

**DEPARTMENT OF HEALTH AND HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE**

**MINUTES OF THE BOARD OF REGENTS  
February 12-13, 2002**

The 129th meeting of the Board of Regents was convened on February 12, 2002, at 9:00 a.m. in the NLM Board Room, Building 38, National Library of Medicine (NLM), National Institutes of Health (NIH), Bethesda, Maryland. The meeting was open to the public from 9:00 a.m. to 4:30 p.m., followed by a closed session for consideration of grant applications until 5:00 p.m. On February 13, the meeting was reopened to the public from 9:00 a.m. until adjournment at 12:00 p.m.

**MEMBERS PRESENT:**

Ms. Alison Bunting  
Dr. Henry Foster [Chair]  
Dr. Richard Dean  
Dr. Joshua Lederberg  
Dr. Ralph Linsker  
Dr. Joseph Newhouse  
Dr. Herbert Pardes  
Ms. Eugenie Prime  
Dr. William Stead

**ABSENT MEMBERS:**

Gov. Lowell Weicker

**EX OFFICIO AND ALTERNATE MEMBERS PRESENT:**

Ms. Eleanor Frierson, U.S. Department of Agriculture  
Rear Admiral Kenneth P. Moritsugu, U.S. Public Health Service  
Ms. Mary Ann Tatman, U.S. Department of Veterans Affairs  
Col. Robert A. Munson, U.S. Air Force  
Capt. David Wade, U.S. Navy  
Dr. James Zimble, Uniformed Services University of the Health Sciences  
Dr. Vernon Schinski, Uniformed Services University of the Health Sciences

**CONSULTANTS TO THE BOR PRESENT:**

Dr. Tenley Albright, Harvard Medical School  
Dr. Marion Ball, Johns Hopkins School of Nursing and Healthlink, Inc.  
Dr. Enriqueta Bond, Burroughs Wellcome Fund  
Dr. Kenneth Walker, Emory University School of Medicine

**MEMBERS OF THE PUBLIC PRESENT:**

Mr. Ned Collier, Perry Dean Rogers & Partners  
Mr. Steven Foote, Perry Dean Rogers & Partners  
Mr. William Lorensen, General Electric Corporation  
Dr. Marti Roses Periago, Pan American Health Organization  
Mr. Ricardo Perez, Pan American Health Organization  
Mr. Jean-Luc Poncelet, Pan American Health Organization  
Dr. Melvin Spann, Retired, NLM  
Dr. Victor Spitzer, University of Colorado Health Science Center  
Dr. Michael Wagner, University of Pittsburgh  
Mr. Thomas West, Consultant, NLM

**FEDERAL EMPLOYEES PRESENT:**

Dr. Donald A.B. Lindberg, Director, NLM  
Mr. Kent A. Smith, Deputy Director, NLM  
Dr. Michael Ackerman, High Performance Computing & Communications, NLM  
Ms. Duane Arenales, Technical Services Division  
Ms. Stacey Arnesen, Specialized Information Services, NLM  
Ms. Suzanne Aubuchon, Office of the Director, NLM  
Dr. Carol Bean, Division of Extramural Programs, NLM  
Dr. Milton Corn, Division of Extramural Programs, NLM  
Ms. Kathy Cravedi, Office of Communication and Public Liaison  
Mr. Jason Donaldson, Office of the Executive Officer, NLM  
Ms. Gale Dutcher, Specialized Information Services, NLM  
Ms. Ann Elderkin, Office of the Surgeon General, DHHS  
Dr. Elizabeth Fee, Division of Library Operations, NLM  
Dr. Valerie Florance, Division of Extramural Programs, NLM  
Ms. Jane Bortnick Griffith, Office of the Director, NLM  
Mr. David Hale, Specialized Information Services, NLM  
Dr. Lee Hall, National Institute of Allergy and Infectious Diseases, NIH  
Ms. Laura Hileman, Division of Library Operations, NLM  
Ms. Betsy Humphreys, Lister Hill National Center for Biomedical Communications, NLM  
Ms. Christine Ireland, Division of Extramural Programs, NLM  
Ms. Sandra Jones, Division of Extramural Programs, NLM  
Mr. Jason Jurkowski, Office of the Surgeon General, DHHS  
Ms. Nancy Kamau, Division of Library Operations, NLM  
Dr. Ruth Kirschstein, Acting Director, NIH  
Mr. Sheldon Kotzin, Bibliographic Services Division, NLM  
Dr. Teresa Lee, Division of Library Operations, NLM  
Dr. David Lipman, National Center for Biotechnology Information, NLM  
Dr. Simon Liu, Office of Computer and Communications Systems, NLM

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Ms. Becky Lyon, Division of Library Operations, NLM  
Dr. Alexa McCray, Lister Hill National Center for Biomedical Communications, NLM  
Mr. Robert Mehnert, Office of Communication and Public Liaison, NLM  
Dr. Joyce Mitchell, Lister Hill National Center for Biomedical Communications, NLM  
Dr. Mary Moore, Division of Library Operations, NLM  
Mr. Dwight Mowery, Division of Extramural Programs, NLM  
Mr. Allan Noonan, Office of the Surgeon General, DHHS  
Dr. John Parascandola, Lister Hill National Center for Biomedical Communications, NLM  
Mr. Donald Poppke, Executive Officer, NLM  
Dr. Tom Richie, Naval Medical Research Center  
Dr. Merlyn Rodrigues, Division of Extramural Programs, NLM  
Ms. Julia Royall, Health Information Program Development, NLM  
Dr. Angela Ruffin, Division of Library Operations, NLM  
Dr. Elliot Siegel, Health Information Program Development, NLM  
Dr. Sue Sparks, Division of Extramural Programs, NLM  
Dr. Padmini Srinivasan, Lister Hill National Center for Biomedical Communications, NLM  
Ms. Martha Szczur, Division of Specialized Information Services, NLM  
Dr. Paul Theerman, Division of Library Operations, NLM  
Ms. Claire Twose, Division of Library Operations, NLM  
Ms. Cynthia Vaughn, Division of Library Operations, NLM

### **I. OPENING REMARKS**

Dr. Henry Foster welcomed the Regents, alternates, and guests to the 129<sup>th</sup> meeting of the Board of Regents of the National Library of Medicine. The Chairman noted especially the presence of two new regents, Dr. Richard Dean of Wake Forest University, and Dr. William Stead of Vanderbilt University. He also welcomed a new alternate member, Col. Robert Munson of the U.S. Air Force, and consultants, Dr. Tenley Albright, Dr. Marion Ball, Dr. Enriqueta Bond, and Dr. Kenneth Walker.

### **II. REPORT FROM THE OFFICE OF THE PHS SURGEON GENERAL**

Rear Admiral Kenneth Moritsugu, Deputy Surgeon General, U.S. Public Health Service, presented Dr. Satcher's regrets at unexpectedly not being able to attend. Dr. Satcher's term as Surgeon General ends tomorrow. He has been the most prolific of all to hold that office, being responsible for a more than a dozen significant reports in his 4-year term. In both of his major responsibilities—as a health communicator for the Nation and as the leader of the PHS Commissioned Corps—he has been successful. Dr. Moritsugu distributed to the Regents several reports: on mental health—culture, race, and ethnicity; the controversial call to action to promote sexual health; the call to action to prevent obesity and overweight; the report on mental health services and primary health care; the national strategy for suicide prevention in the U.S.; and the report on health and the mentally retarded released yesterday. It would not be possible to

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prepare and distribute these reports without the help of PHS agencies, like the NLM. In recognition of NLM's contribution to the work of the Office of the Surgeon General, Dr. Moritsugu presented to NLM Director Lindberg the Surgeon General's Medallion, the highest award the Surgeon General can present. Following Dr. Moritsugu's presentation, Dr. Foster announced that

Dr. Satcher is going to the Morehouse School of Medicine to head up the new National Center on Primary Care for Minorities and Underrepresented Populations. Dr. Moritsugu also announced that there is a newly appointed Assistant Secretary for Health, Dr. Eve Slater.

Dr. Alexa McCray, Lister Hill Center Director, demonstrated to the Board a new web site, made public today, containing all Surgeon General reports issued since 1964 (70 documents in all). Working with staff of the Surgeon General's Office, NLM has located and digitized all reports issued by the Surgeons General. New reports will be digitized, cataloged, and added to the site as they are issued. Dr. McCray showed some of the features of the site, including biographies of all the Surgeons General, and how the site may easily be searched and the reports retrieved and displayed. The URL is <<http://sgreports.nlm.nih.gov>>.

### **III. CONSIDERATION OF MINUTES FROM PREVIOUS MEETING**

The Regents approved without change the minutes from the September 11, 2001 meeting.

### **IV. FUTURE BOARD MEETINGS**

The Board of Regents will meet next on May 14-15, 2002. The Board is meeting this fall on September 10-11. The dates of February 11-12, 2003, were adopted for the meeting next winter.

### **V. APPOINTMENT OF NOMINATING COMMITTEE FOR NEW CHAIR**

Dr. Foster appointed a committee to nominate the Board Chair for 2002-2003: Dr. James Zimble, Chair, and Col. Kristen Raines, Mr. Winston Tabb, members. The committee will report to the Board in May.

### **VI. REPORT FROM THE ACTING DIRECTOR, NIH**

Dr. Ruth Kirschstein, Acting NIH Director, said that NIH microbiologists and bacteriologists had an important role in the Department's response to the post 9/11 anthrax attacks. Physical security on the NIH campus has been greatly increased. NIH is "absolutely delighted" with the President's FY 2003 budget that was unveiled last week. It proposes \$27.3 billion (a 15.7 percent increase) and keeps on track the intention of doubling the NIH budget within 5 years. It will allow NIH to support more investigator-initiated research grants than ever before. Dr. Kirschstein stated that \$1.6 billion is in the arena of bioterrorism. Other science agencies in the Federal Government who have not fared as well as NIH also require strong budget support. She described NIH's new loan repayment program for medical students (250 personal contracts in

FY 2002) that stipulates that students continue to work in research. Dr. Kirschstein responded to several questions from Board members about who is eligible for this program and what it supports. She commented about press reports of various high-level vacancies at NIH: the several Institute directors who are leaving (for job offers they couldn't refuse) will be replaced rapidly. Dr. Kirschstein described briefly the early planning for a fence around the NIH campus and an NIH Visitors Center that would be the main point of access for visitors. Dr. Lindberg commented that NLM has carefully reviewed, and discussed with architects, its need for several different levels of security, especially in light of plans for the new building. He looks forward to the day when the public can "recapture access" to public buildings, such as the NLM. Dr. Bond inquired about recent reports in the press that HHS wants to consolidate all public affairs offices in the Department. Dr. Kirschstein replied that the Administration and Secretary want more centralization of certain agency functions. The proposal to centralize public affairs (and also legislative affairs), is part of the FY 2003 HHS budget proposal and, as such, will not be put into effect until that budget is passed and signed. For many years, NIH components have had vigorous specific outreach programs related to their individual missions; these health and science communication activities will remain at the component level. Such public affairs media activities as press releases have always been approved at the Department, and there is daily communication between the NIH Office of Communications and downtown. She stated that NLM's mandate of outreach to the public will not be affected.

## **VII. REPORT OF THE NLM DIRECTOR**

Dr. Lindberg noted several recent appointments of key Library Operations staff: Ms. Joyce Backus, who heads the team for library systems, databases, and network services; Mr. Ken Niles, who was selected to head the Collection Access Section; and Dr. Mary Moore, newly appointed head of the Reference Section. Dr. Elizabeth Fee introduced two scholars-in-residence in the History of Medicine Division: Dr. Anne-Emanuelle Birn, Associate Professor of History at the Milano Graduate School, New School University, New York City, and Dr. Nikolai Krementsov, Senior Researcher in the St. Petersburg Branch of the Institute of the History of Science and Technology of the Russian Academy of Sciences. Dr. Alexa McCray introduced several new staff members of the Lister Hill Center: Dr. Joyce Mitchell on sabbatical from the University of Missouri; Dr. Padmini Srinivasan, on sabbatical from the University of Iowa; Dr. Maria Zemankova, on sabbatical from the National Science Foundation; Dr. Sameer Antani, a research scientist specializing in computer vision; Dr. Yves Duroseau, an emergency medicine resident who will be working at LHC on telemedicine; and Dr. George Kim, a physician at Johns Hopkins Bayview Medical Center, who will also be working on just-in-time and telemedicine projects. Dr. David Lipman introduced several new scientists at the National Center for Biotechnology Information: Dr. Ilya V. Dondoshansky, who has worked with several of the NCBI BLAST tools; Mr. Jeffrey D. Beck, who is working with data sent to NCBI by publishers; Dr. Jian Ye, who will be working on the BLAST tools; Mr. David I. Hurwitz, who is working on the NCBI Cn3D project; Dr. Siqian He, who is working on 3-D structure data; Dr. Ron Edgar, who is working on the BLAST tools; Mikhail Domrachev, who will be working on GEO and taxonomy projects; Dr. Maricel G. Kann, who will investigate uses of information concerning

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the locations of insertions and deletions in aligned sequences of a protein domain family; Dr. Kira S. Makarova, who will be working on comparative analysis of eukaryotic genomes; Dr. Olga D. Ermolaeva, who is working on managing map information; and Scott D. McGinnis, who is responsible for monitoring attempts to abuse NCBI web services. Dr. Lindberg noted that several important staff have moved on: Elizabeth A. Pope has left the NCBI and accepted a position with WebMD; Dianne McCutcheon and Carol Unger, both of Library Operations, have accepted positions at the Library of Congress.

Following the introductions of staff, Dr. Lindberg gave the Board an update on the NLM budget. Since the last meeting, NLM has received its FY 2002 appropriation of \$277,273,000 (a 12.6 percent increase over FY 2001). The President's proposed NLM budget for FY 2003 is \$310 million (a 12 percent increase over FY 2002). In the area of legislation, Dr. Lindberg noted that the implementation of standards for data exchange required by the Health Insurance Portability and Accountability Act (HIPAA) is unfortunately being delayed again. Modifications to the privacy regulations required by HIPAA are being vigorously debated. Jane Griffith, NLM Assistant Director for Policy and Legislative Development, discussed the Data Quality Guidelines recently issued by the Office of Management and Budget. These guidelines, which set standards for the accuracy of data issued by Federal agencies, fortunately do not apply to published materials distributed by government libraries, which are specifically exempted. Dr. Lindberg reported that there is continued momentum for the new building and that money was appropriated to complete the architectural drawings. The Regents will hear more about this later in the meeting. On the subject of bioterrorism, the NLM Director stated that the Library has posted new and expanded pages in MEDLINEplus and on its Division of Specialized Information Services site related to post-traumatic stress, biological and chemical weapons, smallpox, and anthrax. These resources have been used heavily in the last several months. Dr. Lindberg demonstrated several of the sites. The NLM Director reported that the Library has been quite successful in shifting from keyboard entry of MEDLINE references and abstracts to scanning and electronic submission by publishers. In 1997, virtually 100 percent of the records were entered manually at a keyboard; today only 20 percent are handled that way. Fifty-six percent are now supplied electronically directly from the publishers. On another matter, he said that NLM is looking forward to working with the NIH National Center on Minority Health and Health Disparities. The Center's Director, Dr. John Ruffin, made a presentation to the Board at the last meeting. Dr. Lindberg reported that the NLM is revising its collection development guidelines; Regent Alison Bunting will be helping the Library on this. The Library sponsored an "interactive" history of medicine symposium on October 29. The theme of the symposium was the development of biomedical research in the decades following the Second World War. Nobel laureates Joshua Lederberg and Julius Axelrod participated, as did former NIH Director Donald Fredrickson. Dr. Lindberg announced that the Library's 1997-1998 Frankenstein exhibit: "Penetrating the Secrets of Nature," will be traveling around the U.S. under the auspices of the American Library Association. Another NLM exhibit, "Turning the Pages," which the Regents saw at the meeting last May, has been enlarged with the addition of Vesalius's richly illustrated

*De Human Corporis Fabrica* (1543). Finally, Dr. Lindberg showed the Regents a new 12-minute video about the NLM and its programs. The video is shown to visiting groups.

Following Dr. Lindberg's presentation, Dr. Pardes suggested that, in the post-9/11 era, NLM should think through what role it might play in providing disaster-related information to local authorities, physicians, and the public. Dr. Lindberg said that we have worked extensively with PAHO and with Central American agencies to provide them with access to disaster-related information (this will be reported to the Board tomorrow). He agreed that NLM might investigate this area domestically. Dr. Pardes said that one way to start would be to find out from local authorities what crucial information they needed and had difficulty acquiring during the recent emergencies. Dr. Bond said that the CDC was convening a group to learn what information the CDC should be putting out during emergencies. Ms. Betsy Humphreys briefly described NLM's work over the past several years to foster the program with local, state, and territorial health authorities known as Partners in Information Access for Health Professionals. It was noted that, as Dr. Lindberg reported earlier, MEDLINEplus had pertinent information on the web soon after 9/11. Dr. Lindberg said that NLM will look carefully at what its role should be in future situations of this nature and report back to the Board. Dr. Bond observed that NLM is already sponsoring research in disaster management, perhaps exactly the right role for NLM.

### **VIII. REGENT'S AWARD**

Dr. Foster presented the Regents' Award for Scholarship or Technical Achievement, its highest honor, to Betsy L. Humphreys. Ms. Humphreys was cited specifically for outstanding scholarship in researching, writing, and presenting the Janet Doe lecture, "Adjusting to Progress: Interactions between NLM and Health Sciences Librarians, 1961–2001," at the Medical Library Association annual meeting last year.

### **IX. ARCHITECT'S REPORT**

Mr. Steven Foote and Mr. Ned Collier of the architectural firm Perry Dean Rogers & Partners, reported to the Regents on progress in designing the new NLM facility. Mr. Foote recounted the process to date. There are 447,000 square feet in the present buildings combined; the schematic he showed the Board added 350,000 square feet, an increase of 75 percent. Of that increase, approximately 80 percent is for projected growth of staff and collections; the balance is to address the current overcrowded conditions. The design is geared to meeting NLM's new programmatic needs while at the same time unifying the buildings architecturally. Mr. Foote showed schematics of the proposed facility from various vantage points. The present stage of the design corresponds to 15 percent of the total project. In response to a question, Mr. Foote said that the exterior materials would be glass, stone, and metal.

Following the presentation, Dr. William Stead commented that the architects have developed a compelling concept that describes a physical structure to house a "Next Generation Library." This institution would be a hub that brings together people (experts and the public), information

resources, and the technology needed to assimilate and manipulate them. The design meets the specific requests that this Board put forth three years ago when it said that the NLM needed more space for its collections and for the programs of the National Center for Biotechnology Information. A particular strength of the design will be to make possible a “Collaboratory” that makes it easy to bring together groups of visiting scientists and intramural NLM staff and to link them with like facilities around the country. This will truly be a working example of the library of the future. Dr. Stead urged that staff assist the Board in preparing a short report that would communicate the urgency of this need and help in acquiring the resources needed to build the new facility. Dr. Bond endorsed this suggestion. Dr. Lindberg agreed that such a report would be useful and NLM staff will work with the Regents to prepare one.

#### **X. VISIBLE HUMAN PROJECT: FROM DATA TO KNOWLEDGE**

Dr. Michael Ackerman, Assistant Director for High Performance Computing and Communications, briefly recounted the evolution of the Visible Human Project. The first Visible Human dataset (male) was released in 1994. In 1998, the National Institute of Dental and Craniofacial Research asked whether the Visible Human data was good enough to put together an atlas of craniofacial surfaces. Experts who were consulted concluded that although the current data was not detailed enough, the atlas should be built using what was available as a proof of concept. It should be built modularly so that as better data became available, it could be substituted. Another suggestion was that automated methods for segmentation and alignment were needed. A final suggestion was to devise ways to increase the contrast in certain parts of the anatomy. Dr. Ackerman said that a consortium was formed to attack these problems, consisting of the National Cancer Institute, National Eye Institute, National Institute of Dental and Craniofacial Research, National Institute of Mental Health, National Institute on Deafness and other Communication Disorders, National Institute of Neurological Disorders and Stroke, and the National Science Foundation. Three projects were created by the consortium. The last, “Anatomical Methods,” how to capture better data, was released six months ago and is now under way. The first two are being reported today: the Head and Neck Atlas, and the Segmentation and Alignment Tools Project (also called the Insight project). Dr. Victor Spitzer, University of Colorado Health Science Center, reported on the Head and Neck Functional Atlas; Mr. William Lorensen of General Electric reported on the Insight project.

Dr. Spitzer displayed the web site of the Visible Human Head and Neck Functional Atlas to the Regents. Six functions are covered: mastication, facial expression, deglutition, phonation, hearing, and ocular motion. Dr. Spitzer showed models created from the male Visible Human dataset demonstrating, for example, mastication, and how the 3-D video views presented are unique and not available from other tutorial sources. Modeling pathology is the next step. He also showed surgical approaches—how the Visible Human data can display anatomy that is helpful for the surgeon in preparing (in the case shown) to correct a patient’s crossed eyes. The web site is public and is now being beta tested, Dr. Spitzer concluded.



Mr. Lorensen said that the Insight toolkit is not an application in itself, but a set of tools that can be used to develop applications. The developers look forward to a variety of applications—research, clinical, and commercial. Insight is “open source,” that is, free to everyone (like the Visible Human data itself). Using graphics, Mr. Lorensen briefly described the project’s chronology, beginning in 1999. The vision was provided by the NLM—the desire to seed a software effort that would live on after the Federal support ended. The Insight Software Research Consortium that was formed includes partners from both academia and industry: six prime contractors and a number of subcontractors. Mr. Lorensen briefly described the involvement of the different organizations. The resulting three products include not only the Insight software, but also tools that will help others build similar systems. He stated that these tools may end up being the most important end product of this project. As just one example, he cited the facility that lets developers build software not only on Unix and Linux, but also on Windows (and eventually Macintosh) systems. One goal is to be able to process Visible Human data on a 512 megabyte PC. He showed several of the software imaging implementations now being developed for the research process by Consortium members. In conclusion, Mr. Lorensen said that the mixture of academic and commercial partners is working successfully.

Following the presentations, Dr. Linsker commented that when he first used Visible Human data it required a powerful workstation to manipulate the data and he asked about its present requirements. Dr. Spitzer commented that, although the web site he demonstrated works best with a fast Internet connection, the graphics power in a standard computer and ordinary disk space are sufficient to handle the capabilities he showed.

## **XI. PLANNING SUBCOMMITTEE**

Dr. Foster announced the formation of a Board of Regents Planning Subcommittee. One of the first tasks of the Committee will be to develop a position paper on the subject of NLM facilities. Dr. Foster will Chair the Committee; other members are Dr. Pardes, Dr. Stead, Governor Weicker, Dr. Zimble, Dr. Lederberg, Dr. Bond, Dr. Albright, and Dr. Walker. NLM Deputy Director Kent Smith will be the staff liaison.

## **XII. NATIONAL NETWORK OF LIBRARIES OF MEDICINE**

Dr. Angela Ruffin, Head of the National Network Office, briefly recounted the history of the National Network of Libraries of Medicine (NNLM). The Network was authorized by the Medical Library Assistance Act of 1965. This is the 35<sup>th</sup> year of the establishment of the first Regional Medical Library (RML) within the Network. There are several notable accomplishments over the last 5-year contract: increasing to 100 percent the number of hospital libraries in the NNLM with Internet connections; 287 subcontracts and special projects funded; 158 technology fairs, exhibits, and library improvement awards; more than 4,000 training sessions with 40,000 trainees; and network representation at 542 local, state, and national conferences. Dr. Ruffin briefly described the lengthy and thorough recompetition process that

led up to the awarding of eight RML contracts last May. Six of the contracts were to existing RMLs; two are new. The University of Utah now serves as the Midcontinental RML and the New England Region is serviced by the University of Massachusetts. The Midcontinental Region is operating under a decentralized model that requires RML liaisons in each state in the region. The current eight contracts include improving the public's access to health information as a fundamental mission of the Network. The focus of the new contracts is on continuing to reach health professionals in rural and inner city areas; increasing the public's awareness of and access to electronic health information; and continuing to strengthen Network capabilities through three national support centers. The first of the three centers is the National Training Center and Clearinghouse at the New York Academy of Medicine. The second is the Outreach Evaluation Resource Center at the University of Washington. The third is the new National Outreach Mapping Center at Indiana University, which will map, track, and assess the Network's outreach efforts. Dr. Ruffin said that under the new contracts there will be an emphasis on enrolling new members into the Network, especially public libraries in a new "affiliated" category. Identifying creative and effective ways to reach special populations such as minorities and seniors will be given high priority.

Following Dr. Ruffin's presentation, Dr. Ken Walker commented that it became apparent in his work on the RML contracts that the program is basically a "national collaboratory" between the NLM and the regions. The Regional Medical Libraries are our "stem cells": they will differentiate any way that we choose. The RMLs are our greatest leverage of influence. He stated that it may be time to have a long range plan that focuses totally on the National Network of Libraries of Medicine. Dr. Albright remarked that the site visit she made as part of the review team was very instructive; she noted that throughout the regions there is a real emphasis on outreach, not only to health professionals but to the public. Dr. Ball said that the National Network of Libraries of Medicine is "the biggest bargain the country gets in the money it spends" through the NLM.

### **XIII. INFORMATICS AND BIOTERRORISM**

Dr. Michael Wagner, Director of the Real-Time Outbreak and Disease Surveillance Laboratory at the University of Pittsburgh, described the applied and basic research he has done to develop an early warning public health surveillance system. Dr. Wagner was an NLM informatics fellow and is now an Assistant Professor of Medicine at Pittsburgh. The system, named RODS (Real-time Outbreak and Disease Surveillance), which was supported with an NLM Informatics Research Grant, was demonstrated last week to President Bush when he visited Pittsburgh. It is deployed both in Utah and Pennsylvania. RODS collects information in real time, processes it, and displays it for decision-makers. Dr. Wagner used graphics, including maps, to show how data about hospital visits is fed into the system to provide immediate information about trends in complaints and disease. The data is anonymous and collected from hospitals at the ZIP code level and there is the potential to go even to street-level data. There is a need for an early warning system for diseases that crop up quickly and have a narrow window of opportunity to be

dealt with. We are currently investing billions in industries that build and maintain information systems, but the routinely collected data are not being used for early warning of disease outbreaks. Building a disease detection system for each disease (anthrax, etc.) is not feasible. Dr. Wagner's group clustered the diseases into a manageable ten categories (contagious, foodborne, waterborne, sexually transmitted, etc.). These were reduced even further to two types of threat: large-scale cohort exposure where everyone is exposed simultaneously, and a critical one-case presentation (for example, smallpox). Focusing on detecting these two patterns will go a long way toward addressing the national need for an early warning system. One research goal is to determine whether such potential sources as agribusiness, veterinarians, poison control centers, clinical and public health information systems, pharmacies, etc., have needed data and, if so, how difficult it would be to obtain it in a useful form. One key basic research question is how to validate detection systems. Dr. Wagner showed how the system in Pittsburgh was used on February 3, 2002, to detect and investigate a small outbreak of diarrhea cases. He said that RODS is complementary to CDC's National Electronic Disease Surveillance System (NEDSS), CDC's blueprint for achieving national surveillance by integrating state-level surveillance. This integration effort is not very far along. CDC is building some software for NEDSS that focuses on case-reporting and electronic lab reporting. Dr. Wagner concluded that the field of medical informatics changes as medical care and public health change. The most important recent change is the speed at which things need to be detected—physicians need to have population-based data to know in real time what is going on in the community so that they can make the right decisions. Medical informatics should adjust its research objectives to be able to provide solutions for such situations.

Following Dr. Wagner's presentation, Dr. Pardes said that more attention should be paid to the public health–clinical care point of interaction when there is a large-scale crisis. Where do we have the capacity to take care of large numbers of patients? Who will be there to respond? Who takes care of an issue such as a contaminated emergency room? There needs to be strong focus on our public health capacity and the clinical facilities that should link to it. We need a central reservoir of information that anticipates the most likely kinds of assaults. Dr. Wagner said that maybe NLM could assume a role as a disseminator of “best practices” in this area. Dr. Pardes agreed that NLM and CDC might collaborate in developing such a resource. Dr. Lederberg said that the public health community has to agree on standards to be adhered to in the case of a major outbreak. In response to a question from Dr. Newhouse, Dr. Lindberg said that, although CDC is clearly the lead agency in these matters, NLM has yet to work out its role with that agency.

Dr. Zimble said there is so much misinformation in a time of crisis, that it would be a tremendous help if NLM, for example through MEDLINE, could provide “bookmarked” high quality information. Several of the Regents agreed that although the CDC was a service provider, NLM could play an important role as a funder of research in this area, as indeed it did in the case of RODS. Dr. Linsker suggested that the NLM consider taking on an expanded effort (going beyond funding of research prototypes) in developing such real-time clinical surveillance systems, either by assuming a limited operational role or through proactive ‘technology transfer’

to CDC, FEMA, or other appropriate agencies.

#### **XIV. REPORT OF THE ASSOCIATE DIRECTOR FOR EXTRAMURAL PROGRAMS**

Dr. Milton Corn, Associate Director for Extramural Programs, presented the FY 2002 grant budget, which was discussed with emphasis on the allocations to NLM's various grant programs. The budget overall has seen steady growth in recent years, and continues to be split almost evenly between research projects and those that improve the national infrastructure for managing health information with computers and telecommunication. An update on NIH's BISTI program pointed out that only six P20 Planning Grants for National Centers of Excellence in Biomedical Computing have been awarded to date, and that only three Institutes have funded such grants: National Institute of General Medical Sciences (3), NLM (2), and National Heart, Lung, and Blood Institute (1). The nature of the Center grants for which the planning is taking place has not yet been defined at NIH, although a draft proposal originated by NIGMS and the National Center for Research Resources is currently under discussion. NLM is considering pros and cons of developing its own Center concept. It is likely that applications for P20 grants will no longer be accepted by the end of this fiscal year.

By unanimous vote the Board of Regents affirmed the Operating Procedures used by EP. Procedures for 2002 are unchanged from the previous year. The Board was informed that "Electronic Council Books" would be made available to the Regents for the May 2002 meeting. Such "books" provide web access to the grant information heretofore provided in print prior to each meeting. Privacy is protected by issuing a password to each Board member to permit access to the data. Print copies of the appropriate material will be available as in the past to Board members who prefer print to the electronic version. Most NIH Institutes have successfully adopted Electronic Council Books during the past year.

In closed session the Board considered an appeal of initial grant review submitted by Dr. Michael Chase. His SBIR application, 1R44LM06804-A3, is entitled "Sleep Research Online." Regents were provided with application, summary statement, Dr. Chase's rebuttal letter, and the report of the first appeals group. The appeal had been reviewed earlier by the Board's EP subcommittee, which recommended that the review be affirmed. The Regents voted unanimously to affirm the review, thus rejecting the appeal. The Board concurred with initial review of the special applications that had been considered in detail by the EP subcommittee. Other applications listed in the Grants volume for this session also received concurrence en bloc.

#### **XV. REPORT FROM THE SUBCOMMITTEE ON OUTREACH AND PUBLIC INFORMATION**

Dr. Henry Foster, Subcommittee Chair, reported on yesterday's meeting. NLM, working with the National Heart, Lung, and Blood Institute, has produced a DVD of the "Asthma: Breath of Life" exhibit. Copies were given to the Regents. The full traveling asthma exhibit is going to

CDC in May to kick off World Asthma Day. Press clippings about the Library's programs that were shared with the Subcommittee were made available to the full Board. Dr. Foster noted particularly that the January issue of *Consumer Reports* advised its readers that seekers after health information should "start with MEDLINEplus." Most of the Subcommittee's discussion was on a Subcommittee's discussion was on a position paper that focused on communication activities to promote MEDLINEplus. Copies were distributed to the Board. Dr. Foster said that the Subcommittee was particularly interested in the need to: improve information services about generic and proprietary drugs; address the public's personal privacy concerns; reach out to professional associations and participate in the scientific programs at their meetings; receive and analyze feedback from users of our web services; develop simple promotional material directed at physicians and to provide them with information to share with their patients; provide increasing MEDLINEplus access to underserved populations; work with organizations such as "Leapfrog" to promote NLM services (Dr. Ball distributed information about Leapfrog and briefly described its mission in providing health information for consumers); work with youth groups and have them teach computer skills to older adults; make NLM exhibits more prominent at professional meetings; and provide more Spanish-language information on the NLM web site. As to the last point, Becky Lyon said that NLM was well along on its project to create a MEDLINEplus in Spanish; we hope to introduce it this fall. To end his report, Dr. Foster showed to the Board an NBC News 3-minute clip on bioterrorism that featured Dr. Lindberg and NLM's bioterrorism information resources.

## **XVI. INFORMATION ACCESS FOR DISASTER PREPAREDNESS IN LATIN AMERICA**

Ms. Stacey Arnesen of the Division of Specialized Information Services described NLM's collaborative program with PAHO (the Pan American Health Organization) to improve access to information for disaster preparedness in several countries in Latin America: Honduras, Nicaragua, and El Salvador. The project focuses on three areas: technology infrastructure, training health sciences librarians, and developing information products for disaster planning and prevention activities. She briefly described the history of the project, which began in September 2000 when NLM signed a contract with the Regional Disaster Information Center for Latin America and the Caribbean (CRID) which is the coordinator of all activities for the project. Following Ms. Arnesen's presentation she introduced Dr. Mirta Roses Periago, PAHO Assistant Director, who manages PAHO's emergency preparedness program. Dr. Roses described the many natural hazards that make up the history of the hemisphere; some countries are being hit every year—for example by earthquakes and hurricanes. Some countries have had their GDP reduced by one or two percent as a result. PAHO began its program in disaster preparedness 25 years ago. The emphasis of the program has shifted over the years from response to disaster management and prevention. Managing disasters, she said, is essentially managing information. Reliable information is needed not only by scientists and health workers, but also policy decision makers. The Internet has been a major step forward for those who are responding to a disaster, whether in urban areas or isolated rural areas. Dr. Roses described the work of CRID and how it

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is improving the dissemination of disaster-related information and also strengthening the capability of the countries involved and their agencies. CRID is the most important source of such information in Spanish, although it also has some information in French and Portuguese. CRID also works closely with BIREME, the PAHO-supported regional medical library for Latin America. BIREME is also a long-time partner of NLM. This year PAHO is celebrating the 100<sup>th</sup> anniversary of its founding. She concluded by saying that they hope what they have learned in collecting and using disaster preparedness information will serve as a good example for other regions of the world that are even more vulnerable. Ms. Arnesen then gave some details about the six sites, two in each of the three countries, chosen to participate in the project, and the progress made under the contract in training and providing communications infrastructure. The sites are variously based in universities, medical schools, libraries, government agencies, and community organizations.

Following the presentations, Dr. Kenneth Walker said that the pattern NLM has followed in this project follows what it did in the U.S.—first improve the communications infrastructure, then sponsor training, and finally develop content. He also said that this project might serve as a template that we could extend to other areas of the world. He said NLM should consider setting up formal relationships with institutions such as the World Bank for projects like this.

Dr. Melvin Spann, former director of the NLM Specialized Information Services Division, who helped establish the program several years ago before his retirement, complimented the NLM for continuing to work with PAHO so successfully. The program is a good example of a smoothly working international partnership in which everyone contributes wholeheartedly—money, staff, and space—and all feel they are equal partners. The “train the trainers” model is an excellent one for a program like this, Dr. Spann said. It allows NLM to minimize its involvement in this area and the other partners to maximize their involvement.

## XVII. SELECTION OF JOURNALS FOR MEDLINE

Mr. Sheldon Kotzin, Chief of the Bibliographic Services Division, said that the volume of published biomedical journal literature continues to grow. It is also changing in format from printed articles to articles (and databanks) on the web. NLM’s journal selection process for MEDLINE identifies those journals that publish information of greatest value to our users. These are the journals whose articles are indexed, using the Medical Subject Headings vocabulary, for MEDLINE/PubMed and the *Index Medicus*. MEDLINE must reflect the diversity of its users (essentially, anyone wanting access to health information published in the scientific literature) and thus include journals in many disciplines. Its scope is worldwide (about half of all MEDLINE use is non-U.S.). The current count is about 4600 journals selected for inclusion in MEDLINE. More than 2600 of these now have links in the PubMed system to the full-text of the articles. This year NLM will add about a half million references to MEDLINE, bringing the total to well over 11 million. The selection process determines not only what journals are indexed, but it can have a great impact on a journal’s success. Publishers often use NLM’s “stamp of approval” in promoting their journals. Mr. Kotzin said that many publishers think there is a “Catch 22” associated with having their journals indexed: they can’t get top-

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quality manuscript submissions if they aren't indexed in the world's leading medical literature database; on the other hand, they believe that they can't get their journals approved for inclusion without top-quality manuscripts. There are about 100 new journals added to MEDLINE each year. The 15-member Literature Selection Technical Review Committee, the advisory body that reviews candidate journals, was formed in 1988. Mr. Kotzin briefly described the diverse qualifications of LSTRC members. They review about 140 journals per meeting, three times each year, recommending to the NLM Director those they believe should be indexed. Mr. Kotzin, who coordinates the process, is a member of the International Committee of Medical Journal Editors, a group that promotes good editorial practice and promulgates uniform requirements for manuscripts submitted to biomedical journals. Mr. Kotzin described several critical elements the LSTRC looks at in making a decision to index a journal: scientific merit (the primary consideration), importance of the information (does it fill a niche not otherwise covered), quality editorial work, how the journal selects manuscripts (including peer review), assurance that advertising does not affect the journal's objectivity, and production quality (printing, layout, illustrations). Publications consisting mostly of reprints, association activities, abstracts, news items, and book reviews, generally are not considered. The presence of English abstracts in a journal whose articles are in a foreign language is a plus. Mr. Kotzin briefly discussed how the selection process takes into account the needs and interests of those in other parts of the world. Certain emerging topics are looked at closely for inclusion, such as bioterrorism, nanotechnology, genetic counseling, research on the aging process, and certain special subjects currently being supported by NIH, such as complementary medicine, reducing health disparities, and gender-specific health. There is no appeal process for those journals not selected, but NLM does consider collateral review by NIH scientists when warranted. The LSTRC is sensitive to the cost of journals, since some publications are extremely expensive (\$18,000 is the current highest annual subscription rate). Mr. Kotzin mentioned several initiatives that are seeking to do something about this, including the SPARC and BIO ONE initiatives by the Association of Research Libraries. In response to requests to speed up the process, he said that a "fast-track" review of selected high-quality journals has been instituted: these journals must be monthly, in English, contain original NIH-funded research, be sponsored by a national or international organization, and able to supply electronic citations to NLM.

Following Mr. Kotzin's presentation, Alison Bunting commented that user expectations now are that "everything" should be available on the Internet. This raises the question of whether NLM should continue a high-quality selective MEDLINE database or just add the citations for all publications that fit the scope and coverage guidelines of the database. She noted that PubMedCentral has different criteria for admission and, since there are links from MEDLINE/PubMed into PubMedCentral, this has the effect of a "backdoor" route of admission. She complimented Mr. Kotzin on his comprehensive description of the process. Dr. Stead said that he believes the trend will be to make material online sooner—closer to the time it's written. Reviews will be appended and an annotated history of the life of an article will be built. At some time in this process the article will get a "quality stamp" and be indexed by NLM. Dr. Lederberg said that he feels there is built-in bias against "give-away" journals that, in some cases, have excellent clinical reviews and are of high quality. He suggested that this category of journal be

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looked at by NLM. Ms. Eugenie Prime commented that in her position she has seen people “drowning” in information. She believes that MEDLINE and PubMedCentral have different goals, and that MEDLINE should keep its selective approach. Dr. Lederberg suggested that it might be possible to use an objective rating, such as how often a journal is accessed electronically, to create a filter that would let users retrieve, for example, only references from the “upper decile” of journals.

### **XVIII. MALARIA INITIATIVE IN AFRICA**

Ms. Julia Royall, Chief, International Programs, Office of Health Information Programs Development, briefly recounted the evolution of the Multilateral Initiative on Malaria which began in 1997, and brought the Regents up to date since her last presentation to the Board (September 1998). NLM’s role in the project is to build communications capacity for scientists working on malaria in Africa. The result has been the first Malaria Research Network in Africa involving sites in Kenya, Ghana, Mali, Tanzania, and Uganda. Additional sites are planned for Gambia, Burkina Faso, Cameroon, and Gabon. Ms. Royall listed a few technical specifications for the Internet-based network. Researchers using the network can send text, large datasets, voice, and images. She showed photographs of some of the researchers involved and scenes from various sites. Among the things the network makes possible for the first time: carrying out literature searches, querying colleagues in other countries, writing a collaborative paper, and transferring large datasets. The project has a web site (“Malaria Research Resources”) at [www.nlm.nih.gov/mimcom](http://www.nlm.nih.gov/mimcom). Ms. Royall introduced Dr. Lee Hall of the National Institute of Allergy and Infectious Diseases who spoke to the Regents about the role of the NIAID in the project and the impact that the Internet connectivity has had on international biomedical research. He described the use of this connectivity as promoting the ethical conduct of research, planning and executing research, and providing control, accountability, and training. Dr. Hall gave numerous examples of the advantages accruing to African scientists by being connected to the international scientific community. Following Dr. Hall, Dr. Tom Richie of the U.S. Naval Medical Research Center Malaria Program briefly described that activity and how it has benefitted from improved connectivity with African scientists. “Connectivity is really everything,” he said. “There is no way that we could do the complex integration required for this sort of research without being able to deal continuously with our clients.” He stated that collecting and recording data on the web for their clinical trials is especially important.

### **XIX. ADJOURNMENT**

The meeting was adjourned at noon on February 13, 2002.



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I certify that, to the best of my knowledge, the foregoing minutes and attachments are accurate and complete.

Donald A.B. Lindberg, M.D.  
Director, National Library of Medicine

Henry Foster, M.D.  
Chair, NLM Board of Regents

DATE: February 13, 2002