

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

National Institutes of Health

National Institute of Dental and Craniofacial Research

National Advisory Dental and Craniofacial Research Council

Summary Minutes

Date: January 20-21, 2000

Place: Building 45, Conference Room E1-2

National Institutes of Health

Bethesda, Maryland 20892

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH

MINUTES OF THE
NATIONAL ADVISORY DENTAL AND CRANIOFACIAL RESEARCH COUNCIL

January 20-21, 2000

The 160th meeting of the National Advisory Dental and Craniofacial Research Council (NADCRC) was convened on January 20, 2000, at 9:04 a.m., in Building 45, Conference Room E1-2, National Institutes of Health (NIH), Bethesda, Maryland. The meeting was open to the public from 9:04 a.m. to 5:26 p.m., followed by the closed session for consideration of grant applications from 9:00 a.m. on January 21, 2000, until adjournment at 1:00 p.m. Dr. Harold C. Slavkin presided as Chair.

Members Present:

Dr. Judith E. N. Albino
Dr. John F. Alderete
Dr. Ernesto Canalis
Dr. D. Walter Cohen
Dr. Dominick P. De Paola
Dr. Samuel F. Dworkin
Dr. Jay Alan Gershen
Dr. Marjorie K. Jeffcoat
Dr. Joan Y. Reede
Dr. E. Dianne Rekow
Dr. Michael P. Rethman
Dr. Martha J. Somerman
Ms. Kim S. Uhrich

Members of the Public Present:

Ms. Jodi Chappell, Academy of Osseointegration, Washington, D.C.
Dr. Robert J. Collins, Deputy Director, American Association for Dental Research (AADR) and International Association for Dental Research (IADR), Alexandria, VA
Dr. Stephen Corbin, Director of Health and Research Initiatives, Special Olympics International Inc., Washington, D.C.
Dr. Pamela Flattau, Manager, Flattau Associates, LLC, Washington, D.C.
Dr. Preston A. Littleton, Jr., Education Director, International Federation of Dental Education Association, Potomac, MD
Ms. Gina G. Luke, American Association of Dental Schools, Washington, D.C.

Dr. Frank Macrina, Director, Philips Institute of Oral & Craniofacial Molecular Biology,
Virginia Commonwealth University, Richmond, and Chair, Board of Scientific
Counselors, NIDCR
Ms. Lois A. Moyer, Secretary, American Dental Trade Association, Alexandria, VA
Dr. H. Berton McCauley, former NIDR scientist (1948), Baltimore, MD
Dr. Dorothy Moss, American Dental Association (ADA), Washington, D.C.
Ms. Wilma E. Motley, dental hygienist (retired), Baltimore, MD
Dr. Craig Palmer, ADA, Washington, D.C.
Dr. David A. Russell, Fellow, Robert Wood Johnson Foundation, Princeton, NJ
Ms. Karen Sealender, American Dental Hygienists' Association, Washington, D.C.
Mr. Haimi Shiferaw, *The Blue Sheet*, Chevy Chase, MD
Mrs. Lois Slavkin, Past Executive Director, Center to Advance PreCollege Science Education,
University of Southern California, Los Angeles
Ms. Mary Woolley, President, Research! America, Alexandria, VA
Dr. John Zapp, Executive Director, ADA, Chicago, IL

Federal Employees Present:

National Institute of Dental and Craniofacial Research:

Ms. Carolyn Baum, Committee Management Specialist and Council Secretary, Office of
Science Policy and Analysis (OSPA)
Ms. Carol M. Beasley, Chief, Human Resources Management Branch, Office of Administrative
Management (OAM)
Dr. Henning Birkedal-Hansen, Scientific Director, NIDCR, and Director, Division of
Intramural Research (DIR)
Ms. Karina Boehm, Chief, Health Promotion Branch, Office of Communications and Health
Education (OCHE)
Dr. Norman S. Braveman, Associate Director, Office of Clinical, Behavioral, and
Health Promotion Research, Division of Extramural Research (DER)
Dr. Patricia S. Bryant, Health Scientist Administrator, Behavioral and Health Promotion
Research, DER
Ms. Sharrell S. Butler, Diversity Program Manager, Office of the Director (OD)
Dr. Lois K. Cohen, Associate Director for International Health, and Director, Office of
International Health (OIH)
Dr. James Corrigan, Evaluation Officer, OSPA
Mr. George J. Coy, Chief, Financial Management Branch, OAM
Ms. Pam Curry, Grants Technical Assistant, DER
Ms. Yvonne H. du Buy, Associate Director for Management, and Director, OAM
Ms. Karen Fowler, Public Affairs Specialist, Health Promotion Branch, OCHE
Dr. Isabel Garcia, Special Assistant for Science Transfer, OCHE
Ms. Christen Gibbons, Computer Specialist, Information Technology and Analysis
Branch, OCHE
Dr. Sharon Gordon, Director, Office of Education, DIR
Dr. Kenneth A. Gruber, Chief, Chronic Diseases Branch, DER
Dr. Kevin S. Hardwick, International Health Officer, OIH

Dr. H. George Hausch, Chief, Scientific Review Branch, DER
Ms. Deane K. Hill, Computer Programmer, Planning, Evaluation, and Legislation Branch,
OSPA
Ms. Lorraine Jackson, Diversity Programs Specialist, and Co-Director, Diversity Programs,
DER
Dr. Bernard W. Janicki, Special Assistant for Planning, Technology Transfer, and Management,
DER
Dr. Renee Josko, Public Health Resident, OSPA
Ms. Kelly Green Kahn, NIH Management Intern, Financial Management Branch, OAM
Dr. Dushanka V. Kleinman, Deputy Director, NIDCR, and Executive Secretary,
NADCRC
Dr. Eleni Kousvelari, Chief, Biomaterials, Biomimetics, and Tissue Engineering Branch, DER
Ms. Wendy A. Liffers, Director, OSPA
Dr. James A. Lipton, Assistant Director, Office of Training and Career Development, DER
Dr. Jack London, Special Assistant to the Director, DIR
Dr. Dennis F. Mangan, Chief, Infectious Diseases and Immunity Branch, DER
Dr. J. Ricardo Martinez, Director, DER
Dr. Maryann Redford, Health Scientist Administrator, Office of Clinical, Behavioral, and
Health Promotion Research, DER
Dr. Edward Rossomando, New Products and Technologies Consultant, OD
Dr. Martin Rubinstein, Chief, Grants Management Branch, DER
Dr. Denise Russo, Program Administrator, AIDS Program, Infectious Diseases and Immunity
Branch, DER
Dr. Ann L. Sandberg, Chief, Neoplastic Diseases Branch, and Director, Comprehensive Centers
of Discovery Program, DER
Dr. Edith Schwartz, Marketing Consultant for New Products and Technology, OD
Dr. Robert Selwitz, Senior Dental Epidemiologist, Health Promotion Branch, OCHE
Ms. Patricia Sheridan, Writer, OCHE
Dr. Yong He Shin, Scientific Review Administrator, DER
Dr. Yasaman Shirazi, Scientific Review Administrator, DER
Dr. Harold C. Slavkin, Director, NIDCR
Dr. Judy A. Small, Chief, Craniofacial Anomalies and Injuries Branch, DER
Ms. Cheryl Stevens, Special Assistant for Operations, OD
Ms. Tracy Walker, Secretary, OSPA
Ms. Lynn Warwick, Secretary to the Director, NIDCR
Dr. Philip Washko, Scientific Review Administrator, DER
Ms. Nora Winfrey, Secretary, DER

Other Federal Employees:

Dr. Priscilla Chen, Center for Scientific Review, NIH
Ms. Carolyn Gray, Consultant to NIDCR for the Surgeon General's Workshop and Conference
on Children and Oral Health
Dr. Diana Jaeger, Office of Extramural Research, Office of the Director, NIH

Dr. Carmen Jaramillo, Centers for Disease Control and Prevention, Atlanta, GA, and Surgeon General's Workshop and Conference on Children and Oral Health
Dr. Stephen Katz, Director, National Institute of Arthritis and Musculoskeletal Diseases, NIH
Dr. Wendy Mouradian, Conference Co-Chair, Surgeon General's Workshop and Conference on Children and Oral Health
Dr. Stephen Schultz, Public Health Resident, U.S. Department of Navy

OPEN PORTION OF THE MEETING

I. CALL TO ORDER AND WELCOMING REMARKS

Dr. Harold C. Slavkin, Director, NIDCR, called the meeting to order, welcoming all attendees to the 160th meeting of the Council. He invited all attendees to introduce themselves. Dr. Slavkin especially welcomed Dr. Bert McCauley, who worked alongside Dr. Trendley Dean in 1948 when the Institute was established, and Mrs. Wilma McCauley, who has written several textbooks on dental hygiene and is a leader in the field.

II. APPROVAL OF MINUTES

The minutes of the Council's meeting on September 27-28, 1999, were considered and unanimously approved.

III. FUTURE COUNCIL MEETING DATES

The following dates for future Council meetings were confirmed:

June 8-9, 2000
September 21-22, 2000

January 22-23, 2001
June 12-13, 2001
September 24-25, 2001

IV. REPORT OF THE DIRECTOR

Dr. Harold C. Slavkin, Director, NIDCR, commented on the changing social and scientific environment at the turn of the century and new millennium, the scientific vision for the 21st century, NIDCR's role in shaping the future, and key oral health issues in the new century. Dr. Slavkin's written Director's Report to the NADCRC, which describes NIDCR activities over the past 3 months, was provided previously to the Council members and is appended to these minutes as Attachment III.

The Changing Environment

Dr. Slavkin noted that a variety of societal changes are driving the science of the 21st century. These include changes in patterns of morbidity and mortality, demographics (adults aged 80+ years are the fastest-growing cohort of the U.S. population), management of health care, paradigms for health and disease (which are shifting to a more mechanistic understanding of the human condition), societal expectations and emphasis on quality of life, and information technology (a powerful global change agent). Science is entering a "golden era of biomedical research," public-private partnerships are advocating for increased investments in biomedical research to address health and health disparities for all Americans, and the NIH budget, which more than doubled between FY 1993 and FY 1999, is expected to double again over the next 5 years.

The burden of disease also will shift in the new century. The current population of almost 270 million will increase by 30 million by 2010, and most of the increase will be in the southern states. Oral infections are linked with low birthweight and prematurity, which continue to complicate many of the 4.2 million live births each year, and common birth defects include craniofacial, oral, and dental malformations. And, about 20 percent of the 57 million children live in poverty. For both children and adults, major oral health issues include unintentional injuries to the head and neck, oral cancer (the sixth most common cancer, with one death every hour), periodontal disease (found in more than 60 percent of adults), oral infection associated with systemic diseases (e.g., cardiovascular, pulmonary disease), and oral complications of systemic diseases (e.g., autoimmune disorders). By 2020, one of every five Americans will be 65 years of age or older. Major oral health issues for older adults include chronic severe facial pain (currently reported by more than 20 percent of adults); oral complications of autoimmune disorders (e.g., osteoarthritis, osteoporosis, diabetes) and cancer therapy; and tooth loss, tooth pain, and difficulty swallowing.

The greatest burden of disease confronts poor racial and ethnic minority groups, particularly the children. Oral, dental, and craniofacial diseases and disorders are concentrated in these groups, and more than 100 million Americans (including 25 million children) do not have dental coverage. Many of the dental goals for Healthy People 2000 remain unmet.

A Scientific Vision for the 21st Century

Dr. Slavkin noted that establishing a vision for this century will entail continuing efforts in four areas, to: (a) enhance capacity to set research priorities, define new scientific opportunities, and evaluate existing programs; (b) pioneer best-in-the-world practices for the conduct of science and the management of research, training, and related activities; (c) develop new and improved methods to promote health and prevent disease; and (d) improve human resources and physical infrastructure to conduct multidisciplinary, multisite research. To help frame these efforts for dental, oral, and craniofacial research, the NIDCR developed its strategic plan, Shaping the Future, which was issued in 1997 and is available in hard copy or on the Institute's home page. In this plan, the Institute highlights three areas of opportunity: scientific research, research capacity, and health promotion.

Role of the NIDCR

Dr. Slavkin highlighted and elaborated on research areas which the Institute is emphasizing. The six themes of its intramural and extramural programs, which are presented in the strategic plan, are: Inherited Diseases and Disorders; Infectious Diseases and Immunity; Neoplastic Diseases; Chronic and Disabling Diseases; Biomaterials, Biomimetics, and Tissue Engineering; and Behavior, Health Promotion, and Environment. Within these programs, emphasis is being given to basic, translational, patient-oriented, and community-based research; enhanced research on prevention, diagnostics, and therapeutics (including development and application of new biotechnologies); and cross-disciplinary research training.

Dr. Slavkin noted that the field of craniofacial genetics is particularly exciting. Of the 5,878 gene loci identified for human genetic diseases [according to the Online Mendelian Inheritance of Man (OMIM) project housed at the National Library of Medicine], approximately 1,250 are related to oral, dental, and craniofacial diseases and disorders. NIDCR investments in this research have led to the discovery of 360 genes for these conditions, which do not include virulence genes associated with many microbial pathogens. The Institute currently supports genomic studies of these pathogens, and research in this area is moving rapidly. Elaborating on the process of genomic studies, Dr. Slavkin described research resulting in discovery of a new gene responsible for congenital absence of teeth, a common dental anomaly which affects 1.6-9.6 percent of the population and up to 20 percent if missing third molars (wisdom teeth) are included. Published in Nature Genetics in January 2000, this research was conducted by an international team of scientists and involved basic research with the fruit fly and population studies of a large, extended family. The genetic defect, a mutation in the *PAX9* gene, is found on chromosome 14. Defects in several *PAX* genes are related to various human diseases, including renal, eye, and thyroid conditions. Exploring the expression of these and other genes in functional genomic studies using transgenic mouse models is a tremendous research opportunity for the 21st century.

Another example of the opportunities in craniofacial research is the use of informatics to plan surgery for children with craniofacial malformations. Every 68 minutes, a child is born in the United States with a cleft lip, and about 2.5 million children in China have uncorrected cleft lip and cleft palate.

In summary, the NIDCR will be supporting research and research training in a number of areas of opportunity for FY 2001 and beyond. Specific aims will be to develop biomarkers for acute and chronic diseases, improve diagnostics (e.g., by developing and applying innovations in imaging), improve treatment and therapeutics (e.g., of premature infants), increase prevention of disease, translate scientific research results into health promotion and clinical management, reduce health disparities, realize diversity in the workforce, and enhance the nation's university research infrastructure.

Oral Health Issues in the New Century

Dr. Slavkin cited several major, new oral health issues for the 21st century, including the following: health disparities and minority health, the goals outlined in Healthy People 2010, health insurance coverage, use of CHIP monies at the local level to improve oral health care, Medicaid and barriers

to delivery of oral health care, and changing patterns of disease and population. He noted that the NIDCR is being proactive in reducing health disparities. For example, the Institute is collaborating with other NIH components and Federal agencies on a major initiative to establish Centers For Research to Reduce Oral Health Disparities. This initiative was recently announced in a Request for Applications (RFA DE-99-003) and will be discussed at a series of workshops for potential applicants which will be held at seven locations throughout the United States between January 31 and April 5, 2000. To increase diversity in the workforce, the NIDCR is identifying specific needs for research training and will pursue development of various models for providing this training and enhancing the research "pipeline" (see section VIII below).

Additional issues that the NIDCR will be confronting include the declining dental professional workforce, the minimal "safety net" for dental health care services to vulnerable and disadvantaged Americans, the need for culturally sensitive behavioral interventions to promote health and prevent disease, and the need for full recognition that oral, dental, and craniofacial health is an integral part of being healthy.

V. FUTURE OF BIOMEDICAL AND BEHAVIORAL RESEARCH AND THE CRITICAL ROLE OF PUBLIC UNDERSTANDING AND SUPPORT

Dr. Jay Gershen introduced Ms. Mary Woolley, President of Research! America, Alexandria, Virginia. The mission of Research! America is to make medical research a much higher national priority, by increasing the visibility and funding of medical research. Dr. Gershen noted that, during Ms. Woolley's tenure, the Research! America has grown to almost 400 organizational members, representing a constituency of 33 million Americans, and is reaching some 65 million Americans through its publications. The organization has been a driving force in the "grass-roots" effort to double the NIH budget within 5 years. The organization's 1999 annual report, Voices, was provided to the Council.

Ms. Woolley commented on Research! America's key message and summarized its goals, poll data, and outreach tools. She noted that 25 members of the organization are from the dental community and that Research! America is pleased to be a partner in advocacy with the NIDCR. Quoting the former Surgeon General C. Everett Koop, who is a Board member of Research! America, she agreed that "if you don't have oral health, you don't have health." Ms. Woolley noted that the key message of Research! America currently is the need to double the NIH budget for medical research. She emphasized that, as this effort enters year 3, more "messengers" are needed from the research community to convey to the public, including the Congress, the opportunities for, and the benefits and excitement of, medical research. She estimated that less than 5 percent of researchers are engaged in public outreach. Data collected from Research! America's public opinion polls show that the American public is enthusiastic and endorses this research, but wishes to hear directly from the "best messengers," the researchers themselves. Ms. Woolley complimented Dr. Slavkin, the NIDCR, and its active partners for their enthusiasm and leadership in public outreach and advocacy, and she welcomed relationships with these organizations.

A second message that Research! America is communicating is that less than a nickel of every health care dollar in the United States is spent on medical and health research, a fact that the

American people find unacceptable, according to public opinion polls and focus groups. Ms. Woolley emphasized that the American public clearly understands that future gains in research depend on more than a 5 percent investment. Sharing poll data collected by Research! America, she noted the following: up to 97 percent of U.S. adults believes very strongly or somewhat strongly that the United States should remain a world leader in medical research; about 66 percent of those polled support a doubling of the nation's commitment to medical research over the next 5 years; about 60 percent are willing to pay \$1 more in taxes per week for more medical and health research; and a majority are willing to pay for more research through a variety of mechanisms (bonds, health insurance, special-issue postage stamps, tax-form checkoff, tax-refund donations, tax on tobacco use). The major reasons cited for why more progress is not being made in medical research are: the tax burden is too high, there are too many regulatory barriers, not enough money is being spent, and there are not enough researchers. A major concern is the number of unfunded research proposals submitted to the NIH.

Additional poll data indicate that most U.S. adults (73 percent) do not know which Government agency funds most of the medical research paid for by U.S. taxpayers; some adults (23 percent) think they know but incorrectly name the agency (compared to 70 percent who know the Food and Drug Administration); a majority (50-59 percent) do not know where medical research is conducted in their local area; more than 90 percent trust doctors, nurses, or dentists for obtaining information on health and medical issues; and 72 percent believe that the media do not give enough attention to medical research. Other data indicate that 81 percent of U.S. adults strongly or somewhat agree that basic research is necessary and should be supported by the Federal Government, 95 percent perceive that clinical trials research is of great or some value, 45 percent would be willing to participate in clinical trials, 92 percent believe that health services research is of value, and 86 percent do not know the position of their member of Congress on funding for medical research. All these poll data are collected by random-digit telephone dialing of 800-1,000 adults 18 years of age or older in selected states.

In response to these data, Research! America has designed and implemented a variety of effective outreach efforts and tools. For example, the organization actively collaborates with the media to convey its messages in magazines (e.g., Parade, Fortune) and television "spots," reinforces the public and political context of medical research through its 435 ProjectTM (named for the number of U.S. congressional districts), and shares poll data with state and national legislators and government officials. Memorable sound bytes can be especially effective. Ms. Woolley noted, for example, that the nation's annual retail sales for chewing gum, which amounted to about \$2 billion in 1998, would fund the NIDCR's research programs for more than 8 years. The challenge, she said, is to build on the public's supportive attitude for medical and health research while also constructively bolstering the public's knowledge about this research.

Emphasizing that individuals can make a difference, Ms. Woolley encouraged the Council members to urge their scientific colleagues to become involved in public outreach and to reinforce and strengthen congressional support for medical and health research. She invited the members to suggest and participate in projects with Research! America and to review the richness of the database collected and suggest questions for future polls. In closing, she noted two "watch words" for action: "believe in possibilities" and, as quoted by General Colin Powell, "perpetual optimism is a force multiplier."

In discussion, Ms. Woolley conveyed additional data which indicate that U.S. adults think that prevention research is more important than research on care and treatment; that most research still needs to focus on cancer and AIDS (which are perceived as "death sentences" and which receive the most media attention); and that women, young adults, and African American populations are more supportive of research than other groups. Dr. Gershen encouraged the Council members to invite Ms. Woolley to meet with their state policymakers to generate support for utilizing tobacco-settlement funds for research on tobacco-related health issues.

VI. FUTURE OF DENTISTRY REPORT

Dr. John Zapp, Executive Director, American Dental Association (ADA), summarized the process for preparing the new ADA report on the future of dentistry. He began by reiterating ADA's longstanding commitment to the NIDCR, from the formation of the Institute to the more recent organization of the Friends of NIDCR. Referring to Ms. Woolley's presentation earlier, he noted that the ADA has strived to "carry the message" of dentistry's involvement in broader biomedical relationships to its members. The future of dentistry report will be one vehicle for communicating this message. It will follow on the previous report published by the ADA in 1983. Dr. Zapp noted that the ADA is strongly committed to implementing the recommendations that will be developed for the current report.

Guiding the preparations for the new report is an oversight committee. This committee, which includes Dr. Dushanka Kleinman and Council member Dr. Marjorie Jeffcoat, has met one time so far. It will oversee six expert panels that will address the following areas: Clinical Dental Practice and Management, Dental Education, Dental and Craniofacial Research, Financing and Access to Dental Care, Dental Licensure and Regulations, and International Dentistry. NIDCR staff will be participating on these panels. At the end of February, the oversight committee will meet again to present the charge to these panels, and an overall advisory group will be established. Dr. Zapp noted that the next ADA News will include an article about this effort and list the participants.

Preparation of the report will include the drafting of papers for the expert panels and the convening of a public hearing to obtain comments and responses to the preliminary information developed by the panels. The final report will be released after it is approved by the ADA House of Delegates in October 2001.

In closing, Dr. Zapp noted that the ADA and NIDCR have a close working relationship and share similar research agendas complemented by ADA's focus on translating research data and information for dental practitioners.

Commenting on the development of the report, the Council suggested two ways for appropriate panels to derive future directions: (a) review the benefits and achievements of dental and craniofacial research in changing dental practice over the past 17 years, and (b) invite current dental practitioners to assess their own careers and the dental profession as a whole (e.g., in relation to research and challenges in health care). Dr. Slavkin thanked Dr. Zapp for his support,

contributions, and aggressive leadership in dentistry. On behalf of the ADA, Dr. Zapp thanked Dr. Slavkin for his efforts at NIDCR and for generating broader attention to dental and craniofacial research.

VII. SEARCH COMMITTEE FOR THE DIRECTOR, NIDCR

Dr. Stephen Katz, Director, National Institute of Arthritis and Musculoskeletal Diseases (NIAMS), NIH, is chairing the NIH search committee for the next (the seventh) director of NIDCR. Dr. Slavkin will be leaving NIDCR in July 2000 to return to Los Angeles to become dean of the School of Dentistry at the University of Southern California. Dr. Varmus initiated a formal search for his replacement on December 20, 1999. Formal announcements of the search were published in January 2000 and the search will conclude in April 2000.

Dr. Katz said he has had a "double pleasure" in working with Dr. Slavkin, who has been an intramural scientist at NIAMS, as well as director of NIDCR. He noted that the search committee includes several directors of other NIH components, the NIH Deputy Director of Intramural Research, an NADCRC member, and leaders from four universities. The search is being advertised widely in journals of dentistry, medicine, and higher education and on the affirmative action registry. The search committee also is soliciting potential candidates by letters and telephone calls. The prerequisites for the position include having a strong scientific background and leadership abilities and being an effective spokesperson for the research community. He noted that having a dental degree is not necessary, but having a strong conviction and passion for dental and craniofacial research are critical.

Describing the process for selecting a new director, Dr. Katz noted that applications for the position are due by March 10 and interviews will begin in early April. The search committee will identify two to five candidates for interviews with senior NIH staff. Dr. Ruth Kirschstein will make a selection and forward the name to the Secretary, Department of Health and Human Services for approval and appointment. He encouraged Council members to recommend potential candidates, particularly outstanding minority and women candidates, to the search committee.

VIII. PRESENTATION AND DISCUSSION OF THE BLUE RIBBON PANEL IMPLEMENTATION PLAN

During the past year, the NIDCR convened a Blue Ribbon Panel on Research Training and Career Development to Meet Scientific Opportunities of the 21st Century and prepared an NIDCR implementation plan which addresses the panel's recommendations. Dr. Slavkin noted that the Institute undertook both activities in consultation with the Council. The report of the Blue Ribbon Panel, dated January 2000, was released at the Council meeting and will be available on the NIDCR website.

Dr. James Lipton, Assistant Director, Office of Training and Career Development, Division of Extramural Research, presented NIDCR's Blue Ribbon Panel Implementation Plan, which NIDCR will activate during the current fiscal year (FY 2000). Dr. Slavkin invited the Council to comment

on this plan. In breakout groups that met later during the Council meeting, the members addressed scientific opportunities and competencies for training for FY 2001 and beyond (see section X below).

Dr. Lipton described the goals, principles, strategies, and timelines for the Blue Ribbon Panel Implementation Plan. A copy of his slides and a list of NIH training and career development mechanisms were provided to the Council. Dr. Lipton noted that the implementation plan covers the breadth and scope of current initiatives in NIDCR's programs and other activities envisaged for the future. The overarching theme is to increase the strategic, fiscal, and numerical investment in individual and institutional research training and career development programs to address future scientific opportunities in dental, craniofacial, and oral health more efficiently in order to improve the nation's health.

The four major goals set forth in the implementation plan are to: (1) expand the science component of programs so that future scientists can excel in interdisciplinary research, maximize applications of functional genomic analyses, and expand and accelerate applied research [Science Component]; (2) ensure that curricula for core competencies are developed, incorporated, and assessed across all research training programs and to modify these curricula as needed [Core Competencies]; (3) expand the diversity of the scientific workforce [Diversity]; and (4) increase the number and disciplines of individuals entering and being retained in research ["Pipeline"]. For each of these goals, the NIDCR has set forth a number of guiding principles which emphasize multidisciplinary, cross-disciplinary training; experiential learning and use of innovative informational and technological research tools; training in the design, conduct, and analysis of patient-oriented research; acquisition of collaborative, management, and communication skills to foster success; adoption of a comprehensive approach and specific goals for achieving a diverse workforce and reducing health disparities; focused and integrated efforts to attract young individuals to careers in research; support of transition and bridge awards; establishment of networks within and between institutions; and life-long learning.

To operationalize the plan, the NIDCR proposes to continually refine, implement, and evaluate its training and career development programs; create a training and career development advisory subcommittee of the Council to maximize critical partnerships; convene annual networking meetings of training directors and trainees supported by the Institute; optimize use of the internet and other informational technologies by trainees and program directors; convene annual meetings of trainees as well as Gordon Conference-type sessions to review science and programmatic issues; evaluate all aspects of the training and career development program every few years; and develop a coordinating center for NIDCR training and career development activities.

Dr. Lipton noted that, in FY 99, the NIDCR supported programs at all educational levels, from high school students to university faculty, for a total cost of approximately \$19.1 million. Of this amount, approximately \$10.6 million supported individual and institution National Research Service Award (NRSA) programs (T and F awards); approximately \$7.0 million supported career development (K) awards; and approximately \$1.5 million supported awards cofunded with other NIH components [e.g., the Science Education Partnership Award (R25), with the National Center for Research Resources (NCRR); the Minority Access to Research Careers for Undergraduates, with the National Institute of General Medical Sciences]. Among the NRSA programs, the

Institutional Research Training Grant (T32) received by far the most funds in FY 99, amounting to almost \$8.6 million; individual T32s amounted to about \$655,000. Among the career development awards, the Institutional Dentist Scientist Award (K16) received the most support, amounting to approximately \$3.7 million, whereas support for mentored clinical scientists and for career development in patient-oriented research amounted to about \$1.3 million each.

During FY 99, the NIDCR supported the following number of trainees: 76 predoctoral trainees and 127 postdoctoral trainees under the T32 program; 150 dental and medical students and 20 postdoctoral students under the T35 short-term training program; 36 postdoctoral investigators under individual K awards; and 55 dentists under the K16 program.

For FY 2000-04, the NIDCR plans to continue support for all existing mechanisms and to increase funding for some of the programs. In addition, the NIDCR intends to develop Regional Networks of Research Training Excellence in Dental, Craniofacial, and Oral Health, which will cross all educational levels (high school, college, predoctoral, postdoctoral, faculty), and to initiate selected programs targeted at specific levels (e.g., biomedical support for magnet high schools, predoctoral fellowships for minority students and students with disabilities, postdoctoral career transition awards, and academic career awards for faculty). To support both the current and added activities, the NIDCR hopes to increase its budget for training and career development twofold over the next 5 years, from less than \$20 million to about \$40 million. The greatest growth would be in the career development award program, which would increase more than threefold, to about \$28 million, while the NRSA program would increase to slightly more than \$15 million.

Dr. Lipton presented proposed timelines for implementing specific strategies and activities to accomplish the four major goals. Cross-cutting, infrastructural initiatives (e.g., creating an NADCRC advisory subcommittee, convening meetings of training directors and trainees) would begin in FY 2000. One of the most exciting initiatives, development of the Regional Networks of Research Training Excellence, would begin in FY 2001 with the development and release of an RFA from institutions interested in coordinating their existing training programs, developing additional training activities, and establishing regional networks for students and faculty in professional schools. Specific strategies for achieving each goal (e.g., RFAs, program announcements, contracts, partnerships, cofunded awards, expanded or new training awards) would be launched between FY 2000 and FY 2003.

Discussion

With reference to goal 4 (expanding the "pipeline"), the Council emphasized the need for early exposure (e.g., through science curricula) to opportunities for a research career. Dr. Slavkin noted that the NIDCR is developing a "hands-on," inquiry-based learning program entitled "Wonders of Your Mouth" for pre-kindergarten, kindergarten, and grades 1-3. The Institute hopes to have this program, provided on CD-ROM discs and including teacher and parent instructions, available by fall 2000 for distribution to every school district in the United States. Dr. Lipton noted that the R25 award, cofunded by the NIDCR and NCRR, allows for development of elementary, high school, and college curricula and for community health activities. Such initiatives can be especially helpful in reaching disadvantaged minority students who may have little contact with dentistry.

The Council also emphasized the importance of raising awareness about the need for a loan repayment program for dental students, who may accumulate debts ranging from \$90,000 to \$200,000 for their dental school education. Dr. Lipton noted that Congress has given the NIH intramural program legislative authority for providing loan repayment under certain circumstances and has proposed similar authority for the extramural program in several recent legislative bills. The Council suggested that the Friends of NIDCR could help raise awareness about this issue. Professional dental organizations, such as the American Association of Dental Schools, are urging Congress to offer loan repayment to the extramural community.

The Council noted the need to be able to access resources outside of the United States. Dr. Lipton noted that recipients of the NRSA or K awards can study abroad, but must be U.S. citizens or permanent residents. Dr. Lois K. Cohen, Associate Director for International Health, NIDCR, mentioned that the Fogarty International Center (FIC) is the only NIH component that has authority to support research training for foreign nationals. In collaboration with the FIC, the NIDCR cofunds U.S. institutional grants for training foreign nationals in research on HIV/AIDS and emerging infectious diseases. The Council noted that the NIH is missing an opportunity to support U.S. training of foreign individuals interested in pursuing science careers.

Commenting on the proposed Regional Networks, the Council expressed concern that the prerequisites for the program favor research-intensive institutions. Staff noted that an important component of the program is the networking of grantee institutions, which already have a strong research infrastructure, with students and faculty in less-research-intensive institutions and professional schools. The Council encouraged staff to devise innovative ways for ensuring that less-research-intensive institutions can participate fully in the program. Possibilities include shifting the emphasis to these institutions, who would "push the agenda"; actively fostering networks between research-intensive and less-research-intensive institutions; and establishing an aggressive leadership role for the NIDCR to identify possible areas of cooperation and potential institutional linkages. The primary aim of the Blue Ribbon Panel, to enhance the "pipeline" of talented, trained investigators, should remain paramount. Dr. Slavkin noted that, to meet the needs of the 21st century, the training of dental researchers must be conducted in the best research environments, in dental schools and elsewhere.

The Council also emphasized the need to foster nurturing research environments for trained investigators (e.g., by requiring a certain percentage of "protected" research time for awardees, providing re-entry support and remuneration for research support personnel, maintaining linkages between trainees and mentors) and commented on the benefits of having official, legal documentation for continuing, long-term alliances between partner institutions. The Council further suggested that grantee institutions be required to have previous experience in working with diverse groups of students or trainees and with public education or elementary and secondary schools. The possibility of industry support for local-level initiatives also was noted.

Dr. Kleinman noted that the proposed advisory subcommittee of the Council could address the full continuum of issues involved in life-long learning and nurturing of scientists. She invited Council members to indicate their interest in serving on the subcommittee and to identify other potential members.

IX. CONCEPT CLEARANCES

Dr. Lipton presented the following concept for Council's review and approval.

Scholar Development and Faculty Transition Award

The purpose of the proposed NIDCR award is to enable promising new researchers to establish an independent research program and to secure a tenure-track appointment in an academic institution in the United States. Patterned after a mechanism pioneered by the National Human Genome Research Institute, this career transition (K22) award would provide the necessary resources for a scholar to initiate an independent research program in an extramural or an NIH intramural laboratory, for up to 3 years, and to continue the research at an extramural institution where the scholar has been recruited as tenure-track faculty, for up to 4 years. The total number of years for both phases of the award would not exceed 5 years. Applicants could apply for both the scholar-development phase or the faculty-transition phase or for only the second phase. The NIDCR anticipates that awardees will subsequently obtain a research project grant (R01) to continue support of their research.

Dr. Lipton noted that several NIH institutes have offered the mechanism during the past two cycles of grant review and that it has been well received as a career development approach that fosters cooperation between the extramural and intramural research communities. He also noted that both the extramural and intramural staff of NIDCR, who worked together to adapt the award for the NIDCR, support the activity.

The Council unanimously approved the concept.

X. NIDCR STRATEGIC PLAN IN LIGHT OF SCIENTIFIC OPPORTUNITIES FOR FY 2002 AND BEYOND: COUNCIL BREAKOUT GROUPS

In June 1997, the NIDCR released its Strategic Plan, Shaping the Future, which charted new directions for the Institute for the next 3-5 years under the framework of three major initiatives: research opportunities, research capacity, and health promotion. With 3 years completed as of FY 2000, the NIDCR is assessing the initiatives, goals, objectives, and implementation of the long-range plan for FY 2002 and beyond. To begin this assessment, Dr. Slavkin asked the Council members to divide into three breakout groups and discuss the following four questions: (1) Do any of the initiatives, goals, or objectives need to be amended or deleted for FY 2001? (2) Do any new initiatives, goals, or objectives need to be added for FY 2001? (3) What should be the Institute's major themes/messages/directions for FY 2002 and beyond? (4) How can the NIDCR capitalize on its efforts of the past year and past 3 years?

To facilitate their discussion, the Council members received a packet of information, included recommendations from a series of state-of-the science workshops convened by the NIDCR in

recent years. The Strategic Plan, a list of Strategic Planning Accomplishments 1996-99, and summaries of the workshops are available on the NIDCR home page (<http://www.nidcr.nih.gov>).

The breakout groups, which included Council members and other attendees, met for approximately 2 hours to address the questions raised by Dr. Slavkin. The three groups were chaired by Council members Dr. Martha J. Somerman, Dr. Ernesto Canalis, and Dr. E. Dianne Rekow. NIDCR staff served as rapporteurs. Following the breakout groups, the chairs reported the groups' findings to the full Council, as summarized below.

FY 2002: Initiatives, Goals, and Objectives

The breakout groups identified no areas for deletion in FY 2002. They did highlight new program areas that could be undertaken and others that could be expanded in FY 2002. Overall, the groups encouraged the NIDCR to pursue investigations of the linkages between oral and systemic diseases; to increase clinical research for the development of new preventive, diagnostic, and therapeutic measures; and to strengthen the health promotion initiative, particularly in relation to health disparities.

Areas of research that could be emphasized and/or added include nutrition; functional genomics; pain; fluoride; alternative, or complementary, medicine; wound healing and regeneration; and salivary function. Studies are needed to identify biomarkers of diseases and/or conditions, disease progression, and related risk factors. Methods for assessing risk factors among individuals and populations need to be developed and refined. National, regional, and local data are needed to characterize the dimensions of disparities in oral, dental, and craniofacial health. These data should include information on health status and availability of disease-prevention measures for individuals and communities.

The groups highlighted a number of activities for FY 2002, which relate to the three initiatives in the Strategic Plan. Activities pertaining to Strategic Initiative I, Research Opportunities, include the following: Increase collaborations with other NIH components to elucidate further the links between oral and systemic disease; develop methods to ensure more effective utilization and application of current research findings by the public and the health professions; facilitate the use of genomic information for research; expand the leveraging of NIDCR funds with those from Federal partners, private industry, and nonprofit foundations; increase funding for communications and dissemination of information on oral health and related areas (e.g., to educate the public, including students, about research benefits and needs and about NIDCR programs and activities, to disseminate research findings in medical journals); require dissemination of research findings to the public on all NIDCR grant awards; involve other groups in outreach efforts (e.g., press conferences); foster linkages with industry (e.g., to enhance the visibility of oral health research and to address commercialization of research results); and initiate efforts to evaluate the public health impact of NIDCR research and related activities.

Objectives pertaining to Strategic Initiative II, Research Capacity, include: Bolster research capacity (including physical infrastructures and availability of properly trained researchers adept in using new technologies, including information technologies); enhance the use of informatics and instrumentation; enable investigators to effectively utilize genomic data; and enhance partnerships

between universities and between core centers (e.g., to maximize use of expensive instrumentation and computational equipment).

Objectives pertaining to Strategic Initiative III, Health Promotion, include: Reemphasize nutrition, health services, and behavioral sciences research in studies of treatment efficacy, health promotion, and disease prevention; include an educational component in health promotion activities; and utilize patient advocacy groups for health promotion activities and dissemination of information to the public.

The groups also encouraged the NIDCR to revise its presentation of the Strategic Plan by presenting a strong mission statement before the introductory section and by adopting a business-plan format.

FY 2002 and Beyond: Major Themes/Messages/Directions

The breakout groups envisaged two major highlights for FY 2002 and beyond: health disparities, and the linkage between oral and systemic diseases. They encouraged the NIDCR to add a seventh theme, entitled Oral-Systemic Disease, for its research programs. It also was suggested that the Institute may wish to rethink or recast the six themes which currently serve to organize the extramural and intramural programs. Dr. Slavkin noted that the titles of these programs were chosen because they facilitate cross-disciplinary research with other NIH components.

Ways to Capitalize on Past Efforts

The groups identified the following general ways of capitalizing on NIDCR's past accomplishments: Support broad-based communication and "public relations" efforts to inform the Congress, the public, dental school faculty, dental and other health professionals, educators, policymakers, administrators, researchers, and others about NIDCR's research programs and results; publicize scientific "priorities"; develop educational programs linked to NIDCR's health promotion initiative and designed for grades K and up; advance understanding of the need for, and benefits of, research through the use of new information technologies (e.g., CD-ROM discs) available to the public; and highlight "what is known," as well as "what needs to be known," in summaries of NIDCR's state-of-the-science workshops.

General Discussion

The Council commented on three topics in the general discussion: ways for NIDCR to address health disparities, the importance of evaluation of NIDCR programs and awards, and enhancing NIDCR's visibility. The Council suggested that the issue of health disparities may be an effective way for NIDCR to stimulate public interest in its activities and to focus discussions of health issues, research accomplishments, training concerns, and linkages between oral and systemic diseases. On this issue, research is needed to develop, for example, current data on dental caries and periodontal diseases, as well as other aspects of oral health, in specific population subsets (e.g., through targeted sampling); more complete assessments of the economic impact of oral disease (e.g., including workdays lost); clarification of the factors involved in health disparities affecting poor populations, ethnic and racial groups, and women; and educational messages for patient

advocacy groups and the public. The Council suggested that the NIDCR, in collaboration with other Federal agencies (e.g., the Centers for Disease Control and Prevention, the Health Services and Resources Administration) could help coordinate and provide information on health disparities which could be utilized by state dental and medical directors and others at state and local levels.

The Council encouraged the NIDCR to include an evaluation component in its awards in order to measure the effectiveness of its programs. Building in evaluation at the beginning of a project is critical, and evaluation would be particularly important for new initiatives (e.g., the proposed regional networks) and for measuring the outcomes of studies that involve the delivery of services. Dr. Kleinman noted that, in the past, the NIDCR has successfully utilized the 1 percent of evaluation funds that are set aside for assessing programs of national impact (e.g., dental caries, periodontal diseases, craniofacial anomalies, multidisciplinary research centers).

On the third topic, the Council suggested that the Institute develop a database of individuals who have attended NIDCR workshops and consensus development conferences. Kept apprised of NIDCR's research accomplishments and initiatives, this "cohort of advocacy" may be an effective group for communicating the Institute's message to a broader audience.

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.

XI. REVIEW OF APPLICATIONS

Grant Review

The Council considered 405 applications requesting \$105,264,041 in total costs. The Council recommended 298 applications for a total cost of \$79,426,943 (see Attachment II).

ADJOURNMENT

The meeting was adjourned at 1:00 p.m. on January 21, 2000.

CERTIFICATION

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

Dr. Harold C. Slavkin
Chairperson
National Advisory Dental and
Craniofacial Research Council

Dr. Dushanka V. Kleinman
Executive Secretary
National Advisory Dental and
and Craniofacial Research Council

ATTACHMENTS

- I. Roster of Council Members
- II. Table of Council Actions
- III. Director's Report to the NADCRC, January 2000

NOTE: A complete set of open-portion handouts are available
from the Executive Secretary.