.0)	0	0	0
Subtotal Pay Costs	\$69,690	\$110,404	\$40,714
Travel & Transportation of Persons (21.0)	\$1,097	\$1,114	\$17
Transportation of Things (22.0)	153	155	2
Rental Payments to Others (23.2)	181	184	3
Communications, Utilities & Misc. Charges (23.3)	1,127	1,144	17
Printing & Reproduction (24.0)	266	270	4
Other Contractual Services:			
Consultant Services (25.1)	98,001	99,489	1,488
Other Services (25.2)	26,821	35,434	8,613
Purchases from government accounts (25.3)	47,682	51,156	3,474
Operation & Maintenance of Facilities (25.4)	2,906	2,906	0
Operation & Maintenance of Equipment (25.7)	11,088	11,265	177
Subsistence & Support of Persons (25.8)	0	0	0
Subtotal Other Contractual Services	\$186,498	\$200,250	\$13,752
Supplies & Materials (26.0)	\$1,583	\$1,608	\$25
Subtotal Non-Pay Costs	\$190,905	\$204,725	\$13,820
Total Administrative Costs	\$260,595	\$315,129	\$54,534

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

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2014 Actual			FY 2015 Est.			FY 2016 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:	280	-	280	280	-	280	280	-	280
Reimbursable:	20	-	20	20	-	20	20	-	20
Total:	300	-	300	300	-	300	300	-	300
Division of Specialized Information Services									
Direct:	44	-	44	44	-	44	44	-	44
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	44	-	44	44	-	44	44	-	44
Lister Hill National Center for Biomedical Communications									
Direct:	69	-	69	69	-	69	69	-	69
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	69	-	69	69	-	69	69	-	69
National Center for Biotechnology Information									
Direct:	-	1	1	5	1	6	287	1	288
Reimbursable:	282	-	282	282	-	282	-	-	-
Total:	282	1	283	287	1	288	287	1	288
Office of the Director/Administration									
Direct:	61	-	61	61	-	61	61	-	61
Reimbursable:	20	-	20	20	-	20	20	-	20
Total:	81	-	81	81	-	81	81	-	81
Total	798	1	799	803	1	804	803	1	804
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								
2012	11.2								
2013	11.2								
2014	11.3								
2015	11.3								
2016	11.3								

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

Detail of Positions¹

GRADE	FY 2014 Actual	FY 2015 Enacted	FY 2016 President's Budget
Total, ES Positions	5	5	5
Total, ES Salary	838,267	846,650	855,116
GM/GS-15	32	32	32
GM/GS-14	48	48	48
GM/GS-13	147	152	152
GS-12	140	140	140
GS-11	29	29	29
GS-10	0	0	0
GS-9	28	28	28
GS-8	47	47	47
GS-7	12	12	12
GS-6	5	5	5
GS-5	10	10	10
GS-4	5	5	5
GS-3	6	6	6
GS-2	6	6	6
GS-1	8	8	8
Subtotal	523	528	528
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	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	1	1	1
Ungraded	301	301	301
Total permanent positions	511	516	516
Total positions, end of year	830	835	835
Total full-time equivalent (FTE) employment, end of year	799	804	804
Average ES salary	167,653	169,330	171,023
Average GM/GS grade	11.3	11.3	11.3
Average GM/GS salary	91,957	92,877	93,806

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