DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL CENTER FOR RESEARCH RESOURCES

NATIONAL ADVISORY RESEARCH RESOURCES COUNCIL
MINUTES OF MEETING
JANUARY 18, 2001

The National Advisory Research Resources Council (NARRC) convened for its 117th session at 8:00 a.m. on Thursday, January 18, 2001, with a meeting of the Executive Subcommittee held in Conference Room 3B13, Building 31. The full NARRC convened at 9:15 a.m. in Conference Room 10, Building 31. Dr. Judith L. Vaitukaitis, Director, National Center for Research Resources (NCRR), National Institutes of Health (NIH), presided as Chair. The meeting was open to the public until 1:30 p.m, at which time it was closed to the public for the review, discussion, and evaluation of grant applications as provided in Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code, and Section 10(d) of Public Law 92-463.[1] At 3:00 p.m., the meeting reopened to the public until adjournment at 3:30 p.m.

COUNCIL MEMBERS PRESENT

Dr. Joseph D. Andrade
Dr. Kenneth I. Berns
Ms. Catherine D. Bertram
Dr. Delwood C. Collins
Dr. Muriel T. Davisson
Dr. Robert J. Desnick
Dr. Chien Ho
Dr. Michael M.E. Johns
Dr. Peter G. Katona
Dr. Peter O. Kohler
Dr. Evangelia G. Kranias
Dr. William R. Morton
Dr. Diana S. Natalicio
Dr. Judith L. Swain
Dr. Donald E. Wilson
Dr. James H. Wyche
Dr. Machi F. Dilworth
Liaison Member, NSF
Lt Col Alfred S. Graziano Jr., USAF
Ex-Officio, DOD
Dr. Roland F. Hirsch
Liaison Member, DOE
Dr. William W. King
Ex-Officio, VA

COUNCIL MEMBERS ABSENT

Dr. Peter A. Kollman
Dr. Burton A. Weisbrod

[1]For the record, it is noted that to avoid a conflict of interest, Council members absent themselves from the room when the Council discusses grant applications from their respective institutions or when a conflict of interest (COI) may occur. Members are asked to sign COI statements. This does not apply to "en bloc" actions.

SPECIAL INVITED GUESTS FOR OPEN SESSION

Dr. Sally S. Atherton, Professor and Chair, Department of Cellular Biology and Anatomy, Medical College of Georgia, Augusta, Georgia
Dr. James E. Heubi, Professor of Pediatrics, Clinical Research Center, Children's Hospital Medical Center, University of Cincinnati School of Medicine, Cincinnati, Ohio
Dr. Thomas J. Kuehl, Reproductive Physiologist, Scott & White Clinic, Texas A&M University, Temple, Texas
Dr. Tilahun D. Yilma, Director and Professor of Virology, International Laboratory of Molecular Virology for Tropical Disease Agents, School of Veterinary Medicine, University of California, Davis, California

STAFF OF OTHER NIH COMPONENTS

Dr. Nancy Lamontagne, CSR/NIH
Dr. Marta Leon-Monzon, OAR/OD/NIH
Dr. Janet Nelson, CSR/NIH
Dr. Mike Radtke, CSR/NIH
Dr. Gopa Rakhit, CSR/NIH
Dr. Narayani Ramakrishnan, CSR/NIH

OTHERS PRESENT

Ms. Adwoa Boahene, *The Blue Sheet*, Chevy Chase, Maryland
Ms. Pam Ferguson, Regional Primate Research Center, University of Washington, Seattle, Washington
Mr. Steve Heinig, Senior Staff Associate, Division of Biomedical and Health Sciences Research, Association of American Medical Colleges,Washington, D.C.
Ms. Joyce McDonald, OSPPL Staff (future)
Ms. Chris Peterson, SRI International, Menlo Park, California
Mr. Bradley Smith, Legislative Assistant, Office of Legislative & Government Affairs, American Chemical Society, Washington, D.C.

OPEN PORTION OF MEETING

I. Call to Order
Dr. Judith Vaitukaitis, Director, NCRR

Dr. Vaitukaitis welcomed NARRC members and guests to the 117th meeting of the Council. She announced that Council members Dr. Peter Kollman and Dr. Burton Weisbrod would not be able to attend. She introduced Council member Dr. Diana Natalicio, President of the

University of Texas at El Paso. Four new members, appointed by Secretary Donna Shalala, will attend the May 2001 Council meeting. The new members are: Dr. Stephen W. Barthold, Professor of Pathology and Director of the Center for Comparative Medicine, School of Veterinary Medicine, University of California, Davis; Dr. Eon Nigel Harris, Dean and Senior Vice President for Academic Affairs, Morehouse School of Medicine; Dr. Gwen A. Jacobs, Associate Professor of Neuroscience in the Department of Cell Biology and Neuroscience and Co-Director of the Center for Computational Biology, Montana State University; and Dr. Monte Westerfield, Professor of Biology and Director of the Zebrafish International Resource Center, Institute of Neuroscience, University of Oregon.

Dr. Delwood Collins, Dr. Muriel Davisson, Dr. Peter Katona, and Dr. Donald Wilson are retiring from Council. Dr. Vaitukaitis acknowledged their invaluable service to the Advisory Council and thanked them collectively on behalf of NCRR staff and grantees.

II. Consideration of Minutes

The minutes of the September 7, 2000, NARRC meeting were approved as written.

III. Future Meeting Dates

Dr. Vaitukaitis announced that the next NARRC meeting will be held on Thursday and Friday, May 17 and 18, 2001. A one-day meeting is under consideration, and Council members will be notified as soon as a decision is made.

IV. Personnel Update

Dr. Vaitukaitis announced personnel changes at the Department of Health and Human Services (DHHS) and NIH. DHHS Secretary Donna Shalala will assume a new position as President of the University of Miami. Dr. Vaitukaitis indicated that during the Secretary's tenure at DHHS, she had worked diligently to reinvigorate the scientific leadership and increase funding at DHHS. Since 1993, the NIH budget has increased by nearly 75 percent, up $4.2 billion in the last three years. In addition, Dr. David Satcher has been invited to stay as Surgeon General. Dr. William Raub has been named as the DHHS Acting Director of the Planning and Evaluation Office.

Dr. John Ruffin was sworn in on January 6, 2001, as the first Director of NIH's newly established National Center on Minority Health and Health Disparities. He previously headed the NIH Office of Research on Minority Health. Dr. Paul Sieving from the University of Michigan Kellogg Eye Center has been selected as the new Director of the National Eye Institute; Dr. Carl Kupfer recently stepped down from that position but will be staying on to complete his clinical research activities. Dr. Jack McLaughlin will be acting director until

Dr. Sieving joins the Institute in the spring. Dr. Raynard Kington from the Centers for Disease Control and Prevention has been appointed as the Associate Director of NIH's Office of Behavioral and Social Science Research.

Dr. Vaitukaitis also announced recent NCRR personnel actions as follows: Dr. Inese Beitins, former Associate Director of the Clinical Research area, took a position at the Office of Human Research Protection at DHHS. Dr. Louise Ramm is serving as Acting Associate Director of this area while a national search for a replacement is underway. Dr. Rebecca Fuldner of the Office of Review left NCRR to join the National Institute on Aging. Dr. John Harding of the Office of Review has moved to the Comparative Medicine area as the newest Health Scientist Administrator. Dr. Sheryl Brining of NIH's National Center for Complementary and Alternative Medicine has joined the Office of Review as a Scientific Review Administrator. Dr. Douglas Sheeley, formerly a research investigator with Glaxco-Wellcome Research and Development, has joined the Biomedical Technology area as a Health Scientist Administrator. Dr. Michael Chang, formerly a staff scientist at the National Institute on Aging, has joined the Comparative Medicine area as a Health Scientist Administrator.

V. Legislative Update

Dr. Vaitukaitis directed the Council's attention to the Legislative Update that summarizes recent Federal legislative activity affecting NIH, including the Chimpanzee Health Improvement, Maintenance, and Protection Act (Public Law 106-551); and the Public Health Improvement Act (Public Law 106-505), which contains Title II–Clinical Research Enhancement and Title III–Research Laboratory Infrastructure.

VI. Budget Update

Dr. Vaitukaitis reported that the final NIH Appropriations bill for 2001 was included in an omnibus bill covering several agencies and was passed in mid-December. The NIH level for FY 2001 is about $20.3 billion, a 14 percent increase over FY 2000. The NCRR appropriation is $817.3 million, or a 21.2 percent increase over FY 2000. An across-the-board reduction was included in the Appropriations bill, but it has not yet been distributed.

Final approval has not been given for the distribution of the NCRR budget, however, the conference bill language included $75 million for the extramural construction program, which was $2.5 million more than FY 2000. It also included $100 million for the Institutional Development Award Program, which is a $60 million increase over last year. If that portion is subtracted, the NCRR adjusted increase is 14 percent, essentially the same as the overall NIH increase.

NCRR's rate of increase was 23 percent in FY 1999, 23 percent in FY 2000, and 21 percent in FY 2001.

VII. Sharing Biomedical Research Resources
Dr. Maria Freire, Director, Office of Technology Transfer, OD/NIH

Dr. Freire is responsible for the development and implementation of technology transfer policies and procedures, and for patenting and licensing the services of major agencies in the U.S. Public Health Service. She discussed the problems associated with sharing biomedical research resources and summarized the current NIH policy.

Many scientists and institutions involved in biomedical research have been frustrated by growing difficulties and delays in negotiating the terms of access to research tools. NIH has a strong interest in facilitating the use of research tools and materials in biomedical research in both the public and private sectors. It also has a strong interest in promoting the commercial development and widespread availability of discoveries made in the course of NIH-funded research. In addition, because of the nature of research, one institution's research tool may be another institution's end product. Differences in the nature and value of research tools and differences in the missions and constraints of owners and users of research tools make it difficult to standardize terms of access to research tools across the broad spectrum of biomedical research.

Recognizing this and other problems, an NIH Working Group on Research Tools examined problems encountered in the dissemination and use of proprietary research tools, the competing interests of intellectual property owners and research users underlying these problems, and possible NIH responses. One recommendation of the working group was that NIH issue guidance to the recipients of NIH funding.

In response to this recommendation, the NIH published the *Principles and Guidelines for Recipients of NIH Research Grants and Contracts* in December 1999. Dr. Freire summarized the Principles: ensure academic freedom and preservation; ensure appropriate implementation of the Bayh-Dole Act (which permits individuals to develop commercial products from federally funded research); minimize administrative impediments to academic research; and ensure dissemination of research resources developed with NIH funds. The Guidelines for implementing the principles were also discussed; they provide specific information, strategies, and model language for patent and license professionals and sponsored research administrators at recipient institutions to assist in implementing the principles on obtaining and disseminating biomedical resources.

In order to determine how well the principles and guidelines were working, NIH requested comments from NIH recipients, academic, not-for-profit, government, and private sector participants in September 2000. The comments and anecdotal information were used to provide the basis for a report to the NIH Director's Advisory Council. Complementing Dr. Freire's presentation, Dr. Strandberg provided two brief case studies to illustrate the importance of access to research tools in Comparative Medicine.

To ensure that technology transfer activities do not impede investigators' access to research tools, NCRR asked Council's advice on including a statement in Request for Applications (RFAs) to require applicants to address how the development of the proposed technology would ultimately reach potential users.

After a lengthy discussion, Dr. Vaitukaitis recommended that a subgroup of Council be formed to address numerous issues on this topic, including whether or not such a statement should be uniformly included in all NIH RFAs. She indicated that perhaps reviewers should be educated on technology transfer since the applicant's information would be considered during review process. Council raised the possibility of including outside members, such as patent lawyers, in the NARRC subgroup to study technology transfer and its effect on access to research tools.

Council concurred with both recommendations.

VIII. Biomedical Technology Area, NCRR
Presentations and Concept Clearances

Dr. Marjorie Tingle
Concept Clearances: High-End Instrumentation

Dr. Tingle presented a new instrumentation program for Council clearance. This major-equipment program would fund expensive, high-end instruments costing over $1.0 million. Although the Shared Instrumentation Grant (SIG) Program provides a cost-effective mechanism for groups of NIH-supported investigators to obtain commercially available instruments costing more than $100,000, at present there is no NIH-wide program that provides funding for instruments costing over $1.0 million. Instruments in this category include structural and functional imaging systems, high-resolution NMR spectrometers, electron microscopes, and supercomputers. It is anticipated that only a few grants will be awarded in a given technological area each year.

Dr. Vaitukaitis answered several questions from Council members by explaining that the funding ceiling for the program will be below $10 million, and closer to $5 million. Matching funds probably will not be required, but applicants would need to make up the difference between the award and the cost of the equipment. The earliest award would be in FY 2002, depending on NCRR's level of funding.

Council unanimously cleared the concept.

Dr. Gregory Farber
Concept Clearance: R21/R33 Project Grants

The concept presented for clearance by Dr. Farber to Council is intended to improve NCRR's use of the R21 mechanism. Since 1997, the Biomedical Technology area has used the R21 to support high-risk, technology development research that would generate data so the investigator could then apply for an R01 research project grant. But a recent survey of R21 grantees identified a need to: (1) raise the level of the maximum direct costs; (2) have flexibility in setting the length of time for the award; and (3) shorten the time lapse between when the R21 ends and a follow-on award begins.

To address these needs, Dr. Farber proposed using a combination of the R21 and R33 mechanisms. The R21 phase would provide $100,000 in direct costs and support up to three years. Then when the grantee achieves a set of milestones in the R21-funded project, the R33 (which is similar to an R01) would become immediately available. The combination R21/R33 funding could last up to five years, at which time a new instrument or technique will have been developed or, at least, matured enough for the investigator to compete for a follow-on award for further development. The R21/R33 combination would not be renewable.

Council unanimously cleared the concept.

Dr. Michael Marron, Associate Director of Biomedical Technology
Program Update: BIRN

Dr. Marron presented information on the development of the Biomedical Imaging Research Network (BIRN), a new program that will allow investigators to share a network of databases. Using neuroimaging as a test bed, NCRR will develop requirements for hardware, software, wireless technologies, and protocols to effectively share and mine data in a site-independent manner for both basic and clinical research. So that BIRN can meet the evolving needs of investigators across a broad array of NCRR-supported resource centers, it must be scalable. A workshop will be held on February 6, 2001, to bring together clinicians, researchers, and directors of a number of NCRR-supported resources to discuss a BIRN implementation plan. The program could begin this year. In addition, NCRR will recruit an individual with expertise in both neuroscience and internet technology to oversee the program.

IX. Council Operating Procedures

Dr. Louise Ramm, Executive Secretary, NARRC

Dr. Ramm indicated that each year the Council and the NCRR staff have the opportunity to review the Council Operating Procedures. She outlined several small changes and directed them to the modifications in the Council's Operating Procedures. Council unanimously approved the changes as submitted.

X. Expert Panel's Recommendation for the Regional Primate Research Centers Program
Dr. Thomas Kuehl, Professor and Chair, Department of Obstetrics and Gynecology Scott and White Clinic and Memorial Hospital, Texas A&M University

Dr. Kuehl presented to Council the report titled *Expert Panel's Recommendations for the Regional Primate Research Centers Program*, which concludes an extensive evaluation of the NCRR Regional Primate Research Centers (RPRC) Program. James Bell Associates, under contract to NCRR, conducted the evaluation, which was overseen by an 11-member, expert panel. The Panel made recommendations to enhance the RPRC Program based on both the contractor's evaluation and their personal knowledge, garnered by site visits to the RPRCs and interactions with users of RPRC resources.

Dr. Kuehl noted several concerns of the Panel regarding the evaluation. For example, the Panel wanted detailed information on the nonhuman primate user population, but it was not possible to make this part of the evaluation. However, NCRR has initiated a survey of nonhuman primates users, which will provide this information. He noted that there were also several changes to the RPRC Program that were initiated during the evaluation period, which began in September 1998. Dr. Kuehl also pointed out that the complexity, variability, and incompatibility of data on animals, fee structures, components of infrastructure, and utilization accounting made it difficult to collect and analyze data across the RPRCs.

Another concern was that the citation analysis evaluation was based on research published in 1994 and 1995 (listed in the RPRC's Annual Progress Reports). This was due to the need to look at a five-year time frame. However, during those years, the Centers were still responding to the 1992 Program Guideline objectives so the listed publications dealt with non-primate species as well as nonhuman primate research. Nevertheless, Dr. Kuehl emphasized that the Panel agreed that the seven RPRCs evaluated are a critical component of this nation's biomedical research infrastructure and that high-quality research is being conducted at each.

The evaluation also showed that the breeding and rearing of nonhuman primates provides a resource that is distinct from the research objectives and that the Centers are meeting 95 percent of their internal needs for animals. Although animals are also needed by the outside research community, the extent of that need is not clear. He emphasized that the RPRCs are ideally equipped to assist in fulfilling the needs of the national biomedical research community, but they are not designed to be purely production breeding facilities.

Other findings centered on how the RPRCs report information and on a need for a stronger, centralized database that would direct outside investigators to the RPRC that could best meet their needs.

The Panel recommendations addressed four major goals:

Goal 1 - RPRCs must serve as a national resource and be responsive to national needs for nonhuman primates and related resources essential to the conduct of NIH-funded research.

Goal 2 - Enhance accessibility to RPRC resources by setting a minimal level of standardization across the RPRCs and developing a variety of user-friendly strategies to encourage outside users.

Goal 3 - Enhance the quality and effectiveness of the RPRC Program.

Goal 4 - Consider directions for future improvements.

In summary, Dr. Kuehl said that although there are minor areas that need addressing, the RPRC Program is considered a national treasure that must be supported and strengthened.

Council unanimously accepted the Panel's recommendations.

XI. Remarks by Dr. Ruth Kirschstein
Acting Director, NIH

Dr. Kirschstein began by discussing the Congressional confirmation process for DHHS Secretary-designate, Tommy Thompson. She indicated that he would appear before the Finance Committee—the official committee to vote on his nomination as Secretary—and then before the Health, Education and Labor Committee, which will hear his views on health as well as other issues. Dr. Kirschstein indicated that Secretary Shalala strongly endorsed Thompson, whom she knew when she was Chancellor of the University of Wisconsin at Madison. Of particular importance to NCRR, Dr. Kirschstein pointed out, is that he knows how universities run and about their infrastructure needs.

Dr. Kirschstein said between the election and the end of calendar year 2000, the Congress passed an enormous amount of legislation that influences NIH activities—the Chimpanzee Health Improvement, Maintenance, and Protection Act; the Child Health Act; and Clinical Research Enhancement. The latter two have provisions for a loan repayment program for clinical investigators who remain in research and for disadvantaged investigators. Congress also established the National Center on Minority Health and Health Disparities. Congress authorized all of these bills without providing funds. Nevertheless, since NIH has long wanted the clinical loan repayment program, it would be unwise for NIH not to establish it at some level. A committee led by Dr. Claude Lenfant, Director of the National Heart, Lung, and Blood Institute, is determining how the loan repayment program will be implemented.

At the last minute, Congress also passed legislation to establish the National Biomedical Imaging and Bioengineering Institute. Since NIH was unprepared to implement the law, it has

established a task force composed of institute directors to decide how to proceed. An NIH senior scientific advisor, Dr. Donna Dean, is responsible for developing the implementation plan. Dr. Kirschstein said that eventually she will talk with the ICs affected by establishment of this new institute.

A Council member asked Dr. Kirschstein if the definition of imaging includes synchrotrons, microscopy, and mass spectrometry. She said she believes that this institute should be applied and focus more on extramural research tools related to radiologic imaging, such as ligands for PET scans.

XII. Comparative Medicine Area, NCRR
Presentations and Concept Clearances

Dr. John Strandberg, Associate Director
Concept Clearance: Centers of Veterinary Research Excellence (COVRE) Program Initiative

Dr. Strandberg described a new program referred to as COVRE. He said that animal-based research accounts for half of all NIH-funded research grant awards, but that there are too few veterinarians to collaborate with investigators using genetically altered animals and related models. He predicted that this deficit will continue to increase in the future as research shifts to integrative biology. The COVRE Program could help address the shortage of research veterinarians by providing support for faculty, infrastructure, and recruitment of promising young investigators. A COVRE would be multidisciplinary with cross-cutting expertise that transcends disciplines and would have a thematic scientific focus determined by the host institution's strengths.

Council unanimously cleared the concept.

Program Update: Mutant Mouse Regional Resource Centers (MMRRCs)

Dr. Strandberg also updated the Council on the MMRRCs, which were established through a 1999 Request for Applications (RFA) to respond to the growing need for use of genetically altered mice. These centers will improve the quality of these mice, provide good animal care, and maintain a database to enhance the availability of mice to the research community.

The MMRRCs soon will begin housing genetically altered mice. A coordinating committee (including the PI and an NCRR representative), an eighteen-member advisory committee, and seven subcommittees have been established. Several NIH institutes and centers have expressed considerable interest in the resources of the MMRRCs.

Program Update: The Chimpanzee Management Plan

Dr. Strandberg concluded by providing an update on the NIH Chimpanzee Management Plan. In May 2000, as part of the effort to maintain and preserve a large number of chimpanzees nationwide, NIH took title to 288 chimpanzees previously owned by The Coulston Foundation and housed at a facility on Holloman Air Force Base (HAFB) in Alamogordo, NM. Because most of these animals have been exposed to microorganisms, such as hepatitis C virus and HIV, they need special care. So NIH solicited proposals for a 5-year contract to operate and maintain the HAFB chimpanzee facility. Several contract proposals were received on August 11 in response to the NIH request, but none were deemed acceptable.

NCRR now has undertaken aggressive efforts to care for these animals through existing NIH contractors. It is anticipated that the change in management at the HAFB will take place within the next few months. Dr. Strandberg also indicated that the population on the Air Force Base is diminishing because any animal that is on an active NIH-sponsored study has been moved to other NIH-supported chimpanzee colonies.

Dr. Jerry Robinson
Program Update: Regional Primate Research Centers

Dr. Robinson provided an update on the search for Directors at three Regional Primate Research Centers. All three selection processes are in their final stages. Initial candidates have been screened, and two or three final candidates are being interviewed for each center. It is hoped that the selections can be announced by Council's May 2001 meeting. He also updated the Council on the RFA issued last year in conjunction with the NIH Office of AIDS Research to fund specific pathogen-free (SPF) rhesus monkey colonies. The primate centers have been active participants in this process, and four of the five awards went to RPRCs. These centers have dedicated animals to the SPF project. An oversight committee will ensure that the animals are equitably distributed to NIH grantees. The five awards totaled $3.7 million. NCRR predicts that over a five-year period, there will be more than 2,000 SPF offspring produced, with about one third available for AIDS research. The rest will be needed to build up the breeding capabilities in the colonies.

CLOSED PORTION OF THE MEETING

This portion of the meeting was closed to the public in accordance with the determination that it was concerned with matters exempt from mandatory disclosure under Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2).

There was a discussion of procedures and policies regarding voting and confidentiality of application materials, committee discussions and recommendations. 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.

XIII. Application Review

Council considered and concurred with the recommendations of 281 applications in the amount of $94,423,084.

OPEN PORTION OF THE MEETING

XIV. Report on Executive Subcommittee Meeting
Dr. Peter Katona, Chair

Dr. Katona reported on patient safety concerns being reviewed by General Clinical Research Centers members. He noted that a number of Federal organizations have developed different patient-safety guidelines. Not only are there multiple guidelines, but very often they are contradictory. This group is determining how to help investigators understand and comply with guidelines.

Dr. Katona also reported on various discussions related to the new Institute for Biomedical Imaging and Bioengineering, which Dr. Kirschstein spoke of earlier in the Council meeting. A Council member asked that a member of the committee tasked with establishing the new Institute report new developments to the Council at the May 2001 meeting. Dr. Vaitukaitis agreed to pursue the possibility.

XV. Compliance with Inclusion Guidelines
Dr. Louise Ramm, Executive Secretary

Dr. Ramm outlined NIH's policy and NCRR's compliance with the requirement under the 1993 NIH Revitalization Act to include women and members of minority groups in all clinical trials. As part of the implementation of the Act, each NIH institute's and center's advisory council is required to prepare a biennial report describing how the institute has complied with this provision of the Act. Dr. Ramm presented a synopsis of NCRR's compliance with the inclusion guidelines. Council approved NCRR's compliance.

ADJOURNMENT

The Council adjourned at 3:30 p.m. on January 18, 2001.

CERTIFICATION

We hereby certify that, to the best of our knowledge, the foregoing minutes and supplements are accurate and complete.

/ s / 3/12/01

Judith L. Vaitukaitis, M.D. Date
Chair, National Advisory Research Resources Council
and Director, National Center for Research Resources, NIH

/ s / 3/12/01

Louise E. Ramm, Ph.D. Date
Executive Secretary, National Advisory Research Resources Council
and
Deputy Director, National Center for Research Resources, NIH

These minutes will be formally considered by the Council at its next meeting; corrections or notations will be incorporated into the minutes of that meeting.

Attachment:
Council Roster

NOTE: Open Session materials are available from the Executive Secretary or the Committee Management Office, NCRR.