

**Department of Health and Human Services
National Institutes of Health
National Institute of Nursing Research
Minutes of the National Advisory Council for Nursing Research**

September 17–18, 2002

The 48th meeting of the National Advisory Council for Nursing Research (NACNR) was convened on Tuesday, September 17, 2002, at 1:15 p.m. in Room E1/E2, Building 45, National Institutes of Health (NIH), Bethesda, Maryland. The meeting was open to the public until approximately 4:40 p.m. The closed session of the meeting, which included consideration of grant applications, continued the next day, Wednesday, September 18, 2002, at 9:30 a.m. and continued until adjournment at 12:15 p.m. on the same day. Dr. Patricia A. Grady, Chair of the NACNR, presided over both sessions.

OPEN SESSION

I. CALL TO ORDER, OPENING REMARKS, COUNCIL PROCEDURES, AND RELATED MATTERS

Dr. Grady called the 48th meeting of the NACNR to order, welcoming all Council members, visitors, and staff.

Conflict of Interest and Confidentiality Statement

Dr. Mary Leveck, NACNR Executive Secretary, reminded attendees that the standard rules of conflict of interest applied throughout the Council meeting. Briefly, all closed session material is privileged, and all communications from investigators to Council members regarding any actions on applications being considered during Council should be referred to NINR staff. In addition, during the closed session of the meeting, Council members with a conflict of interest with respect to any application must excuse themselves from the room and sign a statement attesting to their absence during the discussion of that application. Dr. Leveck also reminded NACNR members of their status as special Federal employees while serving on at the Council meeting and that the law prohibits the use of any funds to pay the salary or expenses of any Federal employee to influence State legislatures or Congress. Specific policies and procedures were reviewed in more detail at the beginning of the closed session and were available in Council notebooks.

Minutes of Previous Meeting

Council members approved the minutes of the May 21–22, 2002, Council meeting by electronic mail. No additional corrections or additions to the May 2002 minutes were suggested during the September Council meeting. The minutes of each quarterly NACNR meeting are posted on the NINR Web site (www.nih.gov/ninr).

Dates for Future Council Meetings

Dates for meetings in 2003 and 2004 have been approved and confirmed. Council members should contact Dr. Grady or Dr. Leveck regarding any conflicts or expected absences.

2003

- January 28–29 (Tuesday–Wednesday)
- May 20–21 (Tuesday–Wednesday)
- September 16–17 (Tuesday–Wednesday)

2004

- January 27–28 (Tuesday–Wednesday)
- May 19–20 (Wednesday–Thursday)
- September 14–15 (Tuesday–Wednesday)

II. REPORT OF THE DIRECTOR, NINR (Dr. Patricia Grady, Director, NINR)

The director's report focused on updates related to the NIH, budget, and NINR.

NIH Updates

Dr. Grady reported on the appointment of the new NIH Director and key activities across the campus since the last Council meeting. The U.S. Senate approved the nomination of Dr. Elias Zerhouni as the 15th NIH Director on May 2, 2002. Dr. Zerhouni, a radiologist, comes to the NIH from Johns Hopkins University, where he served as Executive Vice Dean of the School of Medicine, Chair of the Russell H. Morgan Department of Radiology and Radiological Science, and Martin Donner Professor of Radiology and Professor of Biomedical Engineering since 1997. Dr. Zerhouni received his medical degree from the University of Algeria; shortly after receiving his degree, he emigrated to the United States. He has been a member of the National Academy of Sciences' Institute of Medicine since 2000 and has served on the National Cancer Institute's Board of Scientific Advisors since 1998. He has pioneered the development of several advanced technologies used to diagnose and differentiate certain types of tumors and components and diseases of the cardiovascular system. Dr. Zerhouni was sworn in as the new NIH Director on May 20, 2002.

Dr. Zerhouni has moved quickly to craft a vision for the NIH under his leadership. He continues to hold frequent weekly meetings with the directors of the Institutes and Centers (ICs) across the campus and has solicited suggestions for him as the new NIH Director. Dr. Zerhouni visited the NINR on August 19 for a closed discussion with Dr. Grady and a larger meeting with other key NINR staff. Part of Dr. Zerhouni's vision includes "Road Maps," a series of activities for the NIH to gather intramural and extramural researchers to document important gaps in science and to identify future directions for the next 5 years. Concepts generated in these meetings were taken to the NIH Leadership Forum over the Labor Day weekend.

In other NIH news, Dr. Zerhouni announced on September 10 the appointment of two new IC Directors. Dr. Thomas Insel was appointed Director of the National Institute of Mental Health

(NIMH), and Dr. Ting-Kai Li was appointed Director of the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Dr. Insel currently is a Professor in the Department of Psychiatry, and Director of the Center for Behavioral Neuroscience, at Emory University School of Medicine in Atlanta, Georgia. Dr. Li is a Distinguished Professor in the Department of Medicine as well as of Biochemistry and Molecular Biology at Indiana University School of Medicine in Indianapolis, where he also serves as Director of the Indiana Alcohol Research Center.

In continuing the Director's Report, Dr. Grady described a new Institute of Medicine (IOM) study on the organizational structure of the NIH, which was written into legislative language to coincide with the confirmation of the new NIH Director. The goal of this study is to determine the optimal NIH organizational structure within the context of 21st century biomedical research science. The IOM Study Committee will seek to answer several wide-ranging questions through a series of meetings with expert panels and testimonials:

- Are there general principles by which NIH should be organized?
- Does the current structure reflect these principles, or should NIH be restructured?
- If restructuring is recommended, what should the new structure be?
- How will the proposed new structure improve NIH's ability to conduct biomedical research and training, and accommodate organizational growth in the future?
- How would the proposed new structure overcome current weaknesses, and what new problems might it introduce?

Dr. Grady presented testimony on behalf of the NINR at the committee's second meeting on September 10. A previous meeting was held on July 30, and a third meeting is scheduled for November 20. The committee has heard testimony from the current NIH Director, Dr. Zerhouni, as well as from several previous NIH Directors, including Dr. James Wyngarden, Dr. Bernadine Healy, and Dr. Harold Varmus, and key NIH staff. The final report of this IOM Committee is expected to be released by the fall of 2003.

In other news, Dr. Grady reported that in January 2002 the NIH announced its Extramural Loan Repayment Program for Clinical Researchers. Applicants to the 2002 loan repayment program must hold an NIH award (e.g., F, K, R, or RSUM), with at least 2 years remaining on the award at the time that the loan repayment contract is awarded or with the institution providing assurance of support through the end of a 2-year contract. Applicants may have up to \$35,000 per year of loans paid and must agree to perform 2 years of research service. The NINR has supported three individuals in FY 2002 through the Extramural Loan Repayment Program for Clinical Researchers. This program will be reannounced annually in association with ones for pediatric research and for minority health research.

Budget Updates

Dr. Grady noted that the President's NIH budget for FY 2003, which was released on February 4, 2002, would achieve the NIH 5-year budget doubling goal established by the previous Administration beginning in 1999. The President's proposed NIH budget for FY 2003 is 15.8 percent larger than the budget for FY 2002. Approximately \$1.5 billion of the increase is directed for bioterrorism-related research.

Comparisons of NINR and NIH funding in the past two fiscal years show that the NINR received a 16.7 percent increase in FY 2001, in contrast with the 14 percent overall NIH increase. In FY 2002, the 15.4 percent increase in the NINR budget again was greater than the 14.7 percent overall NIH increase. The proposed Presidential budget for FY 2003 provides a 8.6 percent increase for the NINR as compared with an overall NIH increase of 15.8 percent. Because of set-asides for biodefense, most of the other ICs also are slated to receive 8 to 9 percent increases in their budgets.

The full Senate Appropriations Committee has endorsed the subcommittee's FY 2003 budget, which proposed a 9.4 percent increase in NINR funding, or approximately \$1 million more than the President's budget. The initial House budget bill carried the same figures as the President's budget. Once finalized, the separate House and Senate budget bills are discussed and negotiated in a conference to produce one bill that is presented to the President for approval, modification, or veto. Approval of the final budget bill for FY 2003 is pending. Budget bills for the prior two fiscal years were signed into law between the end of December and middle of January. The date on which the budget bill is signed impacts when the NIH can distribute research funds and start new programs.

Dr. Grady next discussed RPG success rates for the NINR versus the NIH as a whole. In the last few years, the success rates of competing RPGs for the NINR generally have been lower than the rates for NIH overall. The approximate RPG success rate for FY 2001 was 28 percent, and the estimated success rate for FY 2002 is expected to be approximately 25 percent. Dr. Grady pointed out that in FY 2000, when the NINR received the largest appropriation increase among all the ICs, the NINR had its highest success rate—32 percent; this rate also was slightly greater than the NIH mean. Under the President's FY 2003 budget, the NINR success rate is estimated to be 21 percent, in contrast with the NIH estimated rate of 30 percent.

NINR Updates and Outreach

Dr. Grady announced that for the first time in several years, the NINR is announcing a Small Grant Research Program, in PA-02-120, which was released on July 1, 2002. This Program Announcement (PA) solicits research in four key areas identified in the NINR Strategic Plan, including health disparities, end-of-life issues, health promotion, and symptom management. The R03 NINR Small Grant Research Program calls for the entry of promising new investigators into nursing research and encourages established investigators to enter new targeted, high-priority areas in this research field. This Small Grant R03 program supports pilot and feasibility studies, small initial studies, new areas of research for established investigators, innovative research that is likely to lead to a subsequent individual research project grant such as the R01, new methodology or technology, and secondary data analysis and meta-analysis. A solid response to this PA is expected.

On June 6-7, the NINR Office of Extramural Programs held its fourth annual retreat to help frame directions for new scientific areas and for recent science advances. Four Council members facilitated the discussions.

The NINR has released several PAs since the May NACNR meeting. These PAs focused on the research areas of informal caregiving, adolescent health promotion, community-partnered

interventions to reduce health disparities, research on clinical decision making, quality of life in mobility disorders, and quality of life and quality of care research as related to long-term care. The release of the PAs completes the approximate 15- to 18-month cycle that starts with identification of new, promising, and innovative research in the Areas of Research Opportunity discussed during each January Council meeting and progresses to the release of PAs or RFAs to solicit applications in those areas of opportunity. Dr. Grady noted that the NINR is the primary sponsor on these PAs. The NINR Web site has listings of other PAs and RFAs on which the Institute is a co-sponsor.

In other NINR news, Dr. Grady reported on NINR's support of the IOM's recently released report, "When Children Die: Improving Palliative and End-of-Life Care for Children and Their Families." The IOM Board on Health Sciences Working Group was chaired by former Council member Dr. Richard Behrman, who currently is Executive Chair of the Federation of Pediatric Organizations. Among the report's recommendations was the call to increase research resources devoted to children's end-of-life issues. Dr. Grady spoke at the July 25 IOM press conference announcing the release of the report, providing comments, and noting the recent issuance of an NINR RFA consistent with the IOM report's recommendations. The announcement, RFA-NR-03-003, is entitled "Research To Improve Care for Dying Children and Their Families." The press event and the report's recommendations received good news coverage.

Since the last Council meeting, the NINR cosponsored with the National Institute of Environmental Health Sciences (NIEHS) and the Agency for Toxic Substances and Disease Registry (ATSDR) an invitational conference, "Nursing and Environmental Health Roundtable," on August 26–27, 2002. The roundtable will report on areas for potential collaborative initiatives in environmental health nursing in research, education, and translation to practice. The NINR also sponsored the September 12–13, 2002, meeting of the Ethical Challenges of End-of-Life Research Working Group. The group was convened to define scientific opportunities in this field of research. A report summarizing the group's findings will be issued in the near future.

Several NINR-supported researchers also participated in the NCI-convened State-of-the-Science Conference on "Symptom Management in Cancer: Pain, Depression, and Fatigue," held on July 15–17. In addition, three ongoing IOM studies include nurses as a Vice Chair or study committee member, including "Work Environment for Nurses and Patient Safety," "The Roles of Academic Health Centers in the 21st Century," and "Organizational Structure of NIH."

Two additional events featuring nursing research include the State-of-the-Science Congress on September 26–28 and the FRIENDS of NINR activities on September 25. Both events will be held in the Washington, DC, area. The NINR is a cosponsor, along with nearly 20 research groups of the State-of-the-Science Congress. The focus of this year's meeting was advancing nursing practice excellence. Dr. Grady will open the Congress, which will include special recognition of Senator Daniel Inouye for his long-standing support of nursing, nursing research, and specifically military nursing research. Plenary sessions featured Council member Dr. Naylor as well as Drs. Heitkemper, Hill, and Ferrans. The FRIENDS of NINR events will be held as an adjunct to the State-of-the-Science Congress and featured a Congressional Breakfast and the annual NightinGala.

Dr. Grady summarized two training programs housed in held by NINR's Division of Intramural Activities during the summer. The Summer Genetics Institute, a 12-week, full-time academic course that includes classroom and laboratory instruction and training, was held from June 1–July 26. Dr. Grady noted that students attending the Genetics Institute increasingly have more advanced educational and experiential backgrounds prior to coming. The course may be extended beyond the initial 5-year plan-projection. The NINR also held the seventh, and final, onsite program, "Research Training: Developing Nurse Scientists," on July 16–19. The full course is now available online through the NINR Web Site. The 5-hour course can be used for review or as teaching modules; videos of the guest speakers may be purchased at cost. CEU credits are available for the online "Research Training" course; viewers can complete the course at one sitting or over a period of time.

In another NINR update, Dr. Grady reported that citations of NINR-supported science in local and national newspapers and wire services doubled between all of the year 2000 and the first 6 months of 2002 in the Lexis-Nexis database. She highlighted some of the headlines of the NINR in the news. The *Wall Street Journal* ran an article on the health risks posed by a lack of nurses that cited Dr. Linda Aiken's study of the positive effects of magnet hospitals, which maintain good staffing ratios and patient outcomes. A *New York Times* article focused on Dr. Christine Miaskowski's work on gender differences in response to pain medication. The *Washington Post* featured NINR's new \$2.5 million initiative to improve care of dying children. Research conducted by Dr. David Dinges, who studies the effects of sleep deprivation, was cited in a comprehensive article on the science of sleep in *Newsweek*. The Johns Hopkins University News Release discussed Dr. Gayle Page's research on the positive effects of the anti-inflammatory drug indomethacin, which reduced the appearance of new malignant tumors in rats after cancer surgery. *Nurse Week* featured Dr. Barbara Drew's research on improvement of heart monitors and electrocardiograms. *Nursing Spectrum* published a summary of the research of the eight speakers at NINR's 15th Anniversary Symposium. Many of these articles are available online, for example, at www.nurseweek.com and www.nursingspectrum.com.

Dr. Grady also highlighted a new project, "Making a Difference," designed to present NINR-supported science that has made a difference in practice. NINR Senior Consultant Dr. Ellen Rudy has taken the lead in developing this project, which she discussed in further detail later in the meeting.

In NINR staff news, Dr. Grady announced the appointment of Dr. Donna McCarthy, Professor, University of Wisconsin-Madison, as an adjunct investigator in the NINR Division of Intramural Research. Dr. McCarthy's research interests focus on understanding anorexia and weight loss as a human response to illness or injury. In the NINR intramural laboratory, she will pursue the study of the interaction of phospholipids, including prostaglandin E₂, and cytokines in weight loss and muscle wasting that occurs with progressive or metastatic tumor growth. Dr. Grady also announced the departure of Dr. Ann Knebel, who had served as the Program Director for the End-of-Life Portfolio. As an officer in the commissioned corps of the U.S. Public Health Service, Dr. Knebel was transferred to the DHHS Office of the Assistant Secretary for Public Health Emergency Preparedness, with an immediate detail to Brooklyn. Dr. Grady noted Dr. Knebel's significant contributions to the NINR, particularly in developing the NINR End-of-Life Portfolio and the Trans-NIH End-of-Life interest group.

Dr. Grady closed her report by noting that the NINR extramural staff recently moved from the Natcher Building on the NIH campus to newly renovated space at One Democracy Plaza, also in Bethesda and just a few miles off campus. Relocation of staff in the Office of Extramural Programs, the Office of Grants and Contracts Management, and the Office of Review is completed. Council members toured the new facilities at the end of the first day of the NACNR meeting.

III. REMARKS OF THE NIH DIRECTOR (Dr. Elias Zerhouni, Director, NIH)

Dr. Zerhouni identified the two primary issues facing the NIH as strategic planning for the NIH once the doubling of the budget occurs at the end of FY 2003, and accounting for this investment to the American public and Congress. To begin to address these issues, Dr. Zerhouni is asking each IC Advisory Council to develop a vision of how the new monies may be used over the next 10 years. As NIH Director, Dr. Zerhouni then considers trans-NIH research directions based on the concepts and ideas generated by each IC. He began this evaluation process over the summer by soliciting input from the community to identify key impact areas for the NIH, that is, areas where neither a single IC would have an impact nor an institution outside the NIH could fully resolve a particular research problem. Dr. Zerhouni noted that the NIH already has a strong foundation for a multidisciplinary approach to answering basic research and significant public health questions, as evidenced by the many well-established collaborations across the ICs.

The challenge to the NINR as one of the crosscutting institutes that is not focused on one disease is that the Institute must encompass the entire nursing research agenda. Thus, ICs such as the NINR and the NCMHD are, to a great extent, responsible to the entire NIH. Because of the functional nature of the NINR, nursing research therefore permeates all ICs. Managing this challenge is the purview of the Director, with guidance from the advisory councils. Dr. Zerhouni suggested that IC Advisory Councils consider interacting with each other or establish liaisons to facilitate communication between the councils.

Questions/Comments

Dr. Zerhouni responded first to a general question raised by essentially all advisory councils about which Institutes, if any, may be merged based on the recent IOM study on the organizational structure of the NIH. He commented that Dr. Harold Shapiro, Chair of the committee to study this issue, is very open to all comments and suggestions and that no mergers are planned at this point.

In responding to how the Council can best assist him, Dr. Zerhouni offered several suggestions:

- Explain to the public how the taxpayers' investment in the NIH and, in turn, the NINR, has benefited and will likely benefit Americans' health. Identify what the NINR has accomplished through the doubling of the NIH budget that otherwise could not have been done. Identify specific examples of how public health has been impacted.
- Develop a compelling vision for nursing research with a measurable impact to present to the American public, and provide leadership for that vision.

- Promote dynamic management of the NINR research portfolio. This is particularly relevant, given new and emerging national research and public health priorities, a changing economic landscape, a possible war, and other issues.
- Be an advocate for the NINR and the NIH; significant opportunities exist for biomedical research. Identify what the Council would like the NIH Director to convey as the strategic mission of the NIH as well as of the NINR. Dr. Zerhouni added that the NIH is not as well or as extensively recognized as it should be, compared with, for example, the CDC or NASA.

What areas need or have the greatest room for improvement with respect to efficiency? Dr. Zerhouni commented that within a complex organization such as the NIH, there is always room for improved efficiency, and the Director's Office is examining this issue closely and aggressively. One area being assessed is synergies between different functions and programs across all of the ICs. For example, how well coordinated and organized is the clinical research infrastructure throughout the country? Do NIH programs efficiently use the information gathered in all trials so that the greatest amount of data is gleaned from these studies and future studies are more easily designed, launched, and analyzed? Each trial currently requires, for example, a new structure and a new research team, but this strategy may not provide the most efficient or effective way of approaching a problem. An overarching research question that needs to be explored further is whether access to enabling large-scale research technologies is a barrier for the conduct of science at the NIH. Dr. Zerhouni used the analogy of identifying the weakest links in these systems to improve efficiency in clinical research. He noted that national coordination of a variety of issues, including the clinical research infrastructure, is one of the "Road Maps" issues. It was noted that core resource systems, such as the P20s and P50s, should be considered for further development nationally, at all levels, from the research itself through, for example, delivery systems.

With respect to a vision for how the science at the NIH might proceed in the areas of emphasis, Dr. Zerhouni noted that although this question encompasses many significant aspects of research, trends are evident. For example, discovery is essential to move any area of research forward. The research community currently does not have a profound understanding of the complexity and regulation of biological systems to have truly targeted gene therapies. Genomics and postgenomics research and reverse engineering are some of the paths to this goal, however. Another step in this process is the effective translation of basic scientific discoveries to clinical practice, which can be improved upon and streamlined greatly. Dr. Zerhouni also underscored the importance of continuing to address "pipeline" issues to attract and retain students and investigators in the biological as well as nonbiological sciences. What are the cultural and organizational factors that transcend science and influence this pipeline?

The NINR has a rich and diverse portfolio of interventional research that is directed toward primary health care issues facing society. However, presenting this portfolio remains a challenge. Is the NIH considering any organizing framework, such as *Healthy People 2010*, into which each IC can integrate and through which this information can be disseminated to the public? Dr. Zerhouni replied that this is one of the issues he is discussing with the IC directors. In addition to being an important exercise for the NIH, the Institute also needs to respond to the Administration's and Congress' requests for information about the NIH portfolio. NIH-supported research clearly has an impact on practice and on public health, and it is important for the Institutes to identify and measure these outcomes and to disseminate them to the Nation.

Dr. Zerhouni closed his discussion by expressing his appreciation for the diversity of views and questions posed by the Council and for the time and contributions of the Council members. He then pointed to two factors that he believes clearly define the NIH: The peer review process and the contributions of 21,000 expert and renowned scientists, advocates, policymakers, and others who volunteer their time and offer their advice to the institution.

IV. COMMUNICATING RESEARCH RESULTS: UPDATE OF THE NINR “MAKING A DIFFERENCE” SERIES (Dr. Ellen Rudy, NINR Senior Consultant)

A new project, the “Making a Difference” series, seeks to document how nurses use NINR-supported research findings for the benefit of patients in the practice arena and how NINR-funded investigations meet NINR’s mission. In spearheading this project, Dr. Rudy reviewed the results of NINR’s major research projects to identify studies that exemplify NINR-supported science that has made a difference in practice. She presented summaries of 15 NINR-funded projects that demonstrate how nursing research is working to improve the health of the Nation’s population and enhance patient care in many areas of concern across the lifespan. These projects included:

- **Behavioral Intervention for Children and Adolescents With Diabetes.** NINR-funded research has found that Coping Skills Training (CST) improves metabolic control of glucose in this population. More than 100 practices that manage the care for teenage diabetics have requested and incorporated the CST manual and guidance developed from this study into their routine care.
- **Advanced Practice Nurses (APNs).** Spanning a range of medical issues and vulnerable populations, several NINR-funded studies have demonstrated that the use of APNs to deliver complex, competent care improves patient outcomes and reduces health care costs.
- **End-of-Life Care.** Family stress is markedly lower in families whose loved ones had a written advance directive than in families whose loved ones did not have an advance directive. Reduction in stress occurs in families with loved ones in acute care settings as well as with a terminal illness. The findings of this research have been incorporated into the Robert Wood Johnson Foundation “Last Acts” campaign and are being adopted by nursing home settings in Oregon and across the country through the use of the Physician Order for Life-Sustaining Treatments (POLST).
- **Reducing HIV Sexual Risk Behavior.** Innovative, culturally sensitive interventions, including one-on-one counseling and small-group interventions, change behavioral beliefs and behaviors among at-risk African American and Latino youth. The CDC has selected three of the interventions for use as model curricula in its Division of Adolescent and School Health.
- **Lead Awareness in North Philly.** A novel community-based program that engaged adults, children, and adolescents through a variety of activities increased lead awareness and reduced the risks of lead poisoning in urban youth. The NINR-funded study received the National Environmental Education Achievement award for its work.
- **Making the Patient a Partner in Care.** A program for transplant patients that helps them “take charge” of their care and manage their lives better resulted in fewer post-transplant symptoms, fewer adverse events requiring hospitalizations, and a return to employment or in-training for employment in 73 percent of participants in the program. This program has been

incorporated into the care for all transplant patients at the University of Tennessee Health Science Center.

- **Neurotoxicity in Treatment of Acute Lymphoblastic Leukemia (ALL).** Standard therapies for ALL, triple intrathecal chemotherapy and/or whole-brain radiation, adversely affect cognitive and academic abilities and behavioral and social adjustment problems in children receiving these treatments. These findings have led to a change in treatment with intrathecal methotrexate alone, except in children with very high-risk disease and continued study of the long-term outcomes of all treatments and of interventions to lessen the negative effects of therapy.
- **Urinary Incontinence.** NINR-funded research has shown that pelvic muscle training, scheduled voidings for cognitively impaired persons, and bladder training for ambulatory patients and elderly rural women can significantly reduce urinary incontinence without surgery or medication. These approaches are being incorporated into practice in long-term and community-based care as well as into the nursing curriculum.
- **Proper Gastric Tube Placement.** Measuring the pH of secretions aspirated from feeding tubes markedly improves the accuracy of the placement of these tubes. The results of these investigations have changed the standard practice of care for placement of gastric tubes.
- **Detecting Myocardial Ischemia Through Continuous ST Segment Monitoring.** This research demonstrated that any patient with ST segment elevation or depression is much more likely to have an adverse outcome than a patient without any ST segment monitoring. As a result of this finding, changes in the placement and number of leads used to monitor patients have been implemented. In addition, paramedics working with ambulance companies in the San Francisco area now do ST segment monitoring rather than checking for arrhythmias.
- **Neurobehavioral Effects of Chronic Sleep Deprivation.** Studies in healthy adults documented marked declines in memory and alertness and significant increases in fatigue with chronic sleep deprivation and showed that sleep recovery took longer when done during the daytime hours than at night. The findings of this research have contributed to the Accreditation Council on Graduate Medical Education's setting new rules to reduce to 80 the number of on-call hours that medical residents can work each week and to require 10 hours between shifts.
- **Caregiving at Home for Technologically Dependent Adults.** This NINR-supported research validated the effectiveness of three interventions for caregivers of competent adults at home with life-sustaining technology. These included use of aseptic techniques by caregivers (e.g., hand washing), use of a depression diary and coping skills to deflect or reduce reactive depression among caregivers, and use of algorithms and interventions that can be accessed through telehealth and the Internet. This model for affecting positive outcomes is undergoing further testing.
- **Nurse Staffing and Patient Outcomes in Dedicated AIDS Units and Magnet Hospitals.** Early NINR-funded investigations showed the positive impact of dedicated AIDS units with a dedicated physician specialist, versus delivery of care across various hospital departments and staffs, on nursing staffing, organization of care, and patient outcomes (i.e., reduced mortality and morbidity). More recent studies have confirmed lower burnout rates, higher job satisfaction, and better nurse-rated patient care in magnet-designated hospitals.
- **Reductions in Preterm and Low Birth Weight Babies in Older African American Women.** Simple interventions, including a personal visit by a nurse and free followup telephone consultations with a nurse, reduce the likelihood of preterm and low birth weight babies in low-

income African American women who are at least 19 years old. This research builds on the success of interventions on reducing risk for very low birth weight infants in certain groups.

- **Community-Based Spanish Language Arthritis Education.** Self-management interventions and the translation of seven instruments to measure outcomes into Spanish were tested in person, over the telephone, and via mailed questionnaires. All seven tools have been published and are available for widespread use.

Dr. Rudy commented that these summaries are just a sampling of how NINR-funded investigators are meeting the mission goals of the Institute. However, clear barriers exist that keep the public from knowing about and understanding nursing research findings and their impact on public health. First, nurse scientists and the nursing research community need to increase efforts to ensure that findings appear in lay journals, the media, on the Internet, and in other public venues. Second, because the academic community does not formally recognize the translation of such findings to the public, the research community as a whole has not prioritized outreach to the consumers.

Additional information on the “Making a Difference: Research Affecting Practice” series may be found at: <http://www.nih.gov/ninr/news-info/Rudyshow2.pdf>

V. REPORT ON THE RECENT NINR WORKSHOP: INCREASING NURSING RESEARCH OPPORTUNITIES IN BIODEFENSE (Dr. Joan Shaver, Council Discussant)

Dr. Shaver reported on the NINR Spring Science Workgroup meeting, “Increasing Nursing Research Opportunities in Biodefense,” which was held on May 14–15, 2002. The meeting was chaired by Drs. Hilary Sigmon and Elaine Larson. Dr. Grady presented the charge to the workgroup, which was to highlight current knowledge in biodefense, uncover opportunities for nursing research in biodefense, and propose research questions to address clinical responses and biobehavioral consequences after exposure to chemical and biological agents.

The NIH–NIAID Strategic Plan, based on the President’s budget, calls for spending \$1.75 billion on biodefense in FY 2003, as compared with an estimated \$274.5 million in FY 2002. Funds will support two major areas of study: basic research into microbes and specific and nonspecific host defense mechanisms, and applied or translational research with predetermined milestones and the production of new and improved diagnostics, vaccines, and therapies. Primary toxic biologic threats, as classified by the CDC, include category A agents, such as smallpox and anthrax; category B agents and conditions, such as toxic shock syndrome and brucellosis; and category C agents that represent emerging threats, such as the Nipah virus and hantavirus.

Presentations on basic research for biodefense highlighted key areas for further investigation, including the development of rapid infection diagnostic methods (e.g., from pulmonary pathogens), identification of biomarkers for microorganisms or chemicals and their effects, and the development of broad-spectrum countermeasures against pathogens (e.g., vaccines, factors to activate innate immunity, small molecule antibiotics). Dr. Shaver noted that the last area is being explored by the Defense Advanced Research Projects Authority, which appears to take a unique approach to pursuing this field of research and identifying solutions.

Another series of presentations focused on biobehavioral studies related to or that may be applied to biodefense, including the reaction of children to trauma; the impact of stress, sleep, exercise, and overall health on response to trauma or a bioterror threat; and the physiologic, immunologic, and psychosocial changes that occur post-trauma.

Dr. Shaver stated that a considerable portion of the workgroup's discussion centered on strategies to strengthen the infrastructure and responsiveness to biodefense. Among the issues raised were the planning and response capacities of hospitals and public health facilities, identifying health professional competencies, and facilitating mass-casualty education for clinicians. The group also discussed establishing postdoctoral programs in infectious diseases and infection control and incorporating biodefense issues into institutional training awards and centers supported by the NINR.

The issues and topics presented and discussed can be applied to a wide scope of research areas, as outlined by Dr. Shaver. These broader research areas include mechanisms and effects of toxic agents, early detection and treatment, biobehavioral outcomes related to living under threats or having been exposed to biological or chemical agents, evaluation of biodefense readiness, and bioethical issues of access and application. Preparing doctoral level nurse scientists to pursue biodefense research may involve increased emphasis on different aspects of clinical science, such as infectious diseases and infection control; systems science for public health preparedness, such as epidemiology and surveillance and model testing; and translational science, such as learning and behavioral change, action research, and community capacity building.

Papers based on the Spring Biodefense Workshop Workgroup will be published in the *Journal of Infection Control and Biological Research in Nursing*. An Executive Summary is posted on the NINR website at <http://www.nih.gov/ninr/news-info/pubs/biodefense.pdf>

Questions/Comments

Colonel Schempp applauded the NINR for being proactive in this area of research and for bringing a diverse, civilian perspective to this field. She pointed out that the uniformed services have proactive parallel tracking of the issues raised in Dr. Shaver's presentation. Dr. Schempp suggested that consideration should be given to bringing together the various groups and agencies studying these issues to identify common areas of research and to share their expertise.

VI. NINR RESEARCH AND TRAINING ACTIVITIES: DIVISION OF INTRAMURAL RESEARCH (Dr. Mindy Tinkle, Program Director for Intramural Research and Training)

Dr. Tinkle highlighted activities in three areas of NINR's Intramural Division: recent research training programs, intramural research training grants (K22s), and the NINR Symptom Management Laboratory. She also outlined future directions for intramural programs.

Research Training

The seventh annual "Research Training: Developing Nurse Scientists" was held on July 16–19 on the NIH campus. This program is for nurses who have never held an R-series grant. It provides information about the NIH and grantsmanship, and offers practical skills for advancing a scientific

career. Approximately 280 nurses from schools around the country have attended this research training activity during the 7 years that the NINR has hosted the program. Forty nurses from 35 institutions attended this summer's program; most were in their early research careers and held an assistant professor position. Dr. Tinkle noted that as part of the evaluation of the impact of this program, the NINR tracks the Federal funding history of all participants. Data indicate that 16 percent of nurses who completed the 2001 course have an R-series grant from the NIH. The average time from completion of the course to receipt of an award is 17 months.

This summer was the final in-residence offering of the "Developing Nurse Scientists" program, which is now available online at the NINR Web Site. Since launching the online training course in April 2002, approximately 500 persons have enrolled to take the course. The online program includes supplemental videos of selected speakers, offers a message board for enrollees, and may be taken for CEU credits. A video version of the complete program is available for purchase. A Level II course, "Advancing Your R01 Into a Program of Research," is in development and will be pilot tested at SNRS in February 2003.

The NINR also sponsored the third annual Summer Genetics Institute (SGI), an intensive 2-month research training course held on campus in June and July. The goals of the SGI are to develop and expand the research capacity in genetics, expand the basis for clinical practice, and build the infrastructure for incorporating genetics into nursing research. The curriculum includes a series of lectures, case studies, seminars, laboratory experiments, and special activities. The course explores a range of legal, ethical, and policy issues in genetics. One component of the program includes preparing an in-depth research proposal. Forty-six nurse researchers have graduated from the SGI thus far. Enrollees have included faculty, particularly assistant professors, graduate students, and APNs (advanced practice nurses). Outcome data show that within the first 16 months after completing the training, graduates of the 2001 course have produced 24 papers with a genetics theme that have been published or accepted for publication; additional increased efforts have been reported for grant-related and -generating activity. Second-year followup data are expected to be even stronger. Dr. Tinkle noted further that many of the graduates are effecting change in nursing curricula across the country, signaling a fundamental change in the training that nursing students receive. Applications for the Summer 2003 SGI will be available in December and are due by March 3, 2003.

Intramural Research Training Grants

Another training opportunity offered by the NINR Intramural Program is the Career Transition, or K22, Award. K22 awards allow for up to 3 years of mentored training in an intramural laboratory on the NIH campus and then move to an extramural institution as an independent researcher with up to 2 additional years of support. Recipients are expected to continue their research with an R01 after funding of the K22 has ended. The RFA for the K22 may be found at <http://grants1.nih.gov/grants/guide/rfa-files/RFA-NR-03-002.html> Applications in response to this solicitation must be received by December 16, 2002.

Two current K22 awardees in the intramural phase of the program are Dr. June Lunney and Dr. Susan Dorsey. Dr. Lunney is investigating pathways of functional decline before death, and is examining the clinical utility of four trajectories to death using data from large prospective,

population-based studies. Dr. Lunney's research activities are being conducted in collaboration with the National Institute of Aging (NIA). Dr. Dorsey is studying the underlying biological mechanisms of memory loss with a focus on neuronal death in the hippocampus. Her research training plan is aimed at developing skills in cutting-edge genomic methodologies, including knockout and transgenic animal models. Dr. Dorsey's research collaboration is with the NCI.

Symptom Management Laboratory

Dr. Donna McCarthy recently began her tenure as an Adjunct Investigator of the Symptom Management Laboratory. Dr. McCarthy's area of research interest is in the biological mechanisms of tumor-induced cachexia, with a focus on the interaction of cytokines and prostaglandins in the development of tumors and cachexia in animal models. An ultimate goal of this research is to develop therapeutic interventions for persons with these conditions.

Future Directions

Future activities for NINR's research training programs include the SGI 2003, development and pilot-testing of the Level II course for the "Developing Nurse Scientists" training, the development of a biobehavioral measurement research course, and continuation of the K22 mechanism. The NINR also plans to expand opportunities in the symptom management laboratory.

In closing, Dr. Tinkle noted that the NINR will be hosting a Nursing and Genetics Meeting on Sunday, April 13, 2003. She pointed out that April 2003 marks the 50th anniversary of the discovery of DNA double helix. The meeting will focus on recent genetics advances in honor of this discovery and dovetails with many events and activities sponsored by the National Human Genome Research Institute.

VII. REVIEW OF EVALUATION PLANS FOR NINR TRAINING ACTIVITIES

(Dr. Carole Hudgings, Assistant Director, Division of Extramural Activities)

Support for nurse research training at all levels of education and experience is a high priority for the NINR. Dr. Grady pointed out that the NINR spends approximately twice the percent of budget on training activities as do other ICs. Part of the Institute's commitment to these efforts involves evaluation of NINR's training programs. Results of the current evaluation will be presented in January 2003.

The primary purposes of the training programs' evaluation are to inform the NINR strategic planning designed to train nurses for research careers and to provide information that is useful in planning and improving research training programs for nurse scientists. The evaluation also contributes to NINR's accountability of its investment in nursing research.

Dr. Hudgings noted that in FY 2001, approximately 8 percent of the NINR budget was devoted to research training activities and programs. This level has held constant for the past decade. The NINR currently offers two main mechanisms to support training of nurse scientists: National Research Service Awards (NRSA), and the Mentored Research Scientist Development Award Program, also referred to as K series awards. NRSA funds predoctoral and postdoctoral training

grants/fellows. Awards to individuals include the F31 (for predoctoral fellows) students, F32 (postdoctoral fellows), and F33 (senior scientist investigators). The T32 is an institutional NRSA award made to a college or university; the institution then supports pre- and postdoctoral students in a particular area of research. Dr. Hudgings noted that F33s comprise a very small portion of the NRSA and were not included in the current evaluation. Three career development mechanisms of support---the K01, K07, and K08 ---are included in the current evaluation.

Five overarching questions guide the evaluation:

- What training support trajectories (i.e., which mechanism, duration of support) are used by the individuals supported by these awards?
- What are the outcomes (e.g., publications, subsequent funding) for pre- and postdoctoral and research career development for each of the trajectories?
- What is the pattern of NINR funding for pre- and postdoctoral training at T32 versus non-T32 institutions?
- What are key research training characteristics of institutions for typical trajectories?
- Are trajectories and outcomes similar to those in the Pion Study, which evaluated all of NIH's research training programs?

The evaluation is a descriptive study that covers the 10-year period from 1992 to 2001, except where noted. Primary data sources include NIH databases, grant files, and schools of nursing. The study population includes individuals as well as institutions.

Dr. Hudgings described results generated thus far. Data on the total number of annual fellowships supported by the NINR clearly favor individual awards in the first years of the Institute (i.e., from 1986 into the early 1990s). Since 1994, however, the number of individuals supported by institutional grants has exceeded the number supported by individual grants. In FY 2001, 250 fellows awards were supported; of these, 99 were individual awards, and 151 were institutional fellow awards. A similar trend is observed for predoctoral research funded through individual versus institutional awards. In FY 2001, 94 individual predoctoral awards were made, and 88 institutional fellows were supported. In contrast, the vast majority of postdoctoral fellowships are supported by institutional grants. In FY 2001, of 68 postdoctoral fellowships, 63 were from institutional training awards. Dr. Hudgings pointed out that during NINR's 15-year history, there has been a preponderance of support at the predoctoral level, with some gain in the proportion of postdoctoral awards in the past few years. In FY 2001, the NINR funded 182 predoctoral and 68 postdoctoral fellows.

Following Dr. Hudgings' presentation, Dr. Grady adjourned the open session of the meeting and thanked those in attendance for their participation. Council members then departed for a tour of NINR's new off-campus offices.

CLOSED SESSION

This portion of the meeting was closed to the public in accordance with the determination that this session was concerned with matters exempt from mandatory disclosure under Sections 552b(c)(4)

and 552b(c)(6), Title 5, US Code, and Section 10(d) of the Federal Advisory Committee Act, as amended (5, USC Appendix 2).

Members absented themselves from the meeting during discussion of and voting on applications from their own institutions or other applications in which there was a potential conflict of interest, real or apparent. Members were asked to sign a statement to this effect.

REVIEW OF APPLICATIONS

The members of the NACNR considered 378 research and training grant applications requesting \$91,053,312 in direct costs. (Data obtained from IMPAC II / QVR on January 22, 2003; includes all primary and dual applications; excludes F31, F32, F33 applications.)

ADJOURNMENT

The 48th meeting of the NACNR was adjourned at 12:15 p.m. on September 18, 2002.

CERTIFICATION

I hereby certify that the foregoing minutes are accurate and complete.

Patricia A. Grady, Ph.D., R.N., F.A.A.N.
Chair
National Advisory Council for Nursing
Research

Mary D. Leveck, Ph.D., R.N.
Executive Secretary
National Advisory Council for Nursing
Research

MEMBERS PRESENT

Dr. Patricia A. Grady, Chair
Dr. Mary Leveck, Executive Secretary
Dr. Peter Buerhaus
Dr. Louis Burgio
Dr. Margarethe Cammermeyer
Dr. Jacqueline Dunbar-Jacob
Dr. Stephanie Ferguson
Dr. Margaret Grey
Dr. Daniel Hanley
Dr. Rosanne Harrigan
Dr. Mary Naylor
Dr. Carmen Portillo
Dr. Dorothy Powell
Dr. Dolores Sands
Dr. Joan Shaver

Dr. David Ward
Dr. Betty Smith Williams
Dr. Catherine Schempp (Colonel), Ex Officio

MEMBERS OF THE PUBLIC PRESENT

Dr. Doris Bloch, Windows on Nursing
Dr. Patti Brennan, University of Wisconsin – Madison
Dr. Debbie Campbell, AACN
Ms. Mary Cerny, The Scientific Consulting Group, Inc.
Dr. Betty Jordan, Johns Hopkins University
Dr. Mary Sue Heilemann, UCLA
Ms. Cynthia Renn, University of Maryland
Dr. Renee Milligan, Georgetown, Johns Hopkins University SON
Dr. Cindy Munro, Virginia Commonwealth University (VCU)
Dr. Rita Pickler, VCU
Dr. Linda Pugh, Johns Hopkins University
Dr. Inez Tuck, VCU

FEDERAL EMPLOYEES PRESENT

Dr. Nell Armstrong, NINR/NIH
Dr. Yvonne Bryan, NINR/NIH
Ms. Linda Cook, NINR/NIH
Ms. Janet Craigie, NHLBI/NIH
Ms. Genevieve deAlmeida-Morris, NINR/NIH
Dr. Susan Dorsey, NINR-NCI/NIH
Ms. Ana Ferreira, NINR/NIH
Ms. Kay Johnson Graham, NINR/NIH
Ms. Robin Gruber, NINR/NIH
Dr. Margaret Hare, NINR/NIH
Mr. Lawrence Haller, NINR/NIH
Dr. Karin Helmers, NINR/NIH
Dr. Carole Hudgings, NINR/NIH
Ms. Shirley LaBella, NINR/NIH
Dr. June Lunney, NINR-NIA/NIH
Dr. Donna McCarthy, NINR/NIH
Ms. Cindy McDermott, NINR/NIH
Dr. Gertrude McFarland, CSR/NIH
Mr. Daniel O'Neal, NINR/NIH
Dr. Janice Phillips, NINR/NIH
Mr. Eddie Rivera, NINR/NIH
Mr. William Rosano, NINR/NIH
Dr. Ellen Rudy, NINR/NIH
Ms. Christian Shaw, NINR/NIH
Dr. Hilary Sigmon, NINR/NIH

Ms. Arlene Simmons, NINR/NIH
Dr. Mindy Tinkle, NINR/NIH
Dr. Claudette Varricchio, NINR/NIH
Mr. Mark Waldo, NINR/NIH