

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

**MINUTES OF THE BOARD OF REGENTS
May 9-10, 2006**

The 142nd meeting of the Board of Regents was convened on May 9-10, 2006, at 9:00 a.m. in the Board Room, Building 38, National Library of Medicine (NLM), National Institutes of Health (NIH), in Bethesda, Maryland. The meeting was open to the public from 9:00 a.m. to 4:00 p.m., followed by a closed session for consideration of grant applications until 4:30 p.m. On May 10, the meeting was reopened to the public from 9:00 a.m. until adjournment at 12:15 p.m.

MEMBERS PRESENT [Appendix A]:

Dr. Thomas Detre [Chair], University of Pittsburgh
Dr. Holly Buchanan, University of New Mexico
Dr. Ernest Carter, Howard University
Mr. Richard Chabran, California Community Technology Policy Group
Dr. A. Wallace Conerly, University of Mississippi Medical Center
Dr. James Gray, Microsoft Research
Dr. Clement McDonald, Regenstrief Institute, Inc.
Dr. Cynthia Morton, Brigham and Women's Hospital

MEMBERS NOT PRESENT:

Honorable Newt Gingrich, The Gingrich Group
Dr. Vasiliki Karlis, New York University, College of Dentistry

EX OFFICIO AND ALTERNATE MEMBERS PRESENT:

Ms. Eleanor Frierson, U.S. Department of Agriculture
Dr. Deanna Marcum, U.S. Library of Congress
Captain Tom Miller, U.S. Department of the Navy
Col. John Powers, U.S. Department of the Army
MGEN Melissa A. Rank, U.S. Department of the Air Force
Dr. Charles Rice, Uniformed Services University of the Health Sciences
Dr. Dale Smith, Uniformed Services University of the Health Sciences
Dr. Sylvia Spengler, National Science Foundation
Ms. Mary Ann Tatman, U.S. Department of Veterans Affairs

CONSULTANTS TO THE BOR PRESENT:

Dr. Tenley Albright, Whitehead Institute for Biomedical Research
Dr. Marion Ball, Johns Hopkins School of Nursing
Dr. William Stead, Vanderbilt University
Dr. H. Kenneth Walker, Emory University School of Medicine

SPEAKERS AND INVITED GUESTS PRESENT:

Ms. Susan Brandehoff, American Library Association
Dr. Reed Gardner, University of Utah
Dr. Irving Jacoby, University of California, San Diego Medical Center
Dr. Elizabeth Nabel, Director, NHLBI
Ms. Eugenie Prime, Retired
Dr. Ted Shortliffe, Columbia University
Dr. Kathleen Walsh, Boston University

MEMBERS OF THE PUBLIC PRESENT:

Mrs. Mary Lindberg, Public
Ms. Kathleen McCormick, Science Applications International Corporation
Ms. Alice Raanan, American Physiological Society

FEDERAL EMPLOYEES PRESENT:

Dr. Donald A.B. Lindberg, Director, NLM
Ms. Betsy Humphreys, Deputy Director, NLM
Dr. Donald King, Deputy Director for Research and Education, NLM
Dr. Michael Ackerman, High Performance Computing & Communication, NLM
Ms. Suzanne Aubuchon, Office of the Director, NLM
Mr. Victor Cid, Division of Specialized Information Services, NLM
Dr. Milton Corn, Division of Extramural Programs, NLM
Mr. Todd Danielson, Executive Office, NLM
Dr. Carlos Evangelista, National Center for Biotechnology Information, NLM
Dr. Valerie Florance, Division of Extramural Programs, NLM
Dr. Lisa Forman, National Center for Biotechnology Information, NLM
Dr. Charles Friedman, Division of Extramural Programs, NLM
Ms. Wendy Hadfield, Executive Office, NLM
Ms. Diane Howden, Division of Specialized Information Services, NLM
Dr. Zoe Huang, Division of Extramural Programs, NLM
Ms. Christine Ireland, Division of Extramural Programs, NLM
Ms. Jiwon Kim, Division of Library Operations, NLM
Dr. Lawrence Kingsland, Lister Hill Center, NLM
Mr. Sergey Krasnov, National Center for Biotechnology Information, NLM
Ms. Michelle Krever, Division of Extramural Programs, NLM
Mr. Sheldon Kotzin, Division of Library Operations, NLM
Dr. David Landsman, National Center for Biotechnology Information, NLM
Ms. Janet Laylor, Office of the Director, NLM
Dr. David Lipman, National Center for Biotechnology Information, NLM
Dr. Simon Liu, Office of Computer and Communications Systems, NLM
Dr. Robert Logan, Lister Hill Center, NLM
Ms. Becky Lyon, Division of Library Operations, NLM

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Mr. Robert Mehnert, Office of Communication and Public Liaison, NLM
Mr. Dwight Mowery, Division of Extramural Programs, NLM
Ms. Elizabeth Mullen, Division of Library Operations, NLM
Dr. Aaron Navarro, Lister Hill Center, NLM
Dr. Aurelie Neveol, Lister Hill Center, NLM
Mr. Phillip Osbourne, Office of the Director, NIH
Dr. James Ostell, National Center for Biotechnology Information, NLM
Mr. Jason Papadopoulos, National Center for Biotechnology Information, NLM
Dr. Arthur Petrosian, Division of Extramural Programs, NLM
Dr. Barbara Rapp, Division of Library Operations, NLM
Ms. Julia Royall, Office of Health Information Program Development, NLM
Dr. Angela Ruffin, Division of Library Operation, NLM
Mr. Ed Sequeira, National Center for Biotechnology Information, NLM
Mr. Jerry Sheehan, Office of the Director, NLM
Dr. Patti Sherman, National Center for Biotechnology Information, NLM
Dr. Elliot Siegel, Office of Health Information Program Development, NLM
Dr. Hua-Chuan Sim, Division of Extramural Programs, NLM
Mr. Brian Smith-White, National Center for Biotechnology Information, NLM
Dr. Jack Snyder, Division of Specialized Information Services, NLM
Ms. Alexandra Soboleva, National Center for Biotechnology Information, NLM
Ms. Marti Szczur, Division of Specialized Information Services, NLM
Dr. Neil Thakur, Office of Extramural Research, NIH
Dr. George Thoma, Lister Hill Center, NLM
Mr. Bart Trawick, National Center for Biotechnology Information, NLM
Ms. Patricia Tuohy, Division of Library Operations, NLM
Dr. Lowell Vizenor, Lister Hill Center, NLM
Dr. Fredrick Wood, Office of Health Information Program Development, NLM
Dr. Deborah Zarin, Lister Hill Center, NLM

I. OPENING REMARKS

Dr. Thomas Detre, Chair of the NLM Board of Regents, welcomed the Regents, alternates, consultants, and guests to the 142nd meeting of the Board. He announced that NLM Director Lindberg has been named to the prestigious American Academy of Arts and Sciences (founded in 1780 by John Adams). Dr. Detre also announced that Dr. Kenneth Walker, former Regent and current consultant to the Library, was awarded the U.S. Agency for International Development's Citation for Outstanding Citizen Achievement for his work improving medical facilities in the Republic of Georgia.

II. REVIEW OF PLANNING PANEL REPORTS

The morning of the first day of the meeting was devoted to a consideration of a draft set of recommendations taken from the four Long Range Planning Panel reports that were prepared subsequent to the Panels' two meetings in November–December, 2005 and February–March, 2006. After a brief review of the planning process by Dr. Lindberg, Dr. Detre presided over the Board's discussion of some 40 recommendations that were initially distilled by NLM senior staff. The Planning Panel chairs and/or their representatives were present for this discussion to ensure that their Panels' deliberations were successfully captured, and to help correct any deficiency. The discussions ranged over the gamut of subjects covered by the recommendations. Areas of special interest to the Regents included: NLM's role in information standards and controlled terminologies; the possibility of identifying other streams of funds to accomplish certain plan recommendations; NLM's position as the hub of a global medical information community; outreach to increase awareness and use of NLM's resources, and associated issues of health literacy; NLM's support of integrative research in communications that can be applied in clinical situations and public health ("executable databases" are one example of this); and the need for NLM to be closely involved in NIH's initiative in translational research.

Dr. Siegel and Ms. Buyer of NLM's Office of Health Information Programs Development will refine the set of draft recommendations based on the Board's discussion, and add from the Panel Reports additional contextual material prefacing the recommendations. This document will constitute the final Draft Long Range Plan that will be presented to the Regents for adoption as their Plan for the Library at their next meeting, on September 19–20, 2006.

III. CONSIDERATION OF MINUTES FROM PREVIOUS MEETING

The Regents approved without change the minutes from the February 2006 meeting.

IV. DATES FOR FUTURE BOARD OF REGENTS MEETINGS

The Board of Regents will meet next on September 19–20, 2006. The Board meeting next winter is February 6–7, 2007. The dates of May 8–9, 2007, were adopted for the following meeting.

V. REPORT OF THE NLM DIRECTOR

Dr. Lindberg reported that the NLM budget for FY 2007, at \$321.5 million, is essentially flat. There are small increases earmarked for several programs, including the "Roadmap tap," and a decrease in resources allowed for administration. He announced that Dr. Charles Friedman, of the Extramural Programs, has accepted the position of Associate Director for Research and Information Technology at the National Heart, Lung, and Blood Institute. A new staff member, Jerry Sheehan, will be joining the NLM as Assistant Director for Policy and Legislative Development. Another new appointment is Phillip Osborne, Director of the Office of

Acquisitions in the Office of Administration. Dr. Lindberg announced two retirements: Eve-Marie Lacroix, who headed the Public Services Division in Library Operations for many years, and Marjorie A. Cahn, Head of NLM's National Information Center on Health Services Research and Health Care Technology. Dr. Jack Snyder introduced to the Board two new members of the Specialized Information Services staff: Diane Howden and Victor Cid. Dr. Donald King introduced a new staff member of the Lister Hill Center, Dr. Aurelie Neveol. Two new NCBI staff members were introduced by Dr. David Lipman: Mr. Jason Papadopoulos and Brian Smith-White.

Dr. Lindberg briefly reported on three bills. Senate bill S.2695, "The Federal Research Public Access Act," would require research-funding agencies with annual budgets of at least \$100 million to have a plan so that recipients of research grants make the text of their publications freely and publicly available. PubMed Central would be an obvious choice in the biomedical arena, Dr. Lindberg said. Another Senate bill, S.2360, the "Internet Non-discrimination Act," has a somewhat analogous House version, H.R.5073, the "Universal Service Reform Act"; both have to do with Internet availability. Dr. James Gray asked about whether there would be a problem with costs associated with NLM receiving in PubMed Central publications resulting from research funded by other government agencies, as called for in S.2695. Dr. Lindberg said that so far the costs of handling full text articles have been minimal. Dr. David Lipman said that the present system is tailored toward biomedical content and there might be a modest amount of additional funds to handle manuscripts originating from other agencies. He added that NLM has budgeted between \$1 and \$2 million to handle manuscripts funded by NIH, a \$27 billion dollar agency.

MedlinePlus's "Go Local" has been an interesting and successful venture, Dr. Lindberg said. It began several years ago when, aided by software work done at the University of North Carolina with NLM support, local medical and health services in that state were connected to MedlinePlus. Since that time, more states and areas have signed on. The emerging trend today is for NLM to maintain the software which others may use to connect their states to MedlinePlus. A small grant program helps states do this. The NLM Director described the official opening and ribbon-cutting on February 16 of the new NLM "Visible Proofs" exhibition as "nothing short of spectacular." It was attended by five busloads of high school students who were mesmerized by the opening program, which featured talks by American anthropologist Clyde Snow who invented the field of human rights forensics in the mid-1980s with his excavation of mass graves in Argentina, and by Kirk Bloodsworth, a crab fisherman from Maryland's Eastern Shore, who became the first person convicted of murder to be exonerated by DNA evidence. Dr. Lindberg also updated the Board on recent additions to the Profiles in Science Web site—major additions to the site for Joshua Lederberg and the papers of Albert Szent-Györgyi, Salvador Luria, and Edward Freis. The papers of Virginia Apgar and Michael Heidelberger will be the next additions to Profiles in Science. He also noted that three staff members of the History of Medicine Division have created an award-winning "finding aid" to the Lederberg papers that can be used to research this collection.

Dr. Lindberg reported on an event in Florida on March 31 to announce the expansion of NLM's Information Rx program. The event was in collaboration with the American Medical Association Foundation and the Fisher Center for Alzheimer's Research and involved also local, state, and federal officials, elected representatives, caregivers, and local seniors. The Information Rx program aims to encourage practitioners to write "information prescriptions" to refer their patients to MedlinePlus for pertinent health information. On another matter, Dr. Lindberg reported on a welcome proposal from publishers about access to health information during emergencies. Under the agreement, publishers will allow at least two weeks of free full-text access to the content of their indexed journals if the NLM Director determines that there is an emergency. Dr. Lindberg reported that the NLM has announced the results of the recompetition of the eight Regional Medical Library contracts. A new RML has been designated for the Mid-Atlantic Region (NY, NJ, PA, DE)—the New York University Frederick L. Ehrman Medical Library. He thanked Dr. Holly Buchanan, Richard Chabran, and former Regents Alison Bunting, Dr. Steven Phillips, Eugenie Prime, and Dr. Kenneth Walker for their help in the long process to arrive at new five-year contracts.

Dr. Lindberg said that the National Commission on Libraries and Information Science on May 3 held a meeting at NLM to announce the winners of a competition among medical libraries for creative and effective partnership and outreach programs for the public. There were presentation from the 10 semi-finalists; the REACH 2010 program, coordinated by the Medical University of South Carolina, was the winner. NLM had a role in financing six of the ten semifinalists. Finally, the NLM Director distributed to the Regents a recent editorial critical of the NIH in the *Journal of Clinical Investigation*; Dr. Lindberg and other Institute directors signed a letter in response. Also, Dr. Lindberg distributed an editorial in *Science*, co-authored by former NIH Director Dr. Harold Varmus, which he said was an excellent response to the criticism.

VI. REPORT FROM THE PUBLIC ACCESS WORKING GROUP

Dr. Detre, who chairs the Public Access Working Group, reported on the group's April 10, 2006 meeting. The consensus of the Working Group is that publications resulting from NIH-supported research, should be made available within six months of publication. It was understood that this represented an important contribution of publishers to the American public, and to colleges and universities the frequently do not have the budget to subscribe to many peer-reviewed publications. There are only two "mild dissensions": one participant believed that the policy should be voluntary rather than obligatory on the part of the publishers; there was the view that in some cases (for example quarterly publications) the journals might be damaged by release within six months. With these caveats, the Working Group submitted its recommendations to the NIH Director. Dr. Detre said that he believes the situation will resolve itself in the coming months. Dr. David Lipman then described the system that has been put in place to make it as easy as possible for articles to be submitted to the PubMed Central repository/archive.

VII. PRESENTATION OF AWARDS

Dr. Lindberg presented certificates of appreciation to retiring Regents Dr. Thomas Detre, Dr. Ernest Carter, and Dr. A. Wallace Conerly, Sr. He then presented the Frank B. Rogers Award to three NLM staff members:

- Martha Fishel of the Public Services Division, Library Operations, for her contributions to NLM's programs to provide medical information to the public worldwide;
- Sergey Krasnov of the National Center for Biotechnology Information, for innovative and substantial contributions to NLM's PubMed Central; and
- Natalie Arluk, of the Office of Computer and Communications Systems, for her work on an important Medical Subject Headings project.

The NLM Director's Honor Award was presented by Dr. Lindberg to Marjorie Cahn, for her leadership of the National Information Center on Health Services Research and Health Care Technology, and to Wei Ma, of the Office of Computer and Communications Systems, for her management of the Applications Branch.

VIII. WHOLE GENOME ASSOCIATION PROJECT

Dr. Elizabeth G. Nabel, Director of the National Heart, Lung, and Blood Institute, gave the Board some background about the origination and progress over the decades of the Framingham Heart Study, begun in Massachusetts in 1948. This large study sought to discover the epidemiology of coronary heart disease in the U.S. Dr. Nabel described how the study has led to a wealth of data over time and three generations; they even have a library of some 9,000 DNA samples collected over the last ten years. The NHLBI is excited about the future direction for the study, a project called Framingham SHARE (SNP Health Association Resource). Dr. Nabel said that the Framingham study is well suited to genetic research because it is multigenerational, the cohort is in place and scientists can do prospective analysis, and the breadth of the phenotypes within the population is extraordinary. In addition, today we can do high-throughput genotyping. Besides the Framingham SHARE as a pilot, NHLBI will soon be starting a SHARE involving an African American population in Jackson, Mississippi. There will also soon be a Hispanic SHARE, in Florida, Texas, and New Mexico. NHLBI believes that with a database of the genotypes and phenotypes we have the potential for an extraordinarily powerful public resource. It will facilitate the rapid conduct of genetic research—stimulate gene discovery and novel hypotheses that then can be translated into novel diagnostic and therapeutic approaches. The greatest public benefit can be realized if the data from the genotyping component of the study is made available under conditions consistent with informed consent by the participants to the largest possible number of investigators. NLM's NCBI is an important potential resource for constructing this database. NHLBI has formed an executive committee to work through a number of policy issues, such as policies concerning data access and data distribution, intellectual property issues, and local IRB involvement. NHLBI is now negotiating a contract to conduct the genotyping that should begin this summer, Dr. Nabel said. Data will be de-identified

according to HIPAA standards and there will be no commercial funding. In answer to a question, Dr. Nabel said that over the past several decades, the average lifespan in America has increased about six years. Four of the six years are attributable to improvements in diagnosis and treatment of heart disease, primarily through the identification of risk factors and the education programs that they engendered.

IX. PEDIATRIC MEDICATION ERRORS AND COMPUTERIZED ORDERS

Dr. A. Wallace Conerly, substituting as Chair for Dr. Detre, introduced Dr. Kathleen E. Walsh, Assistant Professor of Pediatrics, University of Massachusetts School of Medicine. Dr. Walsh, who is an NLM grantee, presented a report on her work, “Pediatric Medical Errors and Computerized Orders.” She said that in this country an estimated 44,000 to 98,000 patients die each year from medical errors, according to the Institute of Medicine. Dr. Walsh discussed her work involving the application of a computerized physician order entry system (CPOE) on inpatient pediatric wards. She gave examples of how different medication errors occur in drug ordering, transcribing, dispensing, administering, or monitoring. In adults, CPOE reduces the rate of serious medication errors not caught by hospital staff by 55%. More than half of U.S. hospitals either have or plan to introduce CPOE. Dr. Walsh’s research was to investigate whether such a system would have similar results in children. She described how there are important differences in how a CPOE operates in a pediatric ward and how there are many ways error may be introduced into the system that don’t apply in a non-pediatric hospital environment. She summarized her review of existing systems as conflicting—some showing a positive effect, some no effect, and some actually showing a negative effect. At the Boston Medical Center Dr. Walsh and her colleagues hypothesized that there would be a 50% decline in the rate of serious medical errors not caught by staff after the introduction of CPOE. A second goal was to categorize and quantify new types of pediatric medical errors associated with the CPOE. She described how the Sunrise Clinical Manager by Eclypsis was installed in the pediatric inpatient ward and intensive care units at the Boston Medical Center in 2002. Dr. Walsh presented a series of statistics and graphs: the bottom line is that although there was a small decrease in the level of serious errors not caught by hospital staff, there was no change in overall errors, serious errors, or injuries due to error and there was no change in dosing errors after implementation of CPOE, despite system designs to prevent dosing errors. She described how some errors could be attributed to the constraints of the computerized system, for example, typographical errors and mouse maneuvering errors. Among the next steps they hope to implement: pediatric (weight-based) dosage checking; pediatric order sets (for newborn, infant, child, teen), and ordering of Tylenol with milligram dosage rather than specifying type.

X. EXTRAMURAL PROGRAMS REPORT

Dr. Milton Corn, Director for Extramural Programs, reported on “Current Challenges in Biomedical Computing Research.” Grand challenges, he said, are fundamental scientific or technologic problems whose solutions require significant increases in our current levels of

scientific knowledge and/or technical capabilities. The success of DARPA's Grand Challenge to stimulate development of robot vehicles illustrates that focusing resources on a challenge can accelerate development of solutions.

Lists of important challenges in biomedical computing have been published from time to time for many years and from a diverse number of sources, including NLM, the informatics community, and the U.S. Army. However, funding has not been made available to stimulate research. In January 2006, NLM published a Request for Information in the NIH Guide asking for community input on today's grand challenges in bioinformatics. Responders were asked to suggest problems that were significant to scientific discovery and health outcomes, difficult but approachable, relatively unexplored or underfunded, and framed at a useful level of abstraction. The RFI was circulated to informaticians, engineers, and computer scientists.

Approximately 150–180 nominations were received. Some common themes included concern about the overwhelming amounts of data in current databases for which possible help could involve: enabling query of heterogeneous databases; developing intelligent search agents; embedding major databases in an ontologic/semantic web; developing tools for knowledge discovery in published information; and developing a management system to permit general use of individual private research databases. Other proposed challenges include: mining and managing clinical information systems; developing tools to analyze multi-modal clinical information; mining large clinical datasets for diagnostic and outcome discoveries; melding clinical ontologies to basic science ontologies to enable translational research; developing Dynamic Data Driven Applications Systems (DDDAS) for clinical care pathways; simulations and modeling; simulations for surgical and medical clinical interventions; systems biology modeling to understand cellular and physiological processes; computational models of treatment systems; computational modeling of workflow as a basis for information system design; informatics of signal processing, such as content-based retrieval of images; technical and social problems of deploying ubiquitous remote sensors in the population; user interface issues, including a suggestion that analysis be based on brain imaging; natural language processing; and informatics solutions for educational problems.

Next steps for NLM include:

- Complete and refine analysis of results
- Evaluate in light of NLM mission and new long-range plan, as well as on-going efforts by other Institutes and NSF
- Select one to three promising candidates
- Issue NLM Grand Challenge(s) before end of this fiscal year

* * *

Following Dr. Corn's presentation, Dr. Valerie Florance, Deputy Director for Extramural Programs, discussed with the Regents the success rates for NLM's grant programs in the period

2001–2005. Each year, NLM compiles data on the annual success rate for applicants to its grant programs. Dr. Florance presented an overview of the 5-year trends in the number of applications, awards and success rate. The success rate is the percent of grant applicants who are funded in a given year. Success rate is a major indicator of the vitality of grant programs, to applicants and to Congress. Success rates are a function of the number of applications received and the funds available for making new awards.

The NIH budget doubling ended in 2003 and grant budgets have remained essentially flat while the number of applications continued to increase. Between 2001 and 2005, the number of applications to NLM programs increased from 301 to 516, while the number of new awards made decreased from 137 to 77, resulting in a steep drop in success rate. In each fiscal year, both new and continuing grant awards are made. During the study period, the total number of grants paid each year decreased slightly, from 241 to 219, but the percent of new awards decreased steeply, from 57% to 35%. This shows the effect of prior awards on new awards (and success rates) when the budget is flat.

Dr. Florance also reported on success rates for new and seasoned investigators. New investigators submitted about 38% of research grant R01 applications to NLM in the five-year period, and received 37% of the new awards, for a success rate of 16%. Seasoned investigators submitted 62% of the research grant R01 applications and received 63% of new research grant awards, for a success rate of 17%. Thirty percent of new investigators sent in a revised application; for those who did, the success rate rose to 33%. Thirty-nine percent of seasoned investigators submitted revised applications; for those who did, the success rate rose to 33%. The rate of applications from new investigators, 38%, compares to a rate of about 25% new investigator applications reported by the informatics-oriented CSR study sections.

Dr. Florance closed by summarizing the strategies NLM uses to maintain healthy success rates. They include reduction in the number of grant programs, cost and length controls on grants, reduced funding overlap with others, and reduced co-funding with other NIH Institutes and Centers. Additionally, more assistance is provided to applicants, including referral to other NIH organizations, and more guidance given to reviewers.

MEETING CLOSED FOR THE REVIEW OF GRANT APPLICATIONS

May 9, 2006, 4:00 P.M. to 4:30 P.M.

XI. EXHIBITIONS AS OUTREACH: TRAVELING SHOWS AND SCHOOL GROUPS

Dr. Elizabeth Fee, Chief of the History of Medicine Division, said that in the last decade NLM's exhibition program has been expanded, both in the ambition of the displays and the outreach to the community to encourage people to visit and view the exhibitions. Dr. Fee introduced two presenters: Jiwon Kim, the exhibition educator, who works closely with the curators and has greatly expanded NLM's programs to welcome K–12 teachers and students to attend the

exhibitions, and Susan Brandehoff, Program Director for Traveling Exhibitions at the American Library Association, who has worked with NLM staff to reformat major NLM exhibitions and then to send them to 60–80 libraries around the country. Two exhibitions are currently traveling: “Frankenstein—Penetrating the Secrets of Nature” and “Changing the Face of Medicine: Celebrating American Women Physicians.”

Jiwon Kim said that the NLM exhibition outreach program is broad in scope, including higher education groups, professional groups, and seniors. Her presentation concentrated on the program to bring younger audiences to the Library. She showed some photographs from the recent program opening the “Visible Proofs” exhibition, and shared several of the positive comments from the high school students. Working with K–12 groups involves much more than interacting with students: it also involves many diverse audiences such as parents, relatives, educators, education policy makers, and for-profit and non-profit organizations that produce programs for that age group. Ms. Kim described how their exhibitions had both “experience zones” and “activity zones” that have interactive components. The visits are carefully tailored to the interests and level of the groups—one size does not fit all. As examples she cited specialized tours for children 5–6 years old from the NIH daycare center, high school “special ed” classes, and 2,000 advanced placement high school science students at summer programs. The average K–12 group stays about two hours and receives a program about the NLM itself as well as a tour of the exhibition. In the ten weeks since the opening of the Visible Proofs exhibition, about 60 K–12 groups have visited. Ms. Kim also described (and demonstrated) the online exhibition resources that NLM has on its Web site.

Susan Brandehoff of the American Library Association reported on the ALA’s work with NLM on two traveling exhibitions, as mentioned by Ms. Kim. The Frankenstein display is a smaller panel version of the major exhibition at NLM in 1997–8. Four copies of the exhibition were traveled to 83 libraries (28 academic, 48 public, 7 health science) in 38 states from October 2002 through March 2006. There were 1,062,000 visitors in all. The host libraries presented more than 1,100 programs, lectures, panel discussions, and science demonstrations, and they even organized blood drives and organ donor registration events around the Frankenstein exhibit. Ms. Brandehoff said that ALA considers this to be the most successful exhibition they ever toured. She showed photographs of the exhibition and some of the events and quoted the positive comments of some of the visitors to the exhibitions. As a result of this exposure, she said, more people are using NLM and NIH Web resources and are aware of the Regional Medical Libraries and the services of the National Network of Libraries of Medicine. The newer NLM exhibition being traveled by the ALA, “Changing the Face of Medicine: Celebrating American Women Physicians,” started touring at the end of 2005. The two copies of this exhibition will go to 61 public, academic, and health science libraries in 26 states. She said the exhibition has two interactive kiosks and they have received positive feedback from the libraries that have already hosted the exhibition. The itinerary is on the ALA’s Web site at www.ala.org/publicprograms.

Following the presentations, Mr. Chabran said that these exhibitions are wonderful resources and

that he has heard from educators about the programs being integrated into the classroom. He encouraged NLM make them even more accessible on the World Wide Web. Dr. Albright said that the exhibitions are a good vehicle for increasing awareness of the NLM. She noted that they had the Changing the Face of Medicine exhibition at Harvard and that having it stimulated them to do more on their own. She suggested that the sites for the traveling exhibitions should try to involve legislators and state medical societies in plans to promote and host events associated with the exhibition. A video, such as the NLM 2005 highlights film that was shown last night at the Board dinner, might be integrated into the traveling exhibitions. Dr. Lindberg thanked Ms. Brandehoff and the American Library Association for their wonderful collaboration with NLM to extend the reach of the Library's exhibition program.

XII. TOXICOLOGY AND ENVIRONMENTAL RESOURCES UPDATE

Dr. Jack Snyder, NLM Associate Director for Specialized Information Services (SIS), briefed the Regents on NLM's Toxicology and Environmental Health Information Program—its beginning in the 1960s (predating EPA and OSHA), expansion in the following decades, current programs, and a glimpse into the future. The objectives of the original Toxicology Information Program were to (1) create automated toxicology/drug data banks, and (2) provide toxicology/drug information and data services. In the mid-1990's, the mission of the program was expanded to include environmental health and the provision of information resources for specialized populations. NLM's Toxicology and Environmental Health Information Program, by creating, organizing, and disseminating toxicology and environmental health information, now serves as a premier information portal for resources in these subject areas, both for the professional community and the general public. Dr. Snyder gave as examples, and discussed using SIS Web-based information resources, two recurring themes from the news—pesticide toxicity testing in humans and how to find information about and interpreting arsenic concentrations in the environment.

Dr. Snyder showed the SIS home page and demonstrated several examples of current SIS Web-based information offerings. One important audience is the emergency responder community—first responders, HAZMAT teams, Emergency Medical Service personnel, law enforcement, etc. He discussed the Hazardous Substances Data Bank and how information on 400 substances in the HSDB is now also made available to emergency responders through the hand-held Wireless Information System for Emergency Responders (WISER). Dr. Snyder described in some detail how the WISER was developed, tested, and put into use in the field (including New Orleans after Katrina). It is downloadable from NLM free on the Web and more than 32,000 users have downloaded it to date. Another current SIS product is aimed at consumer audiences: the Household Products Database. This database has extensive information about more than 6,000 household products in everyday use. Dr. Snyder used insecticide as an example category and showed how information could be retrieved by the public. A new initiative of the SIS is a partnership with the HHS Office of Public Health Emergency Preparedness that focuses on the needs of the emergency physician community for diagnosis and treatment information in the

event of a radiological event.

Following Dr. Snyder's presentation, Dr. Conerly asked whether SIS was closely tied to Poison Control Centers. Dr. Snyder said that although NLM is not in the "poison control business," many of the private sector information products currently used by hospitals and poison control centers derive their origins from NLM's Hazardous Substances Data Bank. Dr. Snyder said that SIS is working with some Poison Control Centers to enhance certain information products. Dr. Walker commented that in the early 1990s, he and Dr. James Zimble took a careful look at the SIS databases—and found them difficult to use. Today's set of useful and usable databases is a far cry from that time. Dr. Charles Rice commented that the staff of the Uniformed Services University of the Health Sciences were working with Dr. Snyder and the SIS on research and education dealing with the Radiation Event Medical Management Program.

XIII. REPORT FROM THE SUBCOMMITTEE ON OUTREACH AND PUBLIC INFORMATION

Dr. Conerly reported on the Subcommittee's meeting yesterday morning. NLM's efforts to engage in outreach to Hispanic communities was the first subject for discussion. Among the aspects discussed were the varieties of Spanish spoken by American Hispanics and the possibility of MedlinePlus Go Local information in that language. Another topic reviewed was NLM's plans to soon begin a weekly audio PodCast from the NLM Director focusing on important new additions to MedlinePlus.

XIV. REPORT FROM THE BOARD OF REGENTS CHAIR NOMINATING COMMITTEE

Mary Ann Tatman, Chair of the Nominating Committee, said that the Committee nominates Dr. Holly Buchanan to Chair the Board of Regents for 2006–2007. Dr. Buchanan was unanimously elected.

XV. MEDICAL CARE AT NEW ORLEANS AIRPORT FOLLOWING KATRINA

Irving "Jake" Jacoby, M.D., presented to the Board a fascinating account of his experiences in New Orleans in the aftermath of Hurricane Katrina. Dr. Jacoby is Commander, Disaster Medical Assistance Team (DMAT) San Diego CA-4, attending physician, Department of Emergency Medicine, University of California, San Diego, Medical Center, and Clinical Professor of Medicine and Surgery, University of California, San Diego, School of Medicine. He described how emergency medical services are organized in the U.S. and then presented a series of photographs of how his 35-person unit was called up and transported to the Louis Armstrong New Orleans International Airport where, from August 31, 2005 through September 7, they provided emergency medical services to and prepared for airlifting thousands of victims of the hurricane. Peak activity occurred September 3–4, when over 10,000 evacuees were transported

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on over 60 flights.

XVI. ADJOURNMENT

The Board of Regents adjourned at 12:15 p.m., May 10, 2006.

ACTIONS TAKEN BY THE BOARD OF REGENTS:

- Approval of the February 7-8, 2006 Regents Minutes
- Approval of May 8-9, 2007 Meeting Dates
- Review and Discussion of Long-Range Plan Recommendations
- Election of New Board of Regents Chair, Dr. Holly Buchanan
- Approval of EP Subcommittee Recommendations and Conducted En Bloc Grant Concurrence

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

Thomas Detre, M.D.
Chair, NLM Board of Regents