

NLM Facts and Figures

Final Report
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Abstract

Objective:

This project aimed to create a set of documents to communicate the National Library of Medicine's (NLM) purpose, content, and usage in a concise, engaging way to a primarily legislative audience.

Methods:

The project team consulted the following resources to determine appropriate project scope, and gather data for final report:

- NLM Statistics Wiki;
- NLM Intranet Reports and Statistics;
- WebTrends;
- Outreach Projects Database;
- NLM Congressional Testimony;
- NLM Fact Sheets
- NIH RePORTER;

In addition, project team members consulted NLM staff in multiple divisions for help identifying key themes, and to obtain more specific information and data not available in the online documentation.

The project team created the project report, using the following tools:

- Microsoft MapPoint;
- Google Fusion Tables;
- Microsoft PowerPoint

Results:

A one to two page deliverable was created for each of the following resources and areas, illustrating and describing the purpose, content, and usage of the following services and resources:

- The National Library of Medicine (introduction);
- ClinicalTrials.gov;
- Disaster Information Management Research Center;
- Extramural Programs;
- MedlinePlus;
- National Network of Libraries of Medicine;
- Outreach Projects;
- PubMed;
- PubMed Central

Conclusions:

Parts of this report can be used individually, or as a collection to communicate NLM's purpose and value to a primarily legislative audience. NLM divisions may also use parts or all of this report to publicize their products and services.

Introduction

As the world's largest biomedical library, The National Library of Medicine (NLM) has the broad mission to collect, organize and provide biomedical information to researchers, clinicians, educators, and the general public. The NLM utilizes its annual budget of approximately \$340 million and its approximately 1,800 full time equivalent employees to create, maintain, and ensure access to more than 230 online databases and resources. It conducts research through its two national research centers at the Lister Hill National Center for Biomedical Communications and the National Center for Biotechnology Information, and supports extramural research across the country. And through its National Network of Libraries of Medicine, the NLM helps improve access to this health information by the people who need it most.

This broad scope of NLM's activities both illustrates its value within the field of health and medicine, and presents a challenge for the project team to summarize and convey. While many intended audiences are perhaps familiar with NLM's work that directly pertains to their area of interest, many are not aware of the breadth and depth of NLM's services in other areas. While NLM produces various program summaries and overviews, (e.g., Annual Report, Congressional Justification,) compiles statistics on usage of its many databases, and has considerable descriptive material available on its websites, it did not have a short, readable print document to convey its key facts, figures, and accomplishments in an engaging way to primarily legislative audience. The NLM is often asked for information regarding its programs, and generates it ad hoc, upon request.

To address this challenge, Jerry Sheehan, the NLM's Assistant Director for Policy Development, proposed this project to create a concise set of documents to communicate NLM's purpose, not only as the largest medical library in the world, but also as a key funder and performer of informatics research, and an organization with key interests in outreach and disaster information management. The goal was to use graphics, charts, statistics, and other summary mechanisms to communicate NLM program goals and accomplishments to Congressional staff, indicating the high levels of use of NLM services and the reach of NLM's products, services, and activities across the country.

Methods

After review of the available data sources, and meetings to discuss possible project scope, project team members elected to select approximately ten resources and services to form a representative sample of NLM's broad mission and work. Project team members elected to create one to two PowerPoint slides to summarize and highlight each resource or service, and searched for data and information to form the content for those pages.

Identification of Data Sources

Communication with staff members, and an online search for NLM documentation revealed the following data sources for this project:

NLM Statistics Wiki

<https://wiki.nlm.nih.gov/confluence/display/NLMSTATS/NLM+Statistics>

The NLM Statistics Wiki serves as the Trans-NLM Metrics data Repository, and includes statistics for FY2007 to present. As of August, 2011, the Statistics Wiki maintains statistics on 30 of NLM's online resources. Each of these resources has a wiki page, which is maintained by the division directly responsible for producing and managing the resource. Every page has statistics on the number of visits, which NLM defines as the "total number of times that all users visit a specific web site, regardless of the number of individual pages viewed," and the number of Page Views, which NLM defines as the "number of times that a single page is viewed or downloaded." Wiki pages may also track other usage statistics, which may include visitors, searches, and web crawler traffic. NLM usage data in this report was taken primarily from the Statistics Wiki.

NLM Intranet Reports and Statistics

<http://www.nlm.nih.gov/internal/toplevel/reportstats.html>

The NLM Intranet Reports and Statistics page serves as a central repository for reports, statistics and graphs generated by divisions within NLM. As of August, 2011, the Intranet Reports and Statistics page contained statistics on 8 products: ClinicalTrials.gov; LocatorPlus; MedlinePlus; NLM Gateway; NLM Main Site & Intranet; NIHSeniorHealth; Pubmed/MEDLINE; TOXNET and 6 service areas: DOCLINE; Document Delivery; Fiscal Year; Online Statistics and Charts; DCMS; and Reference & Web Services. This page also includes a directory to official NLM reports, including the annual reports, and long range planning documents. Several charts from this report were taken from the Intranet Reports and Statistics page. This page is updated and maintained by the NLM divisions responsible for the reports it contains.

WebTrends

<http://webstats.nlm.nih.gov/wrc/bin/WebTrendsReportingCenter>

WebTrends is a third party web analytics tool used and updated by NLM Library Operations to track usage of its resources, including: Changing the Face of Medicine; DailyMed, DCMS, Docline, MedlinePlus, and others. The MedlinePlus usage graphic was generated using state level geographic usage data from the WebTrends database.

Outreach Projects Database

<http://wwwcf.nlm.nih.gov/opd/admin/projectSearch.cfm>

The Outreach Projects Database (OPD) contains project level data on outreach projects submitted primarily from the NLM's National Network Office, the National Network of Libraries of Medicine (NN/LM), Specialized Information Services (SIS), and the Office of Health Information Programs Development. The OPD maintains data including the parties responsible for project creation and funding, the target population reached, and the services provided. The Outreach Projects deliverable uses OPD data.

NLM Congressional Testimony

Project team members referenced Dr. Lindberg's opening statement to the 2009 Congressional Justification of the annual budget, and David Lipman's testimony before congress on Public Access to Federally-Funded Research. The PubMed Central deliverable uses statistics cited in this statement.

NLM Fact Sheets

<http://www.nlm.nih.gov/pubs/factsheets/factsheets.html>

The NLM maintains a set of fact sheets to compile explanatory information on NLM products, services, and policy. Information in the Fact Sheets was adapted to create the narrative for products and services in this project's deliverables.

NIH RePORTER

<http://report.nih.gov/index.aspx>

The NIH RePORTer is the publicly available, online repository for reports, data, and analyses of NIH research activities. The RePORTer tool allows for easy tracking of intramural and extramural research by institute. The Extramural Projects deliverable uses NIH RePORTer data.

Selection of Data Visualization Tools

The following visualization tools were selected for their ease of use, and zero cost.

Microsoft MapPoint

Microsoft MapPoint was selected for its ability to easily plot Microsoft Excel data to maps. MapPoint proved useful for its ability to segment usage data by state for audiences interested in a particular location. MapPoint was used to create a map illustrating MedlinePlus visits by state in 2010.

Google Fusion Tables

Google Fusion Tables was selected for its ability to easily plot Microsoft Excel data to maps with icons. Unlike Microsoft MapPoint, which indicates frequency of activity within a given region, Fusion tables was more useful for showing location of specific NLM activities. Fusion Tables also provides an online interface, enabling users to organize spreadsheets and associated maps, and a URL for each map, which can be easily shared, or embedded in other webpages. Fusion Tables was used to create maps for the Extramural Research and National Network of Libraries of Medicine deliverables, to show the specific location of funded extramural research projects, and National Network of Libraries of Medicine Member libraries.

Determination of Project Scope

Resources and services in this report were selected to accurately represent NLM's diverse products and services which cover a wide variety of information types (journal literature, clinical trial results data, consumer health info, etc.) and reach many different intended audiences. PubMed, MedlinePlus, PubMed Central, and ClinicalTrials.gov receive the heaviest web traffic in both numbers of page views and numbers of visitors, and served to reflect the popularity and utility of NLM's online databases. The Disaster Information Management Research Center was included to reflect SIS and NLM's commitment to disaster preparedness through health information access. The NN/LM and Outreach Projects were included to reflect NLM's commitment to eliminating disparities in health information access. And Extramural Research was included to show NLM's leadership in biomedical informatics research across the country.

Information and wording for each deliverable was determined, reviewed, and revised at weekly meetings throughout the project time period. Deliverables were sent to divisions responsible for the respective resource or service for their review, revision and approval. Project team members also ensured that each project or program summary was given a consistent look and feel, which enabled the report to be used either as an integrated set, or as individual documents.

Results

This project successfully resulted in the completion of PowerPoint documents highlighting 8 resources and areas. The following is a list of the areas covered, where information was gathered from, and software was used to create graphics.

National Library of Medicine (Introduction and Overview)

Information for this slide was gathered from the NLM fact sheets and information pages. The NLM 175th photo was published in “NLM in Focus,” NLM’s blog covering current events at NLM. High resolution copies of the picture can be found at the Office of Communication & Public Liaison.

PubMed

The graphic for PubMed was obtained from the NLM home page/For Publishers/Medline Pubmed Resources Guide/Medline Statistics/Citations added by fiscal year. Detailed information on Pubmed and Medline can be found on this page, which is organized by the Bibliographic Services Division, in Library Operations. Narrative information comes from the PubMed fact sheet, and NLM Wiki.

PubMed Central

The “PMC articles available and retrieved, by month, Jan. 2008 – Dec. 2010” graphic used in the PubMed Central deliverable was created before this project began by staff at the National Center for Biotechnology Information. Narrative information comes from the PubMed Central Fact Sheet, and Dr. David Lipman’s testimony before the subcommittee on information policy, census and national archives committee on oversight and government reform at the United States House of Representatives. PubMed Central usage metrics were also taken from the NLM Wiki.

ClinicalTrials.gov

The “Studies Registered at ClinicalTrials.gov since May 1, 2005” graphic used in the ClinicalTrials.gov deliverable was created by staff at the Lister Hill National Center for Biomedical Communications before this project began. Information in the narrative was taken from the Fact Sheets, the NLM Wiki, and the article, “The ClinicalTrials.gov Results Database – Update and Key Issues” published in the New England Journal of Medicine.¹

MedlinePlus

Information for the MedlinePlus map graphic was gathered from WebTrends, a third party web metrics software used by NLM, Library Operations to track usage of its products and services. WebTrends allows for geographic breakdown of some web metrics data. The MedlinePlus homepage with callouts was provided by Reference and Web Services, Library Operations. Narrative information was gathered from the NLM Fact Sheets, and the NLM Wiki.

Extramural Research

Information for the Extramural Research graphic comes from NIH RePORTER, which tracks all NIH extramural research. The map graphic was created using Google Fusion Tables, which allows for pinpointing of specific geographic locations. Narrative information was gathered from extramural programs documentation.

¹ The ClinicalTrials.gov results database--update and key issues. Zarin DA, Tse T, Williams RJ, Califf RM, Ide NC. N Engl J Med. 2011 Mar 3;364(9):852-60.

The Disaster Information Management Research Center

Information and graphic used for this deliverable were gathered from Specialized Information Services online documentation, and reviewed with staff at the Disaster Information Management Research Center at the Specialized Information Services.

The National Network of Libraries of Medicine

Information for the National Network of Libraries of Medicine graphic comes from the member roster maintained by the National Network Office (NNO) at NLM. Program staff at the NNO provided the address information for the Network member libraries, and project team members used Google Fusion Tables to create a map showing the specific locations of the more than 6,000 member libraries in the Network. Narrative information was taken from the NLM Fact Sheets and reviewed with program staff at the NNO.

Outreach Projects

The Outreach Projects map was created by Harsh Prakash, in the Office of Computer and Communications Systems (OCCS) at NLM. Information regarding outreach projects was taken from the Outreach Projects Database maintained by the National Network Office, and OCCS.

National Library of Medicine (Introduction and Overview)



National Library of Medicine: 175 Years of Service

<http://www.nlm.nih.gov/>

NATIONAL LIBRARY OF MEDICINE

Since beginning in 1836, the NLM has expanded to become the world's largest biomedical library. The NLM collects, organizes and provides online information and data free of charge to millions of scientists, researchers, educators, and patients throughout the world. In 2010, the NLM's five most heavily used online resources combined to draw 68 million visitors.

INFORMATION RESOURCES

NLM's collections of more than 17 million physical items, and more than 200 databases and internet resources reflect the breadth of interest of the populations it serves. NLM provides DNA sequences, clinical trials data, toxicology, environmental health data, published scientific articles, and consumer health information, all free of charge.

INFORMATICS RESEARCH

Through its two research centers at the Lister Hill National Center for Biomedical Communications and the National Center for Biotechnology Information, and its extramural grants program, the NLM invests in research for continued improvement in areas including: electronic health records, clinical decision support, information retrieval, advanced imaging, computational biology, and telecommunications. And in 2008, the NLM established the Disaster Information Management Research Center to ensure access to critical health information during disasters and public health emergencies.



Photo: jessicamarcotte.com

HEALTH INFORMATION OUTREACH

The NLM continues to share health information in underserved communities through its National Network of Libraries of Medicine, specialized databases, and resource trainings. Each contributes to the effort to eliminate disparities in health information access.

NLM's products and services will enable innovation and entrepreneurship in basic science, clinical research, education, health care delivery, public health, and consumer health in the years to come.





PubMed: Growing with the Research Community

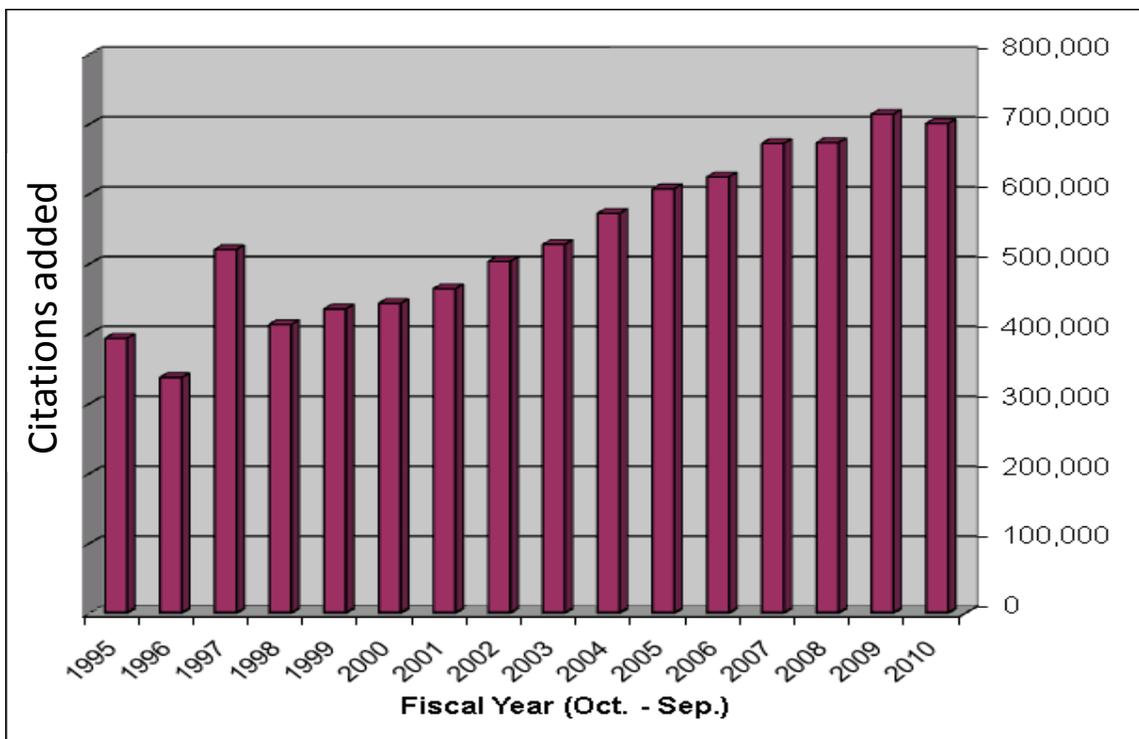
<http://www.pubmed.gov>

PUBMED

The NLM's PubMed is the world's leading gateway to the peer reviewed biomedical and health sciences literature. Freely provided through the internet, PubMed is comprised of more than 21 million citations for biomedical literature, with more than 700,000 citations added every year; many of these citations link to full text content from PubMed Central, (NLM's archive for full text biomedical and health sciences literature), and journal publisher websites.

USE

PubMed is the first stop for researchers, clinicians and educators looking for current biomedical research. In 2010, more than 120 million visitors viewed over 2.4 billion pages on PubMed. Every day, PubMed's users conduct more than 2 million searches through PubMed's search interface. In addition, search engines like Google and Bing often redirect biomedical searches to NLM curated content. PubMed's content is freely available to outside developers, who in turn make it available to millions of users through their systems.



Growth in Medline, the fully indexed subset of PubMed which accounts for approximately 90% of all PubMed citations. Original graph: http://www.nlm.nih.gov/bsd/stats/cit_added.html

QUALITY

NLM works with a selection committee of outside librarians, clinicians, and researchers to select the highest quality journals to reflect increasing breadth and diversity of biomedical research. Currently, more than 5,500 journals are selected for inclusion, with approximately 400 to 500 additional journals considered for inclusion each year, and 120 to 130 selected.

INNOVATION

NLM develops sophisticated search algorithms, applies medical subject headings to articles, and now provides a mobile version of PubMed for smartphones and tablets to ensure that research is quickly and easily accessible.





PubMed Central: More Articles, More Use

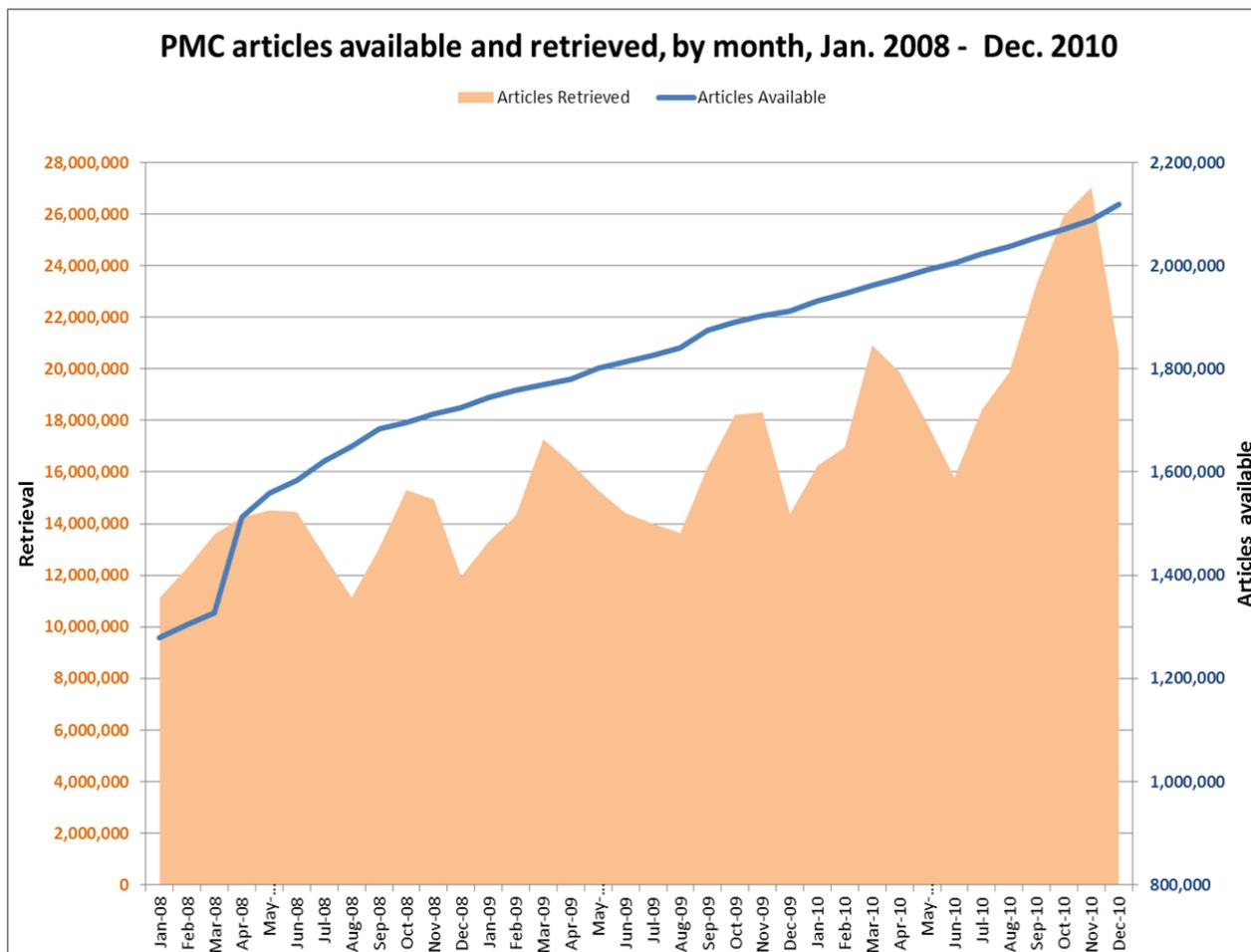
www.pubmedcentral.gov

PMC

PubMed Central (PMC) is the National Library of Medicine's (NLM's) free online archive of full text biomedical and life sciences literature. As of June, 2011, PMC has grown to provide access to 2.2 million full text, peer reviewed articles, with approximately 26 thousand more added every month. These articles are submitted voluntarily by journal publishers, and by NIH funded researchers complying with the NIH Public Access Policy.

USE

Usage of PMC's collections has grown along with the size of its collections. On a typical weekday in March 2010, some 420,000 different users retrieved 740,000 articles from PMC. These users also access a significant portion of available content. In 2010, nearly 99% of all PMC articles were downloaded at least once, and 28% were downloaded more than 100 times. Our aggregated usage metrics indicate that PMC has become a valuable resource for researchers, students, clinicians, entrepreneurs, patients, and their families across the country.





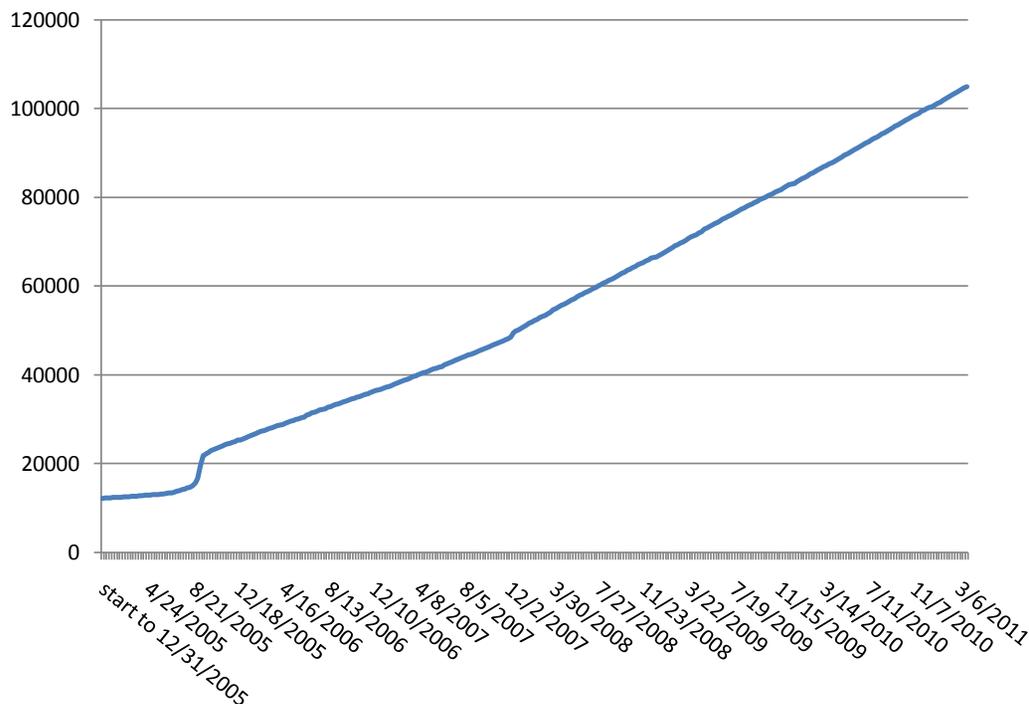
CLINICALTRIALS.GOV

ClinicalTrials.gov is the NLM's database for standardized information on clinical trials. Clinicaltrials.gov has grown steadily – since beginning over a decade ago, ClinicalTrials.gov has received approximately 330 new and 2000 revised records a week. Today, ClinicalTrials.gov has grown to include basic descriptive information on over 100,000 trials from over 170 countries. Increased use accompanies growth in content. In 2010, ClinicalTrials.gov received more than 28,000 visitors a day from the policy and research communities and the general public.

MANY USES

Since many clinical trials never result in publication, ClinicalTrials.gov is often the only place for researchers, policymakers, and the general public to obtain critical information relating to biomedical research. With ClinicalTrials.gov, policymakers can now examine how accurately studies report their results, and how closely the portfolio of trials match up with public health needs. Researchers can find trial results they might not have seen otherwise, and people suffering from rare conditions can find ongoing clinical trials to enroll in.

Studies Registered at ClinicalTrials.gov since May 1, 2005



LEGISLATIVE SUPPORT

Clinicaltrials.gov was established in 1997 with the Food and Drug Administration Modernizing Act, and expanded in 2007 with the Food and Drug Administration Amendments Act, which mandated reporting on summary results data and adverse events for many trials.

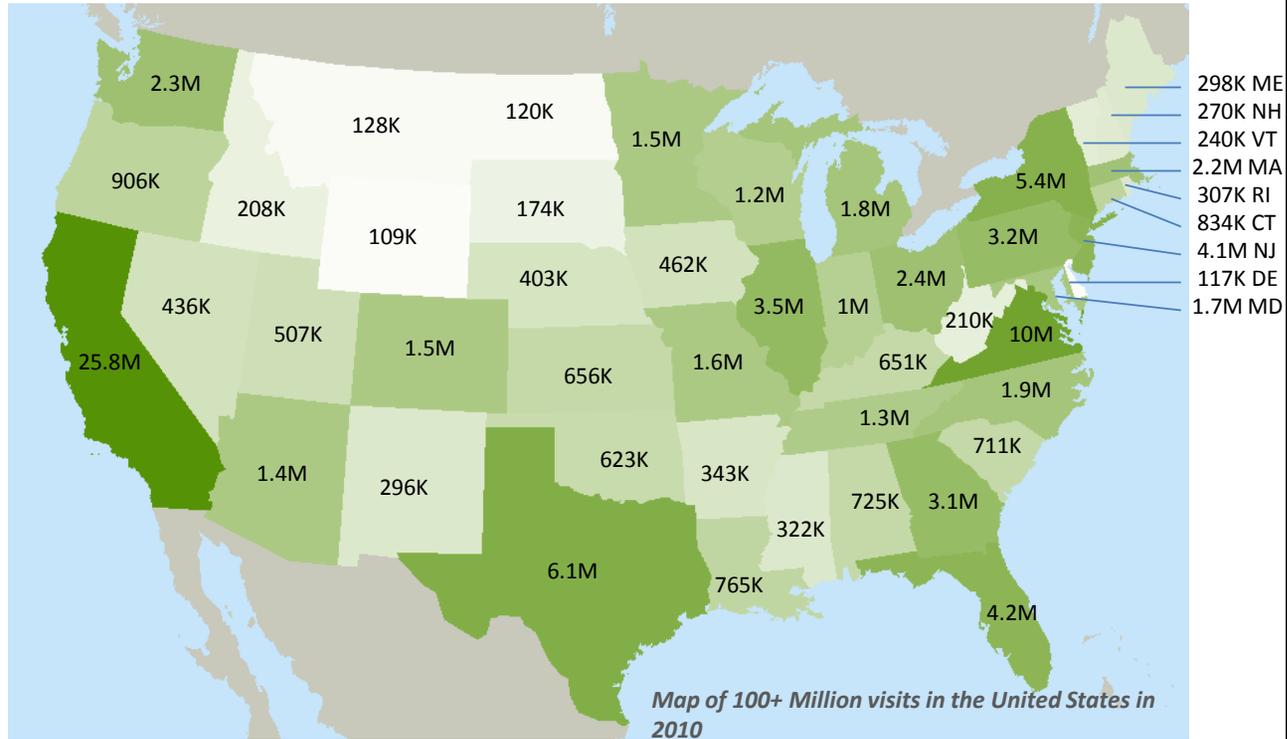
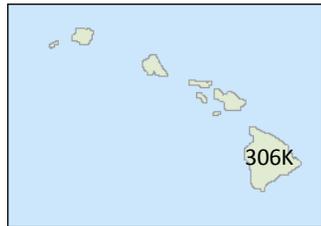




MedlinePlus: Trusted Health Information for You

www.medlineplus.gov

The National Library of Medicine



PROVIDE

MedlinePlus provides access to high quality, free, and reliable consumer health information to the general public. In 2010, ~150 million people visited MedlinePlus. That translates to ~420,000 visitors every day. People from across the country and around the world visit MedlinePlus to read about health topics in English and Spanish, view surgical videos, and more.

CONNECT

Winner of a 2011 *HHSinnovates* award, MedlinePlus Connect is a new NLM service that enables patients to access MedlinePlus content via their Electronic Health Record (EHR). MedlinePlus Connect links from diagnosis, drug, and laboratory information to relevant educational material in MedlinePlus, helping physicians and hospitals meet one of the criteria for meaningful use of EHRs.

MOBILIZE

NLM has responded to the growing demand for mobile content. Now, people visiting MedlinePlus from a mobile device receive streamlined content specifically tailored for their particular type of cell phone or tablet screen.





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[Skin Conditions](#)
[Weight Control](#)

NIH Senior Health Clinical Trials

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11 MAY Health News

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Extramural Research



NLM Funds Biomedical Informatics

<http://www.nlm.nih.gov/ep/>

LEADER IN INFORMATICS

The National Library of Medicine is the federal government's largest supporter of research and training in biomedical informatics – the field applying computer and information technology to biomedical research, medicine, and public health. Since the 1960s, NLM has funded research and development in many areas including : natural language processing, advanced data mining, biosurveillance, terminologies and ontologies.

RESEARCH FUNDING

The NLM funds approximately 100 research projects at a total of approximately \$36 million a year. In fiscal years 2009 and 2010, the NLM funded an additional 41 million a year through the American Recovery and Reinvestment Act. These four Presidential Early Career Award for Scientists and Engineers (PECASE) awards illustrate the breadth and content of NLM funded research at informatics research centers across the country:

BIOINFORMATICS

Researchers created a knowledge base and computational tools for modeling and sharing structural data about ribosomes, which contribute to the creation of proteins in the body.

PRIVACY

Researchers developed tools to protect personal health information stored in electronic health records by automated detection of privacy-violating accesses.

BIOSURVEILLANCE

Researchers developed approaches to monitor streams of information from hospital information systems in real-time, in order to identify potential epidemics or bioterrorist attacks.

CLINICAL RESEARCH

Researchers developed a structured, computer-searchable databank of the published results of randomized clinical trials.

The National Library of Medicine

\$36,329,644 : Informatics Research Grants, FY 2010
\$45,609,759 : NLM ARRA Funding, FY 2010



FY 2010 research project funding locations. Includes locations with ARRA funding through NLM.



The Disaster Information Management Research Center



Disaster Information Management Research Center

<http://disaster.nlm.nih.gov/>

DIMRC

The NLM's Disaster Information Management Research Center (DIMRC) organizes and provides health information for preparation and response to disasters and other public health events.

The NLM has long been a leader in disaster health information at home and abroad. In 2004, the NLM partnered with four local hospitals to establish the Bethesda Hospitals' Emergency Preparedness Partnership to facilitate disaster triage and establish a model for similar efforts across the country. Following disasters in Japan, Haiti, Chile and New Orleans, the NLM provided critical health information at a time of great need. In 2008, the NLM combined these and other similar efforts to establish DIMRC as a central place for the NLM's disaster research and resource sharing.

EMERGENCY RESPONSE TOOLS

DIMRC develops web and smartphone tools to assist emergency workers responding to disaster. Two of DIMRC's most popular emergency response tools: REMM gives clinicians guidance on diagnosis and treatment of mass casualty during radiological events, and WISER provides emergency responders with information on over 400 chemical, biological, and radiological agents for the identification of hazardous materials in disaster settings.



DISASTER LITERATURE

Staff at DIMRC identify, organize and provide access to previously unavailable relevant literature for disaster preparedness, response and recovery. One example of this is the Emergency Access Initiative, a collaboration between NLM and the leading medical publishers to offer full text biomedical literature and textbooks to libraries and health professionals affected by disasters.

DISASTER RESOURCES

DIMRC serves as a central place for public health workers to obtain free online resources for disaster response. DIMRC also created a network of more than 500 Disaster Information Specialists in 48 states and 10 countries.

The National Library of Medicine



National Network of Libraries of Medicine



National Network of Libraries of Medicine

<http://nnlm.gov/>

6000+ Member Libraries across the country and around the world



National Network of Libraries of Medicine members in 2011

The National Network

The National Network of Libraries of Medicine (NN/LM) is a network of health sciences libraries and community organizations supported and connected by the National Library of Medicine (NLM). Through the Network, medical libraries share resources, participate in training, and receive funding to provide better health information outreach to their communities.

Network Members

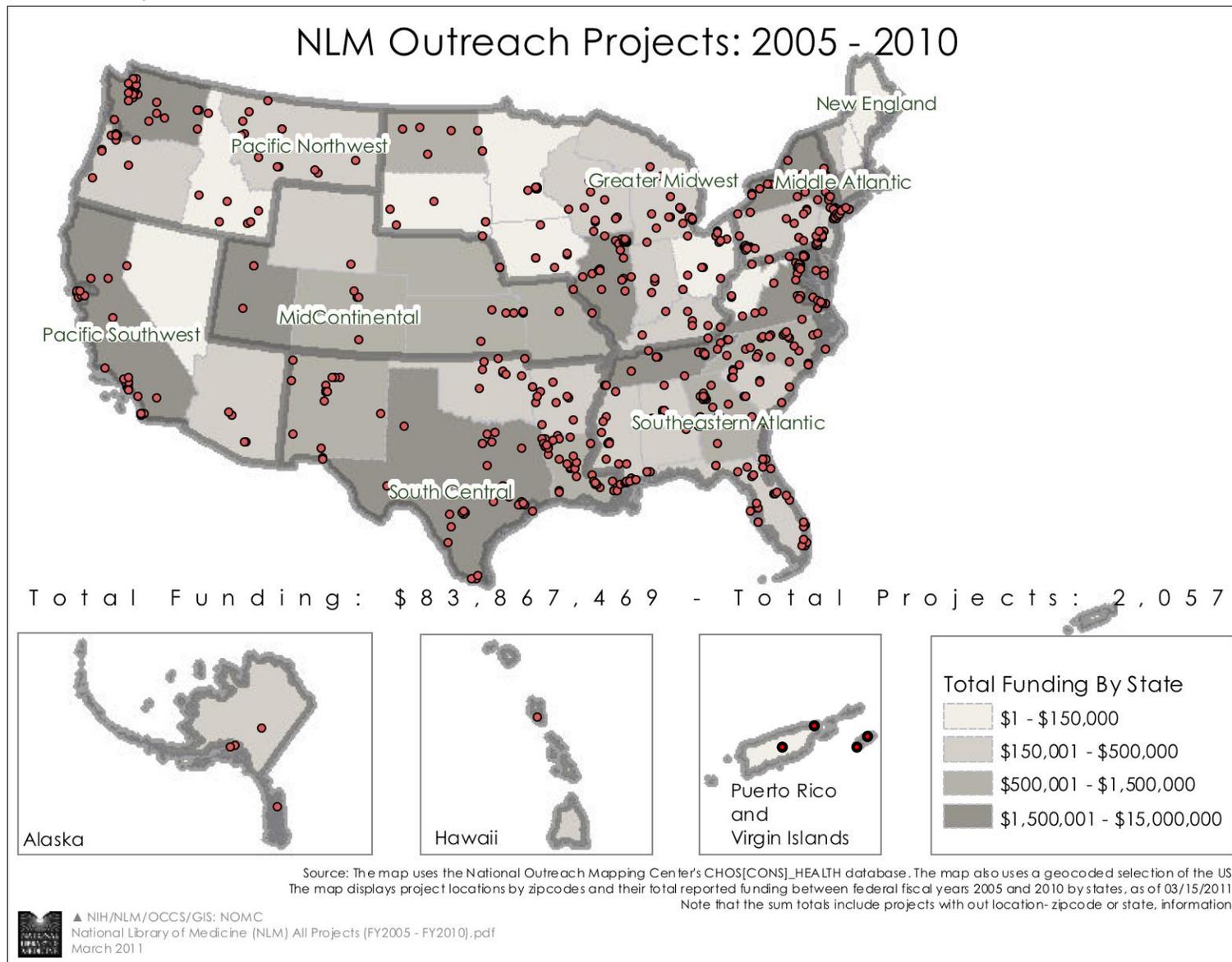
The 6000+ Network members serve at the front lines of quality health information at the point of need. Network members share resources, provide training, conduct outreach projects, and exhibit at community health fairs and conferences.

Regional Libraries

NLM coordinates the Network through five year competitive contracts with eight institutions that serve as Regional Medical Libraries (RMLs). Under the current contract (2011-2016) the RMLs will continue to support the Network member libraries, and provide health professionals, the public health workforce, and the public with quality health information.



Outreach Projects





National Outreach

The National Library of Medicine (NLM) funds outreach projects to connect health practitioners and the general public with the health literature it collects, organizes and provides. NLM works through community organizations, libraries, and its National Network of Libraries of Medicine to reach underserved populations with reliable health information, and give their health care providers the resources and skills they need to practice evidence based medicine.

NLM's outreach projects place special emphasis on the needs of minority and other underserved populations and their health care providers. Unaffiliated health professionals, and health professionals in urban and rural areas rely on NLM to provide resources and training to promote evidence based practice.



Highlights in 2010

OUTREACH TO SENIORS

The Lancaster General Health Sciences Library partners with public libraries and senior centers in Lancaster, PA to provide information literacy training to unaffiliated health professionals serving seniors.

MULTILINGUAL HEALTH INFORMATION

The Asian Health Coalition partners with a medical librarian to provide multilingual health information to Chinese, Vietnamese, and Cambodian populations in Chicago, IL.

OUTREACH TO THE MENTALLY ILL

Librarians at Northeastern Ohio Universities College of Medicine research the development of an information literacy curriculum for clergy serving the mentally ill.

E-SCIENCE SYMPOSIUM

Librarians at the University of Massachusetts Medical school in Worcester, MA host the 3rd annual e-science symposium to develop a strategy for regional collaboration in the delivery of e-science resources and services in New England.

DIABETES EDUCATION

Librarians at the University of North Texas, and staff at the United Community Centers of Fort Worth, TX, aim to reach over 800 people with diabetes health information through updated computer labs, community festival exhibits, and diabetes health information training.

YOUTH PROGRAMS

Librarians at the American University of Health Sciences in Signal Hill, CA partner with a local elementary school to create the *Youth Enrichment in Science | Junior Nurse Program* to encourage youth from minority populations to pursue careers in the health sciences.

MOBILE COMPUTING LABS

Outreach librarians at the University of North Dakota travel with a mobile computing lab for hands-on information literacy training in offices, doctors' lounges, or other areas without computer labs.

COMMUNITY HEALTH METRICS

The Health Assessment Resource Center in Palm Desert, CA forms a regional health data collection system for its members to better understand and address their community's health needs.

National Outreach: Additional Outreach Examples

PUBLIC HEALTH WORKERS

Librarians at the East Carolina University Laupus Library share their resources, and highlight NLM products at a Public Health Association Conference and Trade Show in North Carolina.

EVIDENCE BASED PRACTICE

Librarians at Dartmouth College provide an intensive 3-day course introducing medical librarians to the principles of evidence-based practice in clinical care.

OUTREACH TO HOSPITAL STAFF

Librarians at the Jersey Shore University Medical Center put current information at the fingertips of their on call and night staff through their new iPad lending library.

LIBRARIES GO MOBILE

The Emerging Technologies Librarian at UNC Chapel Hill teaches a workshop highlighting the creative ways libraries can integrate mobile technology into their services.

COMMUNITY PHYSICIANS

Librarians at the University of Toledo develop consumer health information literacy instruction for physicians serving patients in rural northwest Ohio.

Discussion

This project resulted in the successful completion of a set of documents to convey NLM's accomplishments in a concise, engaging way to a primarily congressional audience.

This project required that project team members collect and synthesize data and information from a wide variety of sources to create a representative picture of NLM's many products and services. The NLM Statistics Wiki, which maintains web usage statistics on 30 of NLM's resources, was a great help in synthesizing usage metrics for a wide variety of products and resources across NLM, and provided basic numbers of how many visits, visitors, and page views NLM's resources receive. However, more detailed information about who uses these resources, and how they are used is not currently tracked in a systematic fashion across NLM. Project team members sought to supplement information in the NLM Wiki with other sources of data, which included the NIH RePORTER, NLM Publications, Congressional Testimony, NLM Fact Sheets, and the Outreach Projects Database. Information was gathered from a wide variety of resources to better convey the impact that the NLM's many services have with target populations throughout the country.

In addition, program staff across the library were also consulted to identify key trends, verify metrics data, and approve of the representation of the resources and services for which they are responsible.

Recommendations

The report resulting from this project was designed as a template that can be updated with new annual statistics as they become available. While the majority of updated statistics can be found in the NLM's online documentation, these statistics and information should be reviewed by program staff before inclusion in the report. Program staff should also be consulted concerning updates, trends, or interest areas that may not be included in a resource or service's online documentation, but which may be of interest to the updated report's intended audience.

Future iterations of this report may also consider adding more products and resources that were omitted from this report due to project time constraints. Genetics Home Reference, BLAST, DailyMed, and PubChem each received over 15 million page views in 2010, but were not included in the report due to lack of time. Inclusion of these and additional resources within the report can use the existing template for style, and reference existing documents for the type of narrative information to include.

Documents created as a result of this report should be disseminated to library and biomedical informatics groups to publicize NLM and its accomplishments. Documents in this report can be used as print handouts, or PowerPoint slides to communicate with a wide variety of audiences. Elements of the

report may also be converted to web form for NLM programs to use on their publicly available resource documentation and promotion.

In the future, NLM may consider developing new, systematic ways to track the impact of its many products and services. While NLM currently tracks basic web metrics data, most information about where users are coming from, who they are, and how they are using NLM's products or services to their benefit is not reported at an organizational level within NLM. Coordination of this type of information in the future will add depth to future iterations of this report and others like it.

Conclusions

This project successfully resulted in the creation of a concise, visual set of documents that can be used to communicate NLM's purpose, usage and value with a legislative audience. These documents may also be used by NLM divisions to publicize their products and services.

Acknowledgments

I would like to thank Jerry Sheehan, my project sponsor, for his advice and guidance throughout this project. Jerry patiently met with me nearly every week during the project to discuss the scope of the project and review deliverables.

I am indebted to the many people throughout the library who provided their data, and proofread our deliverables. I would like to thank Fred Wood, Wei Ma, Harsh Prakash, Loren Frant, Martha Fishel, Janice Kelly, Valerie Florance, and Angela Ruffin, Renee Bougard and everyone who assisted in this regard. I hope that the outcomes of this project will also be useful for their divisions.

This project would not have been possible without the Associate Fellowship Program and everyone that ensures it runs smoothly and continues to improve. I would like to thank the administration at NLM – Dr. Lindberg, Betsy Humphreys, Sheldon Kotzin, Becky Lyon, and my preceptor Lou Knecht for their steadfast support of the Associate Fellowship Program. Lastly, I would like to thank Kathel Dunn for her encouragement, sage advice, and unrelenting enthusiasm throughout the fellowship year.

Appendix: Original Project Proposal

Spring Project Proposal Template

PROJECT TITLE: NLM Facts and Figures

SUBMITTED BY: Jerry Sheehan, OD

BRIEF DESCRIPTION:

This project would produce a concise compilation of key facts and figures about NLM to help communicate its various programs and activities to various external constituencies. While NLM produces various program summaries and overviews (e.g., an annual report, Congressional justification), compiles statistics on usage of its many databases, and has considerable descriptive material available on its Web sites, it does not have a short, readable print document or website that conveys key facts, figures, and accomplishments in an engaging way to a lay audience. Information is often compiled on an ad-hoc basis to respond to various inquiries, including from associations representing the medical library community and medical informatics research community that, in turn, describe NLM to various constituencies. The aim of this project would be to produce a resource that would present key aspects of NLM programs and services, from its more library-oriented services (PubMed, PubMedCentral) to its more research-oriented activities (extramural research and training grants). The resulting report, which could be in print and/or Web form could serve as model for use and revised in the future.

DURATION: Through mid-April 2011

FULL-TIME EQUIVALENT: 4-5

EXTERNAL SCHEDULES / DEADLINES: Relevant working groups of the Medical Libraries Association and the American Medical Informatics Association that could make use of such information are meeting in late March and mid April 2011. Materials should be prepared in time to be presented at such meetings.

PRIMARY LEARNING OBJECTIVES FOR ASSOCIATE:

- Gain further insight into NLM's various programs and activities
- Interact with program staff from across NLM
- Develop skills in working with statistics describing NLM programs and activities
- Develop skills in written and Web-based communications

EXPECTED PROJECT EXPERIENCES:

- Help determine the scope of a project: what resources to cover, what format, etc.
- Design and implementation of research methodology – identify key data and information sources to be used; identify staff contacts in program areas who can supply needed content
- Data analysis – create charts and graphs highlighting key aspects of NLM programs and services
- Produce a final report with text and graphics that can be disseminated to various group interested in knowing more about NLM

- Determine the appropriate formats for disseminating information, e.g., via the Web, via a single document, via multiple shorter briefings.

EXPECTED OUTPUTS/PRODUCTS: A document or set of documents that present key facts and figures about NLM in a user-friendly format (i.e., including lots of charts and graphs)

NOTES: Part of the project will consist of determining the best format for conveying the information, e.g., in a single package/document or in a series of more thematic parts (databases, extramural research, training, etc.).

SUGGESTED METHODOLOGIES:

- Review existing document that present NLM programs and activities (annual report, congressional justification)
- Review data usage statistics on the NLM Intranet; discuss limitations of the statistics
- Contact key program staff in areas of interest to collect additional statistics, highlights, examples,
- Participate in meetings with relevant staff to discuss content, presentation

NOTES:

BENEFITS TO NLM:

The results of this project would provide NLM with a better way of communicating with various external constituencies about its many programs and services in a concise, user-friendly way, leading to a better understanding and appreciation of the organization

PROJECT LEADERS: Jerry Sheehan, OD