

Changing Practice, Changing Lives

NINR STRATEGIC PLAN



National Institutes of Health
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PROLOGUE FROM THE NINR DIRECTOR

The formulation of this new Strategic Plan occurs at a period of unprecedented opportunity for the National Institute of Nursing Research (NINR).

Our Nation is currently experiencing a convergence of factors that, while presenting many challenges for our health care system, offer nursing research the chance to expand the already substantial impact it has made on the health of the public. The population as a whole is aging, increasing the need for services to manage both the normal aging process and the long-term impact of chronic illnesses. At the same time, we are becoming a more diverse Nation, requiring us to have greater multi-cultural knowledge and sensitivities.

Other changes are occurring within public health that will affect our entire thinking about patient care. There has been a shift in emphasis from treatment to prevention and from acute illness to chronic conditions. There is an increasing reliance on technology in health care delivery, and a renewed call to translate successful research into clinical practice. In addition, our Nation currently faces a shortage of nurses and nursing faculty, an issue with serious implications for the quality of the health care we provide and for the development of future nurses and nurse scientists.

All of these factors are undoubtedly challenges, but confronting these issues plays to the inherent strengths of nursing research. In this Strategic Plan, NINR looks to take full advantage of these strengths in developing a forward-looking agenda that will position nursing research at the forefront of the health care sciences.

In the twenty years since its inception, NINR has built a dynamic, vital, and productive community of investigators true in their dedication to conducting rigorous research that establishes the scientific basis of patient care. We have trained a generation of new researchers who continue to advance nursing science while also serving as nursing faculty, expanding the capacity to bring new students into the profession. We have also created the infrastructure that will continue to expand new research opportunities well into the future.

Looking forward, we envision this new Plan as a blueprint for elevating nursing science's contribution within health care research to extraordinary heights. We believe we can accomplish this by furthering the integration of the biological and behavioral sciences, promoting the design and use of new patient care technologies, improving nursing science methods, and committing to the ongoing development of new nurse investigators. We propose to focus our research priorities on health promotion and disease prevention; improving quality of life through self-management, symptom management and caregiving; eliminating health disparities; and taking the lead in addressing end-of-life research. In doing so, we seek to apply the resources of NINR to the areas of public health which have the greatest needs and in which our science can have the greatest impact.

The Director of the National Institutes of Health (NIH) has called for a new era of predictive, preemptive, and personalized health care. As we embark on this journey, I look ahead with great expectations at what we can accomplish. The time is right for NINR to become a leader in addressing some of the most important health care issues facing our society. For NINR, and for all of nursing science, the possibilities are endless.



Dr. Patricia A. Grady
October 2006



NINR Mission





The mission of NINR is to promote and improve the health of individuals, families, communities, and populations. NINR supports and conducts clinical and basic research and research training on health and illness across the lifespan. The research focus encompasses health promotion and disease prevention, quality of life, health disparities, and end-of-life. NINR seeks to extend nursing science by integrating the biological and behavioral sciences, employing new technologies to research questions, improving research methods, and developing the scientists of the future.



Strategies for Building the Science



NINR accomplishes its mission through research on preventing, delaying the onset, and slowing the progression of disease and disability. This includes finding effective approaches to achieving and sustaining a healthy lifestyle, easing the symptoms of illness, improving quality of life for patients and caregivers, eliminating health disparities, and addressing issues at the end of life.

NINR supports basic research relevant to its mission, in order to provide a sound scientific basis for changes in clinical practice. In keeping with the importance of nursing practice in various settings, NINR's major emphasis is on clinical research.

NINR'S RESEARCH PROGRAM IS GUIDED BY FOUR STRATEGIES INTENDED TO ADVANCE SCIENCE:

- ◆ integrating biology and behavior
- ◆ designing and using new technology
- ◆ developing new tools
- ◆ preparing the next generation of nurse scientists

Central to the themes of our research and practice are the important roles that the patient, the family and other caregivers, and the community play in promoting health and managing disease and disability.

As our science grows, NINR is focusing on ways to stimulate its future development by incorporating new tools and analytical approaches such as informatics and meta-analyses. The role of interdisciplinary research teams is a priority and will continue to increase. The Institute is committed to training new investigators, with attention to the areas of greatest need and to strategies for encouraging young investigators and members of groups underrepresented in science.

Integrating Biological and Behavioral Science FOR BETTER HEALTH

Biobehavioral research encompasses the interactions among biological, behavioral, and social factors and their effect on outcomes. For example, behaviors such as exercise may confer as yet undefined and far-reaching benefits through a combination of biological and psychological mechanisms. Biology, in turn, influences behavior, often through genetic mechanisms that may determine, for example, who will respond positively to a behavioral intervention. Our research seeks to define these relationships, implement behavioral interventions to achieve biological outcomes, and intervene in biological processes to influence behavior. Investigators apply findings of social and behavioral scientific research regarding the socio-cultural context of health and disease, along with the impact of cultural beliefs, values, and norms, to research questions. Potential targets of such research include health promotion, disease progression, treatment decision-making, and ethical issues related to participation in research. Behavioral measures and biological markers together serve as important tools in diagnosis, assessment of disease progression, and evaluation of treatment outcomes.

NINR will expand its efforts in biobehavioral research, focusing on incorporating biobehavioral measures to provide new insights, exploring designs and methods to evaluate the effectiveness of integrated biological and behavioral interventions, and elucidating the biological bases and predictors of response to behavioral interventions.



Adopting, Adapting and Generating New Technologies FOR BETTER HEALTH CARE

The direct use, creation or modification of technologies will have an increasing role in future scientific advances. NINR will build on previous accomplishments and seize opportunities to employ new technology – for example, genomics and nanotechnology – to improve self-management, short- and long-term symptom monitoring, and the application of telehealth. The Institute will increase its focus on adapting existing or developing new technologies that will link underserved populations with available resources in order to sustain healthy lifestyles and eliminate health disparities.

An example of technology that NINR will continue to develop and refine is the application of genetic and genomic science to improve risk assessment and identify potential interventions. The rapidly developing field of informatics has significant potential for improving patient safety and outcomes and for managing the data generated through research. The Institute will also continue to support the design and testing of interactive web-based and wireless interventions to improve self-management and caregiver support.

The Institute will use information and communication technology to facilitate the translation of research to practice and to inform the public of nursing science and its impact on improving quality of life and eliminating health disparities. The role of technology will continue to expand as NINR focuses on identifying the information needs of patients, families, and caregivers.



Improving Methods

FOR FUTURE SCIENTIFIC DISCOVERIES

Refining the methods used in conducting research and enhancing the interpretation and translation of findings into clinical practice increasingly require the collaboration of interdisciplinary teams.

The development of biological and behavioral measures – for applications ranging from diagnosis to assessment of disease progression to evaluation of adherence, self-management, and treatment effects – will further advance our research. Other priorities include: developing common measures for observational and interventional studies; collaborating and sharing measures and methods used with diverse populations; increasing the use of meta-analyses and other methods of pooling and standardizing data from multiple research sites; and encouraging community involvement in research when appropriate.

Future initiatives will promote the utilization of multiple-level analyses that incorporate varied types of data collection methods and analytic strategies appropriate to the research questions and hypotheses. In all these efforts, which collectively reflect the maturation of our field, investigators are encouraged to publish their findings promptly in high quality journals, and to seize opportunities to lead in their respective areas of interest.



Developing Scientists FOR TODAY AND TOMORROW

In order to continually enhance our science, NINR maintains a focus on training investigators, with an emphasis on addressing the major areas of need and increasing the diversity of the research workforce. In so doing, the Institute is helping to address the critical shortage of faculty.

The Summer Genetics Institute and the K22 Career Transition Awards illustrate the capacity of NINR's intramural research program to contribute to developing the nursing research workforce.

NINR is committed to strategic efforts to design new approaches that will cultivate the next generation of scientists. Success may depend not only on high quality training, but also on innovative ways to address the disincentives to early and productive research careers. The Institute's training strategy includes programs that increase the pool of investigators, shorten the time period from the baccalaureate to the doctoral degree, and expand interdisciplinary teams that design, implement, and evaluate research studies and disseminate findings.

The effort to develop investigators is closely linked to the Institute's strategies for integrating biological and behavioral research, adopting, adapting and generating new technologies, and improving science methodologies. Taken together, these strategies provide a framework for pursuing the ongoing research interests of NINR as well as the strategic priorities outlined in the next section of this Plan.



Areas of Research Emphasis





Within the strategic objectives described above, our science offers a rich mix of topic areas that can be viewed in the context of diseases and disorders, phases of the lifespan, and population groups. Health promotion and disease prevention form the keystone of our science, reflecting current understanding of the most effective approaches to maintaining health. Improving quality of life is the ultimate goal of research in the fields of self-management, symptom management, and caregiving. Eliminating health disparities is essential if the entire population is to benefit from improved promotion and prevention strategies, as well as new interventions. Finally, research on the end of life – an important emerging field for which NINR has been designated the lead Institute at NIH – is a unique, and in many ways a cross-cutting, area of research and clinical science.



Promoting Health and Preventing Disease

The interplay of biology and behavior is especially apparent in health promotion and disease prevention. As our understanding of the role that lifestyle plays in disease increases, so does the need for predictors and strategies that target long-term behavior change. The development of interventions based on well-defined underlying mechanisms is critical to advancing health promotion and disease prevention.

Environmental and genetic factors, as well as emerging diseases, interact with behavior to create new challenges. Socioeconomic factors influencing health include housing, population density, and other factors related to geographic location. Many potential interventions must be studied, and perhaps modified, to take into account differences among urban, suburban, rural, and remote environments. NINR seeks to support research that will:

- ◆ Develop biomarkers to assess disease risk and response to treatment, identify susceptibility genes for at-risk individuals, and design interventions to moderate risk (e.g., neurohumoral markers for differential response to intervention).
- ◆ Develop or improve biobehavioral methods, measures, and intervention strategies to optimize health.
- ◆ Identify factors that influence decision-making that results in behavioral changes that promote health and prevent disease and disability.
- ◆ Identify and develop individual and family interventions designed to sustain health-promoting behaviors over time (e.g., prevention of obesity; prevention of HIV/AIDS transmission).
- ◆ Design intervention studies using community-based approaches to facilitate health promotion/risk reduction behaviors (e.g., families with special needs, such as parents or caregivers of persons with chronic illness or developmental disabilities).
- ◆ Investigate opportunities to identify and ameliorate the long-term consequences of prematurity, including near-term infants at risk for complications.

Improving Quality of Life

Prevention and treatment of disease are the principal goals of clinical research. Attainment of these goals is constrained by many factors, including the complexity of diseases and disorders for which the underlying mechanisms and pathways to intervention are not fully understood. Moreover, even successful treatment and survival of disease often leave patients facing many challenges in daily living. Our science offers many opportunities for research that will improve quality of life by enhancing the individual's role in managing disease, relieving symptoms of disease and disability, and improving outcomes.

Self-management

Our science brings a unique perspective to the interactions among healthy persons, patients and their families, and health practitioners. Self-management incorporates facets of both symptom management and the adoption of health-promoting behaviors. It is particularly important that persons at risk for disease, long-term survivors of disease, and persons with chronic disabilities succeed in modifying behavior in order to manage their own health. This focus on self-management research was in response to the desire of many people to take more responsibility for their own health, and to the increasing imperative of controlling the costs of health care.

As technology advances, new opportunities for the development of self-management strategies will emerge. In turn, improved tools for self-management will further stimulate the research agendas for technology development and research methods. NINR seeks to support research that will:

- ◆ Develop technologies to facilitate early self-identification and self-reporting of symptoms.
- ◆ Design self-management decision-making strategies that promote healthy lifestyle choices such as diet, exercise, and primary health care practices.
- ◆ Define the behaviors that support adherence to treatment for complex acute and chronic illnesses.
- ◆ Evaluate factors that impact independence and self-care in long-term care settings.
- ◆ Identify strategies for self-management and promotion of personal health among long-term survivors of disease and persons with chronic disabilities, including routine health monitoring and attention to co-morbid conditions.



Symptom Management

For the patient, a symptom may represent a minor annoyance, a disturbing portent, or a terrible burden. To the clinician or scientist, the same symptom may serve as a diagnostic aid, an indicator of disease severity, or an outcome that shows the success or failure of an intervention. Symptoms may appear or change at multiple points in the trajectory of illness and intervention, causing patients to seek relief or reassurance, or interrupting the course of treatment because of concerns about unpleasant or dangerous side effects. NINR seeks to support research that will:

- ◆ Delineate causative mechanisms underlying symptoms.
- ◆ Improve recognition of symptoms by patients, their caregivers, and health care providers.
- ◆ Develop interventions that improve patient response and adaptation to symptoms and symptom clusters in discrete and co-morbid conditions.
- ◆ Design strategies to improve management of symptoms over disease trajectories, including the transition from acute to chronic illness and periods of long-term survivorship of formerly life-threatening illnesses.
- ◆ Develop strategies for assessment and intervention to improve health-related quality of life in persons with chronic or life-threatening illnesses.



Caregiving

The Institute seeks to provide a scientific foundation for improving outcomes for care providers and recipients across diverse settings. Recent trends show that an increased number of our population lives to an advanced age, and children who in earlier times might have succumbed to premature birth, childhood illness or injury, now survive. Informal families and networks of peers augment or replace the traditional family as providers of informal care. Changes in the incidence and prevalence of acute and chronic illnesses combined with the proliferation of diverse health care settings (e.g., assisted living facilities, nursing homes, and home care provided by professionals or family members) are opening up new lines of research inquiry. NINR seeks to support research that will:

- ◆ Design interventions aimed at improving physiological and cognitive function in residents of long-term care facilities.
- ◆ Develop interventions to improve the quality of caregiving.
- ◆ Evaluate factors that impact the health and quality of life of informal caregivers and recipients.
- ◆ Identify factors that improve the transition from one care setting to another.
- ◆ Develop models for first responders in events such as natural disasters, environmental hazards, and other emergency situations.



Eliminating Health Disparities

NINR's commitment to eliminating health disparities dovetails with a period of growing national and international recognition of the impact of race, gender, socioeconomic status, ethnic origin, geography, and culture on the health of individuals and groups.

A greater understanding is needed of predisposing factors for many diseases and disorders. Socioeconomic factors, including living conditions, interact with biology and behavior to influence health outcomes. Culturally based practices can affect either risk or protective factors for many conditions. Inequities in access to treatment and differences in response to treatment present challenges to the well-being of individuals, families and communities.

NINR's focus on health promotion and disease prevention, and its consistent commitment to cultural sensitivity, position the Institute for leadership in NIH and Department of Health and Human Services (HHS) efforts to eliminate disparities in health and quality of life. NINR is a regular contributor to strategic planning related to health disparities at NIH and HHS. The success of NIH efforts to develop research infrastructure in minority-serving institutions has laid the groundwork for making research findings, tools, and methods more widely accessible.



Focusing on the integration of biology and behavior is critical to health disparities research. Gender differences, for example, reflect biological factors based on sex and the behavioral and cultural differences between the male and female in society. Research involving “underserved populations” may incorporate many variables – age, minority status, geographic location, economic status, disability and unrecognized co-morbid conditions, to name just a few. NINR will continue to develop and refine strategies to promote institutional and individual capacity for expanded research in this field. The Institute will support research that will:

- ◆ Elucidate mechanisms underlying disparities and design interventions to eliminate them, with particular attention to issues of geography (rural and remote settings), minority status, underserved populations, and persons whose chronic or temporary disabilities limit their access to care.
- ◆ Design culturally appropriate interventions to communicate risks and susceptibility to at-risk populations.
- ◆ Apply findings from biobehavioral, descriptive, and intervention studies to factors influencing health disparities among youth and adolescents.
- ◆ Identify strategies that will reduce the long-term adverse consequences of poor maternal and reproductive health in minorities and underserved populations.
- ◆ Evaluate and modify partnership and training programs to build capacity in minority-serving institutions and expand the pool of investigators from underrepresented groups.



Setting Directions for End-of-Life Research

The end of life has long been a focus of our science, given the importance of palliative care and respect for dying persons. Many factors have recently converged to increase public and professional interest in topics relevant to the end of life.

Advances in medicine and public health have altered the prospects for survival in every age group, but particularly in the very young and the very old. Many premature and low birth weight infants benefit from perinatal advances, while others face protracted courses of decline involving difficult decisions about appropriate interventions and quality of life. Cancer is no longer a death sentence for many children, but families whose children do not respond to treatment or are born with lethal genetic diseases often find themselves faced with choices no parent envisions having to make on behalf of a child. Almost everyone will confront similar decisions as their parents and other elders survive chronic and acute illnesses and live long enough to suffer from dementia, frailty, and organ failure. Only through research can one ensure that dying patients will receive adequate management of their symptoms of pain, fatigue, and depression, particularly if they are cognitively impaired or suffer from psychological impairments. Ironically, the medical and technological advances that extend life also set the stage for a prolonged process of dying, and generate new questions about the dying process itself.

The urgency of issues at the end of life has created important research opportunities. NIH has a broad interest in these research questions, given the number of diseases and conditions at the end of life. NINR has issued a number of research solicitations in response to the 1997 Institute of Medicine report, "Approaching Death: Improving Care at the End of Life." Because of NINR's emphasis on integrating biological and behavioral science in this area, the Institute has been designated the lead Institute for end-of-life research at NIH. This represents an important opportunity for nursing science to shape future directions in an emerging field and to lead the way in addressing some of the most critical questions in clinical care today.

A December 2004 State-of-the-Science conference laid out several critical research needs. It also highlighted the interactions among patients, caregivers, and the health system, and their effects on outcomes. A statement from that meeting can be found at: <http://consensus.nih.gov/2004/2004EndOfLifeCareSOS024html.htm>. During the next few years, NINR will support efforts to:

- ◆ Identify factors that influence, and develop strategies to improve, decision-making and treatment strategies at the end of life.
- ◆ Validate instruments and refine methodologies to address the complex issues and unique features of end-of-life research for application in diverse groups and settings.
- ◆ Develop interventions to improve palliative care and enhance quality of life for the dying patient and to support family and informal caregivers.
- ◆ Explain factors related to the end of life among underserved groups, including those who are vulnerable and unable to express their preferences near the end of life.
- ◆ Support the development of informatics tools that will facilitate the integration and analysis of data from end-of-life studies.
- ◆ Increase efforts to expand end-of-life research, through research training, interdisciplinary programs, supplemental awards, small grants, and centers or center components.

ONGOING RESEARCH INTERESTS

NINR has a continuing interest in maintaining a balanced research portfolio that reflects investigator-initiated ideas, unexpected opportunities, and attention to understudied topics. In addition, the Institute collaborates on a regular basis with other NIH entities with related research interests. Applicants and research deans should consult the NINR website at <http://ninr.nih.gov/ninr/> for current information on research and research training programs. The website also provides contact information for NINR program directors.

Nursing Research—Making a Difference



The past 20 years have been marked by significant advances in research—discoveries that translate into direct benefits for patients and their families. Selected research findings are described below, with reference to strategic research opportunities. These accomplishments underscore the importance of past and future investment in the most productive and promising areas of our science. NINR will continue to consult with the research community and monitor areas of need in order to identify and capitalize on research opportunities.



- ◇ **YOUNG AFRICAN-AMERICAN MEN IN INNER CITIES** are at particular risk for the complications of uncontrolled hypertension. Many have never had contact with health care providers. A culturally sensitive behavioral and pharmacological intervention, delivered by a nurse-led multidisciplinary team at the community level, helped these men manage their hypertension. The study also demonstrated that clinic visits should be supplemented by outreach to these vulnerable young men. This work is helping to change clinical practice and is cited by the American Heart Association's Council on High Blood Pressure Research in recommendations for blood pressure measurement.
- ◇ **PEOPLE LIVING IN RURAL ENVIRONMENTS** may have little access to resources that can help them initiate and sustain healthy behaviors. Culturally sensitive interventions have been shown to reduce risk factors and improve the health of people suffering from health disparities. Rural-dwelling African-Americans responded to a series of classes that focused on preparing healthy, low-fat foods, and included practical and culturally compatible strategies for reducing the use of fats. Participants successfully lowered their dietary fat intake and their body weight, and showed a slight improvement in glucose control and lipid levels.
- ◇ **RISKS FOR HEART ATTACK, STROKE, AND DIABETES ARE EVIDENT IN CHILDHOOD**, long before the damage is done and symptoms appear. A school-based education and exercise program helped children initiate healthy behaviors to improve their cardiovascular health, and promises to provide health benefits that extend well into adulthood. Offering the program in the classroom to all children, regardless of risk factors, proved more effective than providing the same intervention to small groups of children at risk. These findings suggest that health-promoting interventions can be easily integrated into the curriculum without disrupting the class, stigmatizing certain children, or requiring special teaching resources.

◇ **CHILDREN WITH FAMILIAL LIPID DISORDERS** may need more than behavioral measures to prevent heart disease. In a clinical trial, children received nutritional counseling and followed a diet based on the National Cholesterol Education Program Step II and food pyramid dietary guidelines. Some of the children also received supplements containing docosahexaenoic acid (DHA), an omega-3 fatty acid. Children who received the supplements experienced a significant increase in blood flow in certain blood vessels compared to controls and participants who received a placebo, indicating that DHA improved vascular function in children with high levels of blood lipids. A subsequent study demonstrated that administration of DHA supplements in this population resulted in an improved lipid profile that may have contributed to the observed improvements in vascular function and could help delay the early development of heart disease.

◇ **APPROXIMATELY ONE IN EVERY 400-500 CHILDREN AND ADOLESCENTS HAS TYPE 1 DIABETES**, and the incidence of type 2 diabetes is rising. The increase in obesity, poor nutrition, and lack of physical activity are major contributors to diabetes in all age groups, and pose special challenges for adolescents. Teens must contend with hormonal changes that make them resistant to insulin, social pressures to engage in unhealthy behaviors, and schedules that can disrupt regular blood glucose monitoring, diet, and exercise. Intensive diabetes management training improves metabolic control. However, studies have shown that control can be significantly enhanced when coping skills training (CST) is provided at the same time. CST uses role-playing and feedback to develop skills in social problem-solving and conflict resolution, focusing on dealing with problems rather than on managing a medical condition. It has been incorporated into routine care by many practices that serve teen patients, and current clinical guidelines on type 1 diabetes now emphasize behavioral training in addition to disease management.



- ◇ **ARTHRITIS IS THE LEADING CAUSE OF DISABILITY AMONG PEOPLE OF HISPANIC ORIGIN** in the U.S., and a lack of proficiency in English limits the ability of many to take advantage of potentially useful health information. A short, community-level self-management program administered in Spanish has been shown to improve elements of health status while reducing health care costs. After one year, participants experienced less pain, increased their activity levels, and reduced their physician visits by 40 percent. The study group also showed improvements in self-efficacy (confidence in being able to manage their disease), general health, exercise, disability, and depression. This approach has been widely adopted in the U.S. and other countries, and efforts are underway to extend it to diabetes and possibly other chronic diseases.
- ◇ **PATIENTS LEAVING THE HOSPITAL** with certain conditions often have difficulty managing their care at home. This may result in readmission to the hospital as their diseases progress or they experience other declines in health status. A transitional care model was developed and tested by an interdisciplinary team to help bridge the gaps between hospital and home care. Advance Practice Nurses specializing in geriatrics provided follow-up contact in the home. This approach improved health outcomes for older people with heart failure while providing significant cost savings.
- ◇ **CERTAIN PAIN RELIEVERS FOR ACUTE POST-OPERATIVE PAIN ARE MORE EFFECTIVE IN WOMEN** than in men. A study of pain relief subsequent to removal of bony-impacted wisdom teeth found that women obtained satisfactory relief from a seldom-used class of drugs – kappa-opioids – even though they reported a higher intensity of pain than men. In addition, relief in women lasted longer than in men. Men reported little benefit from these drugs, and pain actually increased at some dosages. More recent studies have shown that naloxone, a drug used to reverse the effects of narcotic drugs, eliminates the gender differences in response to kappa-opioid analgesia, and enhances pain relief in both women and men. In follow-up “bedside to bench” studies, the investigators studied pain sensations at the molecular level in rat models, looking at gender and age, nerve cell receptors, inflammation levels, the relationship of sex hormone levels to the effectiveness of pain relief, and biochemical factors that cause pain to intensify. This body of work has revealed the importance of considering gender in providing analgesics for pain relief and identified new directions for research on the experience and relief of pain.

- ◇ Laboratory studies have shed light on the **RELATIONSHIP BETWEEN PAIN AND RECOVERING FROM SURGERY**. Using a rat lung tumor model, investigators demonstrated that rats provided with effective pain relief during and after surgery developed fewer lung tumors. This work indicates that proper analgesia may help maintain immune function to reduce surgery-induced metastases. It suggests important new directions for studying surgical pain and metastasis in humans and adds to a growing body of knowledge about the lasting effects of pain management before, during, and immediately following surgery.



- ◇ **DISADVANTAGED YOUNG MOTHERS** face a wide range of social and financial difficulties in raising their children. One study showed that these mothers can benefit from home visits by registered nurses who tailor their interventions to the needs of each family. Interventions included help with parenting skills, linkage of mothers to community services, and improvement of support systems. The initial results, confirming those of an earlier study, included significantly lower incidence of pregnancy-induced high blood pressure, better timing of subsequent pregnancies, and substantial reduction of childhood injuries. A follow-

up study found that when the children reached six years of age (four years after the first study was concluded), they had higher IQ and language scores and fewer behavioral problems compared to controls. The mothers showed lasting improvement on several indices of stability in finances and relationships.

- ◇ Pressure ulcers are areas of skin breakdown that may occur when an **IMMOBILE OR BEDRIDDEN PATIENT** remains in one position for too long. They can compromise patient health and increase the complexity and cost of care. The Braden Scale for Predicting Pressure Sore Risk[®] was developed to identify patients at higher risk for pressure ulcers within a few days of admission to a health care institution so that early preventive action can be taken. A nurse-led multi-site study validated the efficacy of the scale for predicting development of future pressure ulcers, and determined that use of the scale within 48 to 72 hours after admission improved prediction accuracy and allowed nurses to initiate timely prevention strategies. These findings have been incorporated into the Clinical Practice Guidelines for practitioners published by the Agency for Healthcare Research and Quality.



- ◇ **HOSPITAL RESTRUCTURING AND A GROWING NURSING SHORTAGE** are among the factors most likely to affect patient care in the next 20 years. Studies have confirmed that nurse staffing levels and educational attainment of nurses in hospitals have direct and measurable effects on patients' health outcomes. Other research has shown that hospital restructuring, which may cause or exacerbate job dissatisfaction and burnout, is likely to affect both the numbers and the educational makeup of the hospital nursing workforce. Finally, studies suggest that working conditions are more of an issue than wages in determining job satisfaction among nurses. This body of work underscores the importance of considering scientific evidence in hospital restructuring and staffing.

- ◇ **THE INCREASED INCIDENCE OF HIV INFECTION AND AIDS AMONG YOUNG PEOPLE FROM 13 TO 20 YEARS OF AGE** points to the need for HIV/AIDS prevention strategies specifically designed for adolescents and young adults. An intervention targeted toward young minority women was shown to be more effective when it included attention to cultural issues and incorporated skills development programs. In a related and important finding, group sessions were more effective than working with individuals.
- ◇ **THE AMOUNT AND QUALITY OF A MOTHER'S SLEEP IN LATE PREGNANCY** may have a significant effect on both the duration of labor and the likelihood of cesarean delivery. Controlling for infant birth weight, investigators found that insufficient sleep (less than 6 hours a night) and severely disrupted sleep are both associated with prolonged labor. Women with insufficient sleep were 4.5 times more likely to have a cesarean delivery, and those whose sleep was severely disrupted had 5.2 times as many cesareans. These results highlight the importance of adequate sleep during pregnancy, and suggest a need for care providers to emphasize the importance of good sleeping habits to their pregnant patients.
- ◇ **INFANTS BORN WITH LOW BIRTH WEIGHT (LBW)** and hospitalized in a newborn intensive care unit are very susceptible to infections, and Gram-negative organisms are an increasing source of these infections. A recent study showed that the main risk factors associated with Gram-negative infections were birth weight, duration of the use of a central venous catheter, use of nasal continuous positive airway pressure (nasal CPAP), use of gastric H2 blocker medications, the need for a surgical procedure, and pathology of the gastrointestinal (GI) tract. H2 blockers, nasal CPAP, and GI pathology may all weaken the GI epithelium, affecting the translocation of Gram-negative organisms across the GI tract. These findings indicate the need to recognize the diverse causes of Gram-negative infections among LBW infants and develop appropriate, tailored preventive strategies.

- ◇ **WOMEN WHO HAVE SUFFERED A HEART ATTACK** have a higher rate of morbidity and mortality than men. A recent study found that women who had suffered a heart attack were less likely than men to make changes to their diet or exercise routines – changes that could prevent future heart attacks. The investigators suggested that women may be less likely than men to attribute the cause of their heart attack to poor diet and exercise. The possibility that men and women differ in what they believe caused their illness may influence their behavior once they have recovered, suggesting a need for tailored approaches to treatment and education.



- ◇ **CAREGIVERS OF ELDERLY PEOPLE** tend to experience a high degree of burden and stress. A survey of more than 2,000 female caregivers of elderly veterans with dementia found that almost one-third of the women had significant depressive symptoms. White caregivers were almost twice as likely to be depressed as African-American caregivers. White caregivers who were depressed were also twice as likely as their African-American counterparts to be taking antidepressants. This finding suggests that caregivers of dementia patients

should receive routine screening and treatment for depression, and that better efforts are needed to make African-American caregivers aware of the potential benefits of antidepressant therapy.

- ◇ **MANY WOMEN REPORT MOOD CHANGES** related to menopause. Scientists followed 70 postmenopausal women, one-third of whom were receiving hormone replacement therapy (HRT), to study the relationship between depressive symptoms and cholesterol and lipid levels. The average depression score for the women was low, and was not related to receiving HRT. However, for women not on HRT, increased depressive symptoms were related to lower levels of cholesterol. These findings indicate that HRT may serve to buffer the effects of low cholesterol levels on depression in otherwise healthy postmenopausal women.

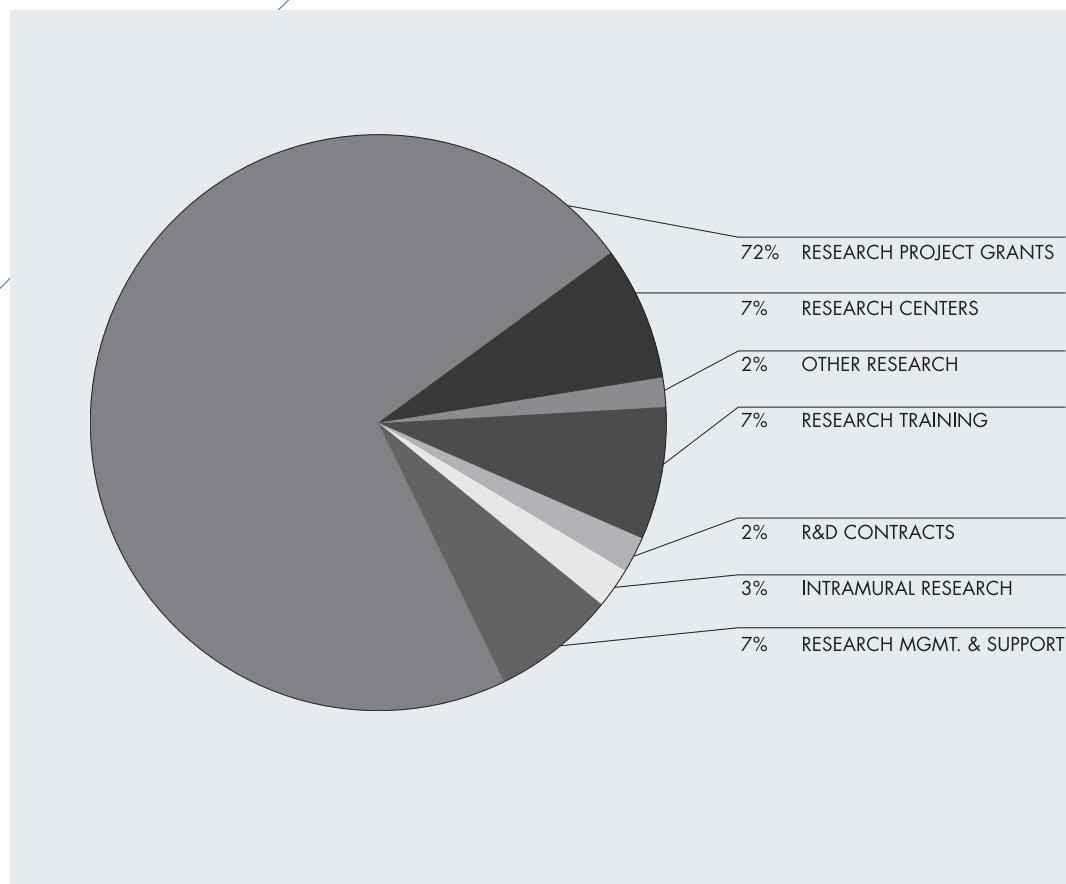


Appendices



Budget

The budget for NINR is specified in annual appropriations laws. The initial budget of NINR, as a Center, was \$16 million. Today, the budget is over \$136 million, which is distributed approximately as follows:



Projected distribution of funds for fiscal year 2007

Strategic Planning Process

NINR's planning process has continued to evolve in the light of scientific advances and the growth of nursing science. New directions in the management of NIH programs, notably the Roadmap initiative, have increased opportunities for collaboration and leadership. The most recent Plan, published in 2000, was augmented in 2003 by publication of research themes of particular relevance to the NIH Roadmap initiative.

Periodic reviews of the research portfolio by the National Advisory Council for Nursing Research complement the ongoing monitoring by Institute program staff. Scientific conferences, meetings with professional and patient advocacy groups, and formal and informal interaction with other NIH components all serve to identify the most pressing needs, trends, and opportunities. Emerging health challenges, Congressional directives, NIH and HHS priorities, and anticipated budget and staff resources also come into play as plans are developed and refined.

The formal process of updating the Strategic Plan published in 2000 began with the Institute's annual planning retreat, held June 13-14, 2005. Participants included NINR senior leadership and staff, and external scientific advisors (including present and former members of the Advisory council.) The NINR research portfolio was reviewed as it related to the 2000 Plan's strategic priorities and prospective trends in health care and their likely impact on research. Research advances related to the 2003 themes were examined in terms of their known or anticipated influence on future directions in nursing research.

Following the annual NINR retreat, Institute staff and advisors turned their attention to the future. The NINR Council Planning Subcommittee, augmented by key Institute staff to form the Council Strategic Planning Workgroup, met over the next several months to further develop the ideas generated at the planning retreat and in subsequent discussions. Early in that process, a representative from the Council Strategic Planning Workgroup reported to the Advisory Council in open session at its September 2005 meeting. An updated report, reflecting several teleconferences, was provided at the Advisory Council's meeting in January 2006.

The draft Plan, reflecting Council input, was posted on the NINR website. In addition to providing a 60-day period for public comment, NINR invited professional and patient groups to provide feedback prior to the Council's final review in May 2006. Representatives of major professional societies, nursing school deans, individual nurse scientists, and students provided comments, many of which were incorporated into the Plan. The Advisory Council approved the revised version at its meeting on May 24, 2006.

Publication of the Plan, coinciding with the culmination of NINR's 20th anniversary celebration in October 2006, represents an important step in the evolution of nursing research at NIH, but the task of fostering a vibrant nursing research program is ongoing. Viewing nursing science from the perspectives described in this Strategic Plan provides a framework for more detailed planning as well as for evaluation of current portfolios and future initiatives. Institute staff and advisors will link current priorities and overall research strategy to portfolio-specific topics, and provide analyses to guide the next steps. Opportunities will be characterized in terms of scientific difficulty, health priority, time, and resources required. Such analysis will provide the framework for setting priorities, evaluating the success of selected initiatives, and undertaking additional planning efforts.



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Major Events in NINR History

NOVEMBER 20, 1985

Public Law 99-158, the Health Research Extension Act of 1985 becomes law. Among other provisions, the law authorizes the National Center for Nursing Research (NCNR) at NIH.

APRIL 16, 1986

Department of Health and Human Services Secretary Otis R. Bowen, MD, announces the establishment of NCNR at NIH.

APRIL 18, 1986

Dr. Doris H. Merritt appointed Acting Director of NCNR.

DECEMBER 3, 1986

The DHHS secretary appoints members of the NCNR Advisory Council.

FEBRUARY 17, 1987

The first meeting of the NCNR Advisory Council is held.

JUNE 24, 1987

Dr. Ada Sue Hinshaw appointed Director of NCNR.

JUNE 10, 1993

P.L. 103-43, the NIH Revitalization Act of 1993, becomes law. Among other provisions, it elevates the NCNR to an NIH Institute.

JUNE 14, 1993

DHHS Secretary Donna Shalala signs the Federal Register notice establishing the National Institute of Nursing Research (NINR).

JULY 1, 1994

Dr. Suzanne S. Hurd appointed Acting Director of NINR.

APRIL 3, 1995

Dr. Patricia A. Grady appointed Director of NINR.

National Institute of Nursing Research
ninr.nih.gov

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