

Bringing Science to Life

# NINR STRATEGIC PLAN



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## Prologue from the NINR Director

As the National Institute of Nursing Research (NINR) commemorates its 25th year, it is important to reflect on the many discoveries in nursing science that have had a profound impact on the health of the Nation over the past quarter century. The evidence base developed through nursing science has enhanced clinical practice, prevented illness, and improved the lives of countless individuals across the lifespan. Nurse scientists lead the way in patient-centered, point-of-care, biobehavioral research with a primary focus on health promotion, symptom management, quality of care, and quality of life. However, even as we recognize these accomplishments, it is vitally important to plan for the future and define the critical role that NINR-supported research, and indeed all of nursing science, will play in improving the health of the Nation over the next 25 years and beyond. It is my belief that NINR-supported research is ideally positioned to address the most important health challenges faced by the American people, now and in the coming decades.

Over the past 25 years as NINR's research investments have expanded, the issues facing nursing science have evolved, becoming ever more complex. Rising rates of obesity and chronic illness, health inequities among racial and ethnic groups, and financial pressures on the Nation's health care system are just a few of the serious challenges that warrant fresh solutions. In addition, we have experienced a revitalization of the discourse on our Nation's health and health care system. The demand for creative ideas, interdisciplinary scientific approaches, and a talented cohort of investigators at all career levels and from diverse backgrounds has never been greater.

NINR has supported clinical, biological, and translational research in many areas, including chronic illness, symptom management, disease prevention, and patient-focused health programs that encourage and enable individuals to become guardians of their own well-being. Reflective of the interdisciplinary foundation of nursing science, NINR has funded research that draws together experts from diverse disciplines and professions — from nursing and medicine to engineering and business management. Nursing science has positioned itself as a leader in identifying high-quality, high-value biobehavioral approaches to health promotion, disease prevention, and well-being — which are all critically linked to quality of health care and quality of life.

This Strategic Plan seeks to harness the strengths of nursing science to power an ambitious research agenda that will meet current and future health care needs and anticipate future health challenges and priorities. The Plan is intended to not only serve as a guide for NINR research and training activities over the next five years, but also to provide a vision for nursing science for the next quarter century. Moving forward, new findings in nursing science will continue to improve the understanding, promotion, and management of health across the lifespan — from pre-birth to the end of life. This research will focus on the multiple factors that influence health, as well as the intersections of such factors that make health care so complex. NINR will continue supporting innovative technologies and interdisciplinary partnerships to achieve success in acute care and disease treatment and will expand upon this base to respond to such issues as our Nation's aging population, increasing co-morbidities, and shortages in the health care workforce. NINR-supported investigators will lead in developing novel approaches across health care disciplines, as well as national borders, to identify

effective methodologies and strategies that promote health equity and point the way toward resolving health disparities. To strengthen these goals, NINR will enhance efforts to support nurse educators and develop a new generation of scholars, fully equipped to work with and thrive on a mission to improve the quality of life as they advance nursing science over the coming decades.

This is a time of incredible transformation in our world — in the health sciences, in health policy, and in the health care professions. As we move forward in this rapidly evolving landscape, the expertise, innovation, and leadership skills of nurse scientists and clinicians will be increasingly called upon to guide and shape practices and policies. We know that the solutions to health care issues of the 21st century depend upon the full engagement of the largest clinical workforce in the United States — nurses — and the support of the scientists whose research provides the evidence base for their practice and for the practice of their colleagues across the health care spectrum. As our national health system continues to evolve into one that focuses on the science of health as well as illness and cure, NINR-supported investigators will play an enviable and vital part in shaping its success as they translate the discoveries of nursing science into health benefits for all Americans.

*Dr. Patricia A. Grady*

Dr. Patricia A. Grady

*October 2011*

# NINR MISSION

The mission of NINR is to promote and improve the health of individuals, families, communities, and populations. The Institute supports and conducts clinical and basic research and research training on health and illness across the lifespan to build the scientific foundation for clinical practice, prevent disease and disability, manage and eliminate symptoms caused by illness, and improve palliative and end-of-life care.

NINR's goal is to enhance nursing science and health care by integrating the biological and behavioral sciences, applying new technologies, promoting health equity, and developing scientists of the future.

# NINR RESEARCH

## INVESTING IN THE FUTURE

### The Science of Health – An Introduction to NINR Research

NINR supports clinical, basic, and translational research to build the scientific foundation for clinical practice, prevent disease and disability, manage and eliminate symptoms caused by illness, enhance palliative and end-of-life care, and train the next generation of scientists. In doing so, NINR promotes and improves the health of individuals, families, and communities across the lifespan, in a variety of clinical settings and within diverse populations.

NINR seeks to advance nursing science by supporting research on the *science of health*, which focuses on the promotion of health and quality of life. The science of health is based on the premise that individuals would benefit from being actively involved in maintaining their own health through the prevention of disease and the direct participation in the management of illness. Individuals should be supported in their efforts to understand, interpret, and apply health strategies to promote and manage their own well-being. This approach to health care includes the affirmation that societal and cultural roots are important to health. Thus, the science of health encompasses the investigation of multiple health determinants — including psychological, physiological, genomic, environmental, familial, societal, and cultural factors — and their impact on the health promotion and self-management behavior of individuals within their communities.

To advance health, NINR investigators seek innovative methods that optimize patient outcomes and, at the same time, contain costs. However, the pathways to successful and cost-effective patient-focused interventions are complex. The interplay of behavior, biology, and environment largely

determines the health and welfare of each individual and, by extension, the health of the Nation. Interdisciplinary (including interprofessional) partnerships are needed to design creative interventions that use existing and emerging technologies and consider the multiple factors that impact behavioral change. Research that tests these strategies will provide the scientific evidence for future health promotion and disease prevention interventions that can be applied in home, community, workplace, and clinical settings.

No profession is more integral and essential within every level of the health care delivery system than nursing. Because nursing touches every person at some point in their lives, NINR investigators are ideally positioned to examine the foundations of symptom management in acute and chronic illness, to design and test preventive care and self-management strategies, and to translate research findings into clinical and community health practices. The knowledge advanced from implementation science coupled with health care environments that promote the use of evidence-based best practices will accelerate translational applications. New discoveries with direct clinical application not only add value to health care delivery, but also keep nursing at the forefront of science that benefits clinical practice and improves quality of life. Nurse scientists are ideally positioned to design and drive scientific discoveries that can be implemented directly and immediately into clinical practice at the point of care.





This Strategic Plan describes NINR's approach for advancing the science of health over the next five years. NINR will leverage its past accomplishments to pave the way for future discoveries in scientific areas that have the greatest potential to impact the health of the Nation. NINR's research programs will incorporate a broad range of interdisciplinary approaches designed to promote scientific exploration that will lead to better health outcomes and health services. Such approaches include: clinical intervention studies; translational and implementation research approaches; comparative effectiveness research; and analyses of cost, outcomes, and quality of care. NINR will also maintain its focus on basic research, seeking to improve knowledge of underlying biological systems, including the genetic and genomic contributions to symptoms (such as pain) and to health conditions (such as obesity). In addition, across all of its areas of research emphasis, NINR will maintain and redouble its commitment to advancing the health of all populations, irrespective of race, ethnicity, age, gender, socioeconomic status, and/or sexual orientation, by developing culturally responsive, evidence-based interventions. NINR supports research that promotes health equity and eliminates health disparities by investigating the interplay of behavioral, biological, and environmental determinants of health and wellness for all populations, including underserved and resource-limited communities. Throughout the life of this plan, NINR will continually analyze its progress toward achieving these objectives and will reassess its strategic directions accordingly. Input from stakeholders, trans-NIH planning and priority-setting processes, and changing health developments will continue to shape the future direction of NINR research.

To advance the science of health, NINR will invest in research to:

- Enhance health promotion and disease prevention
- Improve quality of life by managing symptoms of acute and chronic illness
- Improve palliative and end-of-life care
- Enhance innovation in science and practice
- Develop the next generation of nurse scientists

# Profiles of THE SCIENCE OF HEALTH

Supporting research that promotes good health across the lifespan and in diverse communities is a top priority for NINR. Yet, the Nation's health problems are complex and there are no simple solutions. Chronic illness, in particular, accounts for more than 75% of health care costs in the U.S., is often associated with disability and distress, and requires ongoing coordination of care with health care providers, and long-term self-management of illness. Addressing such complex issues requires a focus on behavioral, psychological, social, structural, and policy influences on health, as they occur in different contexts such as the hospital, the community, and the home. From informing policy decisions to improving patient care to helping individuals manage their own health, NINR-funded investigators are leading the way in advancing the science of health.

## **Quality of Care in Hospitals — Nurse Staffing Levels Matter.**

Dr. Linda Aiken (University of Pennsylvania) is a leading authority on the impact of nursing and nurse shortages on patient outcomes in the U.S. and around the world. Her groundbreaking work revealed significant differences in patient and nursing outcomes when comparing data from California, which has legislatively mandated nurse staffing levels, to Pennsylvania and New Jersey, which do not. Hospital nurses in California cared for fewer patients, which was associated with lower patient mortality, and they reported higher job satisfaction, less burnout, and a better ability to care for patients. Dr. Aiken's pioneering research has provided invaluable guidance for policymakers across the country in developing health care legislation and regulations.

**People Managing Their Own Health in the Community.** Dr. Kate Lorig (Stanford University) and her research team developed a self-management program for people with chronic illness, such as arthritis, heart disease, and diabetes. The program involves: “peer-leaders” who teach self-management techniques (e.g., exercise, diet) at community sites, materials and audiotapes about exercise and relaxation, and monthly automated telephone messages. The program was expanded to reach Spanish-speaking Americans with diabetes and resulted in improved metabolic status, reduced health distress, and increased self-efficacy. This group of individuals with diabetes also showed improved self-rated health and communication with physicians, fewer emergency room visits, and trended toward fewer physician visits. Dr. Lorig’s chronic illness self-management program has been widely implemented in communities both nationally and worldwide.



Investing in

# HEALTH PROMOTION AND DISEASE PREVENTION

NINR supports research to discover new ways to promote health and prevent disease and achieve long-term, positive outcomes in individuals across the lifespan. Health care professionals, policy leaders, and others in the health care arena have long recognized that the most effective approach for mitigating the burden of chronic illness is to better understand its causes. This understanding will enhance the prevention and self-management of such conditions as heart disease and diabetes. Successful strategies for health promotion involve more than just educating individuals on healthy living habits. Rather, scientists are challenged to determine the collective social and physical behaviors that lead to making healthy lifestyle choices. Health promotion and disease prevention require a thorough exploration of behavior at multiple levels of society, including that of individuals, families, clinicians, health care organizations, communities, and populations.

NINR-supported scientists not only investigate strategies to understand and promote behavioral changes in individuals, but also evaluate health risks in diverse communities by exploring the multiple factors that underlie susceptibility and mediate risk for developing disease and illness. With advances in technology and science, the future calls for investigators to develop partnerships across disciplines and with community agencies. Multilevel, community-based, participatory research will further an understanding of the barriers and incentives that influence behavioral change. The continued development of culturally appropriate, evidence-based interventions for use with at-risk and underserved populations will contribute to the promotion of health equity and the elimination of health disparities. Overall, the development of innovative interventions tailored to the individual will improve health behaviors, decrease the incidence of acute and chronic illness, and advance health outcomes while reducing health care costs.

To promote health and prevent disease, NINR will support research that:

- Develops innovative behavioral interventions to promote health and prevent illness in diverse populations and across the lifespan
- Studies the behavior of systems (e.g., family units, populations, and/or organizations) that promote the development of personalized interventions
- Improves the understanding of behavioral patterns and the incentives for behavioral change
- Develops and tests models of lifelong preventive care
- Creates innovative communication strategies for individuals, families, clinicians, and communities that promote health and improve health literacy
- Translates scientific advances to effect positive health behavioral change
- Incorporates interdisciplinary, community, and other health care partnerships in the design or conduct of health promotion research

# Profiles of PROMOTING HEALTH AND PREVENTING DISEASE

Individuals and families face challenges to their health and well-being across the lifespan. Parents coping with the stress of caring for premature infants, adolescents making life-changing decisions about engaging in risky health behaviors, and caregivers providing care to loved ones with Alzheimer's disease are just a few examples of the important areas in which NINR-funded researchers are making great strides. The examples below highlight NINR's commitment to funding research that improves health and quality of life; holds the potential to reduce health care costs; and contributes to healthy individuals, families, communities, and populations.

**Empowering Parents in the Neonatal Intensive Care Unit (NICU) and Beyond.** Almost half a million premature infants are born each year in the U.S., resulting in high costs of care and stress for parents. To support parents in this challenging situation, Dr. Bernadette Melnyk (Arizona State University) developed the Creating Opportunities for Parent Empowerment (COPE) program. The COPE program resulted in improved knowledge and parenting behaviors, decreased parental stress, and shortened the length of NICU stays by about four days, which translated to reduced health care costs of about \$4,800 per infant. Through a series of nine randomized controlled trials, Dr. Melnyk has demonstrated the efficacy of the COPE intervention program in improving the outcomes of critically ill/hospitalized children and premature infants and parents. COPE has been adopted by hospitals and insurers throughout the U.S.

**Promoting Health and Well-Being in Family Caregivers of Loved Ones with Alzheimer’s Disease.**

Up to 5.2 million people have Alzheimer’s disease (AD) in the U.S. This number is expected to increase dramatically with the aging of baby boomers, posing challenges for caregivers in terms of coping with stress and financial strain and maintaining their own health. With support from NINR and the National Institute on Aging, Dr. Lou Burgio (University of Michigan) and his colleagues developed the Resources for Enhancing Alzheimer’s Caregiver Health (REACH) II program, which teaches caregivers about AD, managing stress, and maintaining their own health. In a large sample of Black and White Alzheimer’s caregivers, those in the REACH II intervention reported better physical, emotional, and overall health and had lower scores for depression, which contributed to reducing their sense of caregiving burden. Programs such as REACH II have the potential to promote health and well-being in racially and ethnically diverse families. Multiple efforts across the federal government are currently underway to implement REACH II in the community.

Investing in

# ADVANCING THE QUALITY OF LIFE: SYMPTOM MANAGEMENT

Throughout its 25-year history, NINR has supported research on new and better ways to manage symptoms of acute and chronic illness. NINR seeks to provide a better understanding of symptoms and symptom clusters that will improve clinical management of illness and lead to more productive lives. This includes the management of pervasive symptoms — such as pain, fatigue, impaired sleep, and depression, among others — that cross multiple conditions across the lifespan and impair quality of life for millions of Americans. These conditions directly and indirectly affect the lives of patients, families, caregivers, and the community. Pain, for example, is one of the most common reasons people seek health care, yet vast disparities in the management of pain persist. Relief of acute and chronic pain continues to be a largely unmet health need.

The goal of NINR's focus on symptom management is to support research that improves the understanding of symptoms and develops new strategies for symptom management that will improve quality of life even in the presence of chronic illness. Symptom management research improves our understanding of the biological mechanisms underlying symptoms while increasing our knowledge of the behavioral aspects of symptoms that diminish one's ability to live a normal life. Self-management research examines strategies that help individuals with chronic conditions and their caregivers better understand and manage their illness and improve their health behaviors, thereby reducing the need for visits to a health care provider.

In addition to the research conducted by NINR-supported investigators at universities, hospitals, and other institutions across the nation, NINR also supports a vigorous intramural program that conducts basic and clinical research on the biological mechanisms underlying a single symptom or cluster of symptoms. This research investigates the genetic and genomic mechanisms that underlie the “symptome.” This encompasses individual variability inherent in symptoms such as pain, fatigue, and stress, as well as clinical interventions to alleviate these symptoms.



To improve quality of life through better management of the symptoms of acute and chronic illness, NINR will invest in basic, clinical, and translational research that:

- Improves knowledge of biological and genomic mechanisms associated with symptoms and symptom clusters
- Designs interventions to improve the assessment and management of symptoms over disease trajectories, including the transition from acute to chronic illness
- Studies the multiple factors that influence the management of symptoms and applies this knowledge to the design of personalized interventions
- Develops strategies to improve self-management of chronic illness across the lifespan, particularly in the context of comorbidities
- Develops strategies to assist individuals and their caregivers in managing chronic illness, including analyses of caregiver burden and cost-effectiveness



Profiles of

# MANAGING THE SYMPTOMS OF CHRONIC ILLNESS

Pain, fatigue, and other illness- and injury-related symptoms negatively impact quality of life for millions of individuals across the lifespan, making research to improve management of such symptoms an urgent priority. For example, despite the high prevalence of chronic pain and pain-related illnesses, pain is poorly understood in terms of its biological mechanisms and effective treatments. NINR-supported extramural investigators are conducting research that seeks to identify the genetic, biological, and psychosocial determinants of pain and other symptoms; and to make advancements in clinical treatment, behavioral interventions, and assessment. In addition, NINR's Intramural Research Program (IRP) uses the latest clinical and genomic technologies to gain a better understanding of the underlying biological mechanisms of a range of symptoms, their effect on patients, and how patients respond to interventions.

**Discovering Genetic Links to Peripheral Neuropathy.** Dr. Susan Dorsey (University of Maryland) and her collaborators have examined a previously unexplored gene — “giant axonal neuropathy 1,” or Gan1 — for its possible link in painful peripheral neuropathy, a condition associated with HIV treatment. Their research is the first to suggest that Gan1 might play a role in the development of peripheral neuropathy, with implications for new therapeutic approaches to preventing or reducing this significant side effect.

**Using Genomic Approaches to Explore Clinical Pain.** Dr. Xiao Min Wang (NINR IRP) is testing the utility of a genomics-based approach to understanding clinical pain, including cancer treatment-related peripheral neuropathy. Her work suggests a role for biological factors — known as cytokines and chemokines — in the development of acute inflammatory pain in humans, some of which had not previously been implicated in clinical pain. These factors could provide useful new targets for drug treatments.



**Developing Better Techniques for Pain Assessment.** Dr. Wendy Henderson (NINR IRP) has developed a device for collecting patient-reported outcomes related to pain called the “Gastrointestinal Pain Pointer” (GIPP). The GIPP permits a patient to describe the location, intensity, and subjective components of their pain on a graphic interface. These data are then captured electronically for quantification and comparison to later reports of pain. This instrument holds promise for advancing the science of managing clinical pain.

**Applying Genomic Approaches to the Study of Fatigue.** Dr. Leorey Saligan (NINR IRP) is incorporating a genomics-based approach into clinical research in symptoms associated with cancer treatment. Using genomic analyses, he is examining possible molecular mechanisms of fatigue. Findings may lead to the identification of fatigue biomarkers, provide insights into possible therapeutic targets, or identify specific phenotypes of individuals prone to develop significant fatigue during cancer therapy.



## Investing in **PALLIATIVE AND END-OF-LIFE CARE**

Advances in medicine and public health have resulted in longer lifespans, improving the prospects for survival in every age group, particularly the very young and the very old. Improvements in health care have altered the trajectory of many conditions, notably cancer and HIV/AIDS, from acute to chronic conditions. Still, individuals of all ages continue to face protracted courses of decline that require difficult decisions to be made to ensure appropriate intervention, maximize quality of life, and promote dignity of death. Nearly every person will confront such choices, whether on behalf of a child, life partner, parent, grandparent, relative, or close friend. Yet many families and individuals are ill prepared and poorly supported to confidently weigh treatment options and make these important decisions. In addition, health care providers are often inadequately prepared to discuss the varying options in the face of progressive life-threatening illness.



Because of nursing science's emphasis on understanding and enhancing the care of persons with chronic, life-threatening conditions across the lifespan, the Director of NIH designated NINR as the lead institute for end-of-life research. This designation, which occurred in 1997, has allowed NINR-supported investigators to advance the science of palliative and end-of-life care and to lead the way in addressing some of the most critical challenges in clinical care today.

NINR's palliative and end-of-life interdisciplinary research efforts apply behavioral, biological, and social science strategies to better understand and address the challenges faced by individuals with life-threatening illness and their caregivers. NINR supports research that explores interventions to optimize patient and caregiver quality of life across care settings and cultural contexts. NINR recognizes that high-quality, evidence-based palliative care is a critical component of maintaining quality of life at any stage of illness, not just at the end of life. Specific research topics and activities include: relief of pain, suffering, and distressing symptoms through effective palliative care; understanding and facilitating decision making by patients, caregivers, and providers; and developing new investigators in this area of science.

To advance palliative and end-of-life care, NINR will support research to:

- Improve understanding of the complex issues and choices underlying palliative and end-of-life care
- Develop and test biobehavioral interventions that provide palliative care for chronically ill individuals across the lifespan, including those from diverse populations
- Develop and test strategies to minimize the physical and psychological burdens on, and better maintain the health of, caregivers, particularly when the person for whom they are caring nears the end of life
- Determine the impact of providers trained in palliative and end-of-life care on health care outcomes
- Create new communication strategies among clinicians, patients, families, and communities to promote decision making regarding complex treatment and care options in the face of life-threatening illness

# Profiles of

# IMPROVING PALLIATIVE AND END-OF-LIFE CARE

For individuals and families faced with making decisions about palliative and end-of-life care, communication with health care providers is critical. From understanding patient wishes to supporting family members as they make challenging decisions, NINR supports research to identify better ways of supporting individuals and families with decisions at the end of life.

## **Communicating Patient Wishes to Health Care Professionals.**

How can we ensure that an individual's treatment wishes are followed at the end of life? Dr. Susan Hickman's (Indiana University; Oregon Health & Science University) research focuses on the Physician Orders for Life-Sustaining Treatment (POLST) program, which consists of a standardized, automatically transferred form on which patient preferences are listed as physician orders for life-saving and comfort measures such as cardiopulmonary resuscitation (CPR), pain relief, and tube feeding. Results showed that long-stay nursing facility residents with POLST forms, compared to those with traditional Do-Not-Resuscitate (DNR) orders, were less likely to receive unwanted life-sustaining treatment, while not sacrificing the degree of comfort care received (i.e., no significant difference in reported symptom frequency or level of symptom management received). Health care professionals can use a program such as POLST to help individuals make more informed choices about the type and level of end-of-life care they receive.

## **Communicating with Family and Understanding the Impact of**

**Decisions.** We are improving our understanding of the ways in which a loved one's death impacts family members and we are developing better methods of communication between family members and health care professionals about palliative and end-of-life care. Dr. J. Randall Curtis (University of Washington) and his colleagues demonstrated that factors such as length of stay in the Intensive Care Unit (ICU) affected family members' satisfaction with care, and that improving communication about end-of-life care reduces stress, anxiety, and depression in family members. For instance, Dr. Curtis' group found that when physicians follow standardized communication guidelines (referred to as VALUE) where they **V**alue what the family members said, **A**cknowledge their emotions, **L**isten, **U**nderstand the patient as a person through asking questions, and **E**licit questions from the family members, this was associated with better outcomes than the customary conference between family and physician.



## Investing in **INNOVATION**

Rapid advances in technology and genomic science, as well as significant changes in demographics and health care policies and practice, have placed pressing demands on nursing to find fresh approaches and interventions that improve health outcomes. Nursing science can provide the foundation for innovative strategies and advances in technology that deliver real-time personalized information to individuals, families, and communities. NINR scientists can lead in developing novel approaches across disciplinary and professional boundaries, as well as national borders, to identify effective methodologies and strategies that provide health equity and help resolve health disparities.





NINR encourages the development of new technologies and informatics-based solutions to assist individuals and providers in promoting health, preventing disease, managing symptoms, and engaging patients in their own health care. The volume and complexity of information have expanded exponentially and, at the same time, knowledge has become more accessible. The understanding, analysis, and application of health data are an essential part of advancing nursing science. Moreover, managing this information explosion and applying subsequent analyses in ways that can lead to improved risk identification, healthier behaviors, improved symptom management, and better clinical outcomes are particularly important challenges for scientists. For example, by collecting and integrating clinical and genomic information, investigators can better determine patient traits, develop specific therapies, and increase the number of successful outcomes.

As innovative technologies gain a larger role in health care, investigators must harness the promise of these advances to use in research. They must learn to use emerging technologies to translate research findings into cost-effective clinical applications and disseminate them directly to patients, caregivers, health care providers, and systems. To accomplish this, scientists must, in collaboration, develop new techniques to meet the challenges and complexities of interdisciplinary research and to explain the implications and applications of that research to patients. NINR encourages the use of information and communication technologies to facilitate the translation of research into widespread practice and to inform the public about nursing science.

The frontier of technology holds great promise for advances in health care. For example, NINR will continue to develop and refine the application of genetic and genomic science to improve risk assessment and identify potential interventions. The rapidly evolving field of informatics, which has significant potential for managing research data to improve health outcomes, is another area of interest. NINR also plans to increase its focus on adapting existing or developing new technologies to link underserved populations with available resources that support healthy

lifestyles in order to promote health equity. The role of innovation and technology will continue to expand as NINR investigators focus on identifying the information needs of patients, families, communities, and caregivers.

NINR will invest in research that:

- Develops new technologies and informatics-based solutions that promote health, including comprehensive high-throughput technologies
- Develops and creatively applies new and existing knowledge to the implementation of health information technology, including electronic health records
- Expands knowledge and application of health care technologies to facilitate decision support, self-management, and access to health care
- Uses genetic and genomic technologies to advance knowledge of the “symptome,” including the biological underpinnings of symptoms associated with chronic illness
- Encourages risk-taking, innovation, re-invention, and creativity, including high-risk/high-return concepts





Profiles of

# ENABLING TECHNOLOGY TO IMPROVE PRACTICE

Health care technology is advancing at a breathtaking pace. The future will place a greater emphasis on research that aims to use new technologies, such as telehealth and Internet-based communication for patients and health care professionals, genetics-based diagnostics, and even smartphone applications, as innovative ways to provide better health care.

**Using Technology for Better Wound Care.** Nursing research is using findings from genetic and genomic research to develop applications that enhance chronic wound care. Chronic wounds take a large and growing toll on the health and quality of life of people around the world and result in rising health care costs as well as losses in individual and societal productivity. In current practice, the edges of chronic wounds are visually examined to distinguish healthy tissue from tissue that requires treatment. However, visual inspection may only identify a “presumptive healing edge” — not the true healing edge — resulting in treatments that may be sub-optimal and that leave behind a margin of seemingly healthy tissue that may actually impede the wound healing process. To address this problem, Dr. Marjana Tomic-Canic (Weill Cornell Medical College) and her colleagues have proposed analyzing genetic markers in the skin, with results displayed as colorized “bar codes,” to guide wound treatment. Such tools in wound care could greatly enhance the sensitivity and accuracy of clinical identification of wound margins and facilitate and/or accelerate the wound healing process. Moreover, such bar codes could be used to more sensitively monitor healing and to modify treatments as necessary, with the goals of improving health care quality and outcomes and reducing health care costs.

**Sharing Health Information Through Social Media.** NINR-supported researchers are using web-based technologies, including social media, in innovative ways to study health and health behaviors. For instance, Dr. Elaine Larson (Columbia University) and her colleagues have examined the extent to which people use Twitter, a social networking tool, to share health information. Specifically, they looked for evidence in Twitter status updates that people misunderstand or misuse antibiotics. Their findings show that Twitter is used extensively for sharing health information, some of which is valid and some of which is invalid. Dr. Larson and her colleagues emphasize the importance of health care professionals being aware that their patients may use Twitter as a means to share potentially inaccurate health information. At the same time, they note that social media forums may be useful for disseminating valid medical information and for implementing behavior change interventions. Social media networks will increasingly be used as a means to study health beliefs and behaviors, as well as a tool to influence and promote positive health behaviors. By supporting such research, NINR will ensure that nursing science is on the cutting edge of this new technology.

# Investing in NURSE SCIENTISTS

The training of scientists at all stages of their careers sustains the foundation for excellence in nursing science. The development of a strong cadre of nurse investigators has been a primary goal of NINR since its establishment. To continue to support advancements in science and improvements in health, it is essential that the scientific workforce of the future be innovative, multidisciplinary, and diverse. NINR training programs — summer institutes, individual and institutional pre- and post-doctoral fellowships, and other Institute-sponsored intramural and extramural research and training opportunities — are designed to achieve this vision.

Over the past decades, nursing science has become more complex, incorporating changes in technology, informatics, research methods, and patient diversity. NINR-trained scientists who serve as faculty in schools of nursing are vital to nurturing young investigators who have the potential to improve the effectiveness of the Nation's health care. To ensure a strong professional base as the demand for nurses expands at every level, the profession must attract, train, and retain young scientists. Improved understanding of the determinants of health has now made interdisciplinary and trans-institutional research important for nurse investigators. They must be both flexible and collaborative in their approach to research in order to provide the leadership necessary to discover and navigate the new frontiers of health care. To enable nurse scientists to meet both current and future health challenges, NINR will continue to promote earlier entry of nurses into research training programs and to strengthen the scientific basis for clinical practice. In addition, NINR will continue to integrate information technology and advanced interdisciplinary research methods in the preparation of the next generation of nurse scientists.

NINR will invest in training strategies and programs that:

- Support ongoing development of investigators at all stages of their research careers
- Facilitate more rapid advancement from student to scientist
- Recruit and enlist young nurse investigators, including those from underrepresented communities
- Support innovative models of trans-institutional learning and interdisciplinary training to leverage the research experience of other scientists in different fields of study
- Expand research knowledge through established infrastructure, including web-based workshops, summer institutes, and virtual training methods
- Mobilize technology to form global partnerships with international schools of nursing in scientific areas central to NINR's mission



# PREPARING FUTURE INVESTIGATORS

NINR is committed to equipping the next generation of nurse scientists with the research skills and background necessary to conduct innovative and rigorous research that leads the way to better understanding of illness and more effective treatments. Below are just two examples of NINR's long-standing investment in preparing a nursing workforce to address the health care challenges of the coming years and contribute to improving the Nation's health.

**Methodologies Boot Camp.** Much work remains to be done to increase our understanding and treatment of symptoms such as pain and to prepare future researchers to tackle these challenges. In response to this need, NINR sponsors a Methodologies Boot Camp, a one-week intensive research training course at NIH for graduate students and faculty. This popular workshop includes participants from early career to experienced researchers. The course covers topics relevant to symptom management research, such as symptom measurement, treatment, and genetics; and features lectures by distinguished guest speakers, classroom discussions, and laboratory training. Nationally and internationally known scientists from various institutions, including NIH and universities across the U.S., participate as faculty.

**Summer Genetics Institute.** Given that personalized (patient-centered) care and genetics are increasing priorities in health care and research, NINR also sponsors the Summer Genetics Institute (SGI). The SGI is a one-month program designed to provide graduate students and faculty with a foundation in molecular genetics appropriate for use in research and clinical practice. More than 200 SGI graduates



are making a difference in communities across the country — building programs of nursing research in genetics; disseminating the results of genetics-related research in peer-reviewed scientific publications and at scientific conferences; and integrating genetics content in nursing school curricula and practice.

### **In the words of former SGI Participants:**

*“I feel like I’m learning a new language, and I’m leaving here with a new vocabulary and a new understanding that I can hopefully use to move forward with my research.” — Nursing Faculty Member*

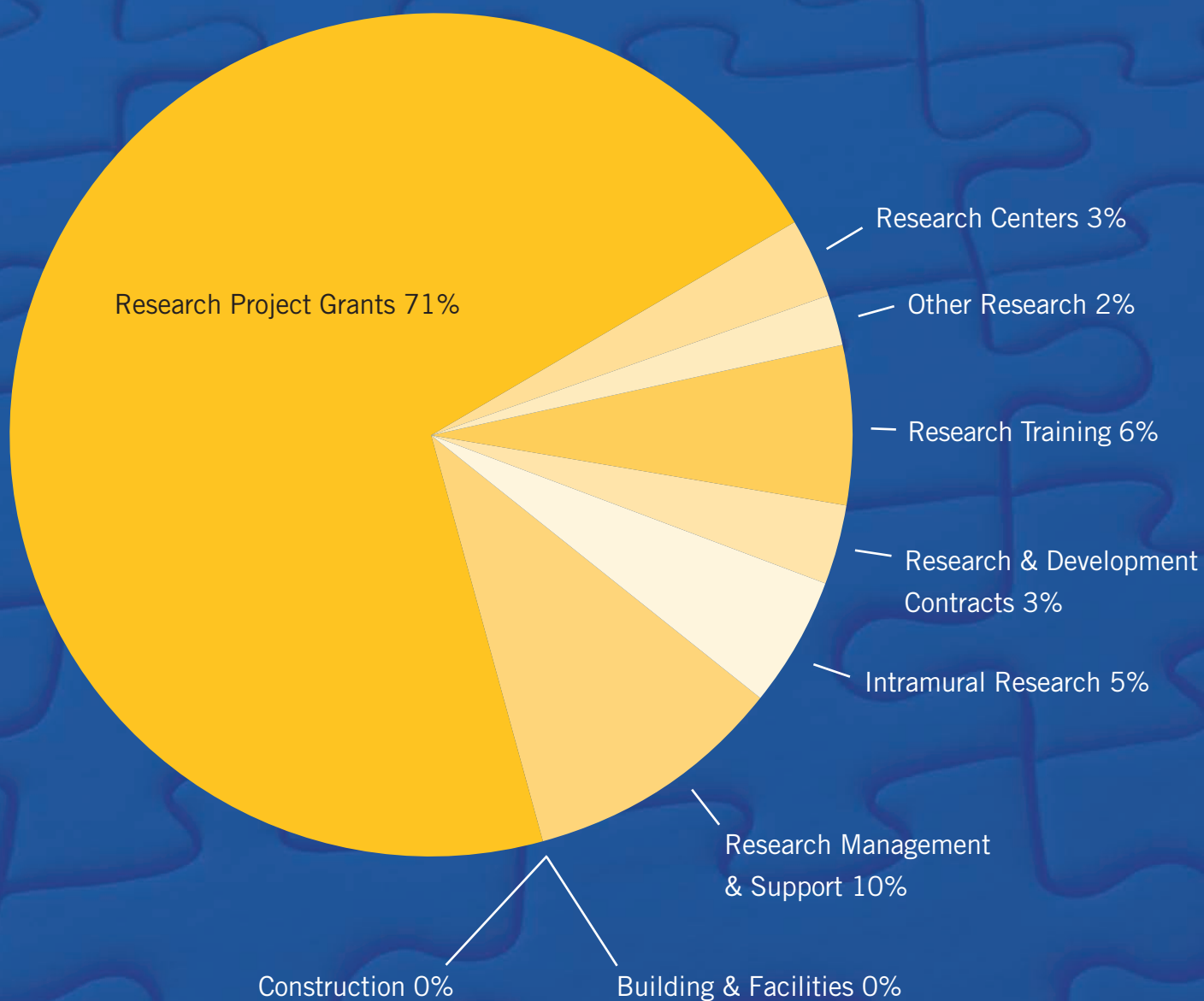
*“To come out here for a month...to be on the NIH campus, to meet so many wonderful educators and researchers, it’s definitely a worthwhile experience and, definitely, I would do it again.” — Predoctoral Nursing Student*

*“We learn so much in so many different areas, it opens your mind to a lot of different types of research within genetics and nursing.”  
— Predoctoral Nursing Student*

# APPENDIX A: BUDGET

NINR's budget is specified by annual appropriations laws. The initial budget of NINR, as a Center, was \$16 million. Today, the budget is nearly \$150 million, which is distributed approximately as follows:

## FY 2012 Budget Mechanism



# APPENDIX B: STRATEGIC PLANNING PROCESS

The process used to develop this Strategic Plan was intended to accomplish the following:

- Determine the areas of health in which there were the greatest needs
- Determine the areas of science in which NINR could achieve the highest impact
- Maximize the amount and diversity of input received from the scientific and advocacy communities and the general public

The formal process for developing the Strategic Plan began with the Institute's planning retreat held in December 2008. At this retreat, senior NINR staff, NINR scientists, representatives from every division of the Institute, and members of the National Advisory Council for Nursing Research (NACNR) participated in a review of NINR's scientific portfolio and strategic initiatives.

Next, six Scientific Consultation Meetings were held between the fall of 2008 and the summer of 2009, bringing together more than 100 distinguished individuals from across the Nation, representing an array of organizations from academia, government, industry, and the advocacy community. The first meeting, in September 2008, convened a group of renowned experts from across the scientific and health care sectors to conduct a broad-ranging discussion on their vision for the future of nursing research, a discussion that was kicked-off with a charge from then-NIH Director Dr. Elias Zerhouni. The remaining five meetings, held between February and June 2009, assembled panels of experts to discuss current health and research challenges, as well as future strategies for research and training. Each of these meetings involved highly interactive and intense discussions centered on a specific topic crucial to NINR's mission:

- Preparing the next generation of scientists
- Advancing nursing science through comparative effectiveness research
- Advancing end-of-life science
- Future approaches to health promotion and disease prevention
- Emerging needs and opportunities in science and health care

A noted scientist from the extramural community with in-depth domain expertise chaired each meeting. Participants also included NINR senior leadership and staff and external scientific advisors, including present and former members of the NACNR. Building on the successes and lessons learned from the previous Strategic Plan, the teams reviewed NINR's strategic priorities and research portfolio as well as prospective trends in health care and their likely impact on future directions in nursing research. The goal was to identify key areas in which nursing research can make a significant impact in the coming years. Further information on these meetings, including lists of participants, can be found later in this section.

In addition, NINR utilized an emissary to solicit input on health care challenges and research priorities directly from the scientific community. Traveling to each of the four nursing research society regional meetings in the spring of 2010, the emissary spoke with students, research fellows, and faculty to gather their thoughts on beginning careers in research, improving the dissemination of scientific results, and identifying and addressing the scientific challenges of the future.



From these meetings and conversations, a series of common research themes emerged. To synthesize these themes into a formal Strategic Plan, NINR convened an ad hoc committee of Institute staff and extramural advisors to compose and review the Plan. An update on the Plan was provided to the NACNR at its September 2010 meeting, and a draft of the Plan was given to the NACNR at its January 2011 meeting. NINR also solicited public comments on the Plan, posting a draft on NINR website for 60 days between January and March 2011. Representatives of advocacy groups, professional societies, faculty and staff from schools of nursing, clinicians, scientists, and students provided useful comments and perspectives, many of which were incorporated into the Plan. The Advisory Council approved the final version of the Plan at its meeting in September 2011.

Publication of this Strategic Plan, coinciding with the culmination of NINR's 25th anniversary year in October 2011, marks another important milestone in the evolution of nursing research at NIH and a quarter-century of advancing nursing science. The perspectives described in this Strategic Plan provide a framework for more detailed planning, as well as for evaluation of current portfolios and future initiatives. These proposed initiatives will be assessed in terms of scientific innovation, health priority, and resources required. NINR envisions this Plan as a living document. Periodic reviews and evaluations of the Institute's research activities, as well as ongoing analysis of pressing health care needs, will continue to inform NINR's strategic planning activities during the life of this document. Scientific conferences, meetings with professional and patient advocacy groups, and formal and informal interaction with other NIH components all serve to identify changing needs, developing trends, and promising opportunities. Emerging health challenges, Congressional directives, NIH and HHS priorities, and anticipated budget and staff resources will also have a bearing as the Plan is developed and refined. NINR staff and advisors believe that the potential for advances in nursing science has never been more promising and that opportunities abound to bring nursing science to life.



## NINR SCIENTIFIC CONSULTATION MEETINGS, 2008–2009

A key part of the process for developing this Strategic Plan occurred in 2008 and 2009, when NINR hosted a series of six scientific consultation meetings with distinguished scientists and professionals from across the Nation. The first meeting focused on the participants' own visions for the future of nursing research. The remaining five meetings were organized around a particular theme and provided vibrant forums for the participants to discuss, and propose, ideas and innovations to help inform NINR initiatives to support scientific research and its application to health care. These meetings were designed to lay the groundwork for the Strategic Plan by identifying public health and research challenges of high relevance to NINR, as well as possible strategies for the future. The theme of each meeting is described on the following pages, and meeting participants are listed. NINR sincerely appreciates the contributions and thoughtful input provided by each of these individuals.



# Nursing Science: A Vision of the Future

September 24, 2008

Participants engaged in an interactive and wide-ranging dialogue on the evolution of health care and the future role of nursing research. Attendees used their expertise to explore new ideas, consider novel viewpoints, and examine key issues in health care that will challenge and affect research priorities over the next 25 years.

**Dushanka Kleinman, DDS, MScD (Chair)**

Associate Dean for Research and Academic Affairs and Professor, College of Health and Human Performance, University of Maryland, College Park

**Joan Austin, DNSc, RN, FAAN**

CEQL Director and Professor, School of Nursing Indiana University

**Roger J. Bulger, MD**

Former Deputy Director, National Center on Minority Health and Health Disparities, National Institutes of Health

**Rita Colwell, PhD**

Professor, Johns Hopkins University Bloomberg School of Public Health and University of Maryland, College Park

**Jay A. Gershen, DDS, PhD**

Vice Chancellor for External Affairs, University of Colorado at Denver Health Sciences Center

**Patricia A. Grady, PhD, RN, FAAN**

Director, National Institute of Nursing Research, National Institutes of Health

**Martha N. Hill, PhD, RN, FAAN**

Dean and Professor of Nursing, Johns Hopkins University School of Nursing

**Mary E. Kerr, PhD, RN, FAAN**

Deputy Director, National Institute of Nursing Research, National Institutes of Health

**Sandra Millon-Underwood, PhD, RN, FAAN**

Professor of Nursing, College of Nursing, University of Wisconsin-Milwaukee

**Garry Neil, MD**

Corporate Vice President, Office of Science and Technology, Johnson & Johnson

**Curtis L. Patton, PhD**

Professor, Department of Epidemiology and Public Health, Yale University School of Medicine

**Anne Marie Rafferty, D. Phil, RGN, DN, FRCN**

Head of School, Florence Nightingale School of Nursing and Midwifery, King's College London

**Joan L. Shaver, PhD, RN, FAAN**

Dean and Professor of Nursing, University of Illinois at Chicago

**Steven A. Wartman, MD, PhD**

President, Association of Academic Health Centers

**Elias A. Zerhouni, MD**

Director, National Institutes of Health

# Preparing the Next Generation of Scientists

February 24, 2009

Participants discussed key issues regarding the education and training of the next generation of nurse scientists and the corresponding impact on the science they will pursue. Ideas for innovative and effective methods and mechanisms of education, training, and support were discussed in light of increasing health care needs, the critical shortage of nurses, demographic shifts, and the evolution of technology.

**Lauren S. Aaronson, PhD, RN, FAAN (Chair)**  
Professor, School of Nursing, Deputy Director,  
Heartland Institute for Clinical and Translational  
Research, University of Kansas Medical Center

**Jerilyn K. Allen, ScD, RN, FAAN**  
M. Adelaide Nutting Professor and  
Associate Dean for Research,  
Johns Hopkins University School of Nursing

**Marion Broome, PhD, RN, FAAN**  
Dean and Professor, School of Nursing,  
Indiana University

**Linda Cronenwett, PhD, RN, FAAN**  
Dean and Professor, School of Nursing,  
University of North Carolina at Chapel Hill

**Patricia A. Grady, PhD, RN, FAAN**  
Director, National Institute of Nursing Research,  
National Institutes of Health

**Barbara Guthrie, PhD, RN, FAAN**  
Associate Professor, Associate Dean for  
Academic Affairs, and Interim GEPN Specialty  
Director, Yale University School of Nursing

**Maureen Keefe, PhD, RN, FAAN**  
Dean and Professor, College of Nursing,  
University of Utah

**Mary E. Kerr, PhD, RN, FAAN**  
Deputy Director, National Institute of Nursing  
Research, National Institutes of Health

**James E. Leone, PhD, ATC, CSCS, CHES**  
Assistant Professor, Bridgewater State College

**Donna McCarthy Beckett, PhD, RN, FAAN**  
Professor and Associate Dean for Research,  
The Ohio State University College of Nursing

**Afaf Meleis, PhD, FAAN**  
Dean, University of Pennsylvania School  
of Nursing

**Ki (Ida) Moore, DNSc, RN, FAAN**  
Director of Nursing Practice and Professor,  
College of Nursing, University of Arizona in Tucson

**John S. Murray, Colonel, USAF, NC, PhD, RN  
CPNP, CS, FAAN**  
Consultant to the Surgeon General for Research,  
Director, Strategic Planning, Office of Integration,  
Joint Task Force National Capital Region Medical,  
National Capital Area Military Health System

**Kathy Parker, PhD, RN, CS, ANP**  
Dean and Professor, School of Nursing,  
University of Rochester Medical Center

**Linda Phillips, PhD, RN, FAAN**  
Professor and Audrienne H. Moseley Endowed  
Chair in Nursing, School of Nursing, University  
of California, Los Angeles

**Kathleen Potempa, DNSc, RN, FAAN**  
Dean and Professor, University of Michigan School  
of Nursing

**Mary Woo, DNSc, RN, FAAN**  
Professor, School of Nursing,  
University of California, Los Angeles



# Advancing Nursing Science through Comparative Effectiveness Research

March 11, 2009

This meeting focused on the importance of comparative effectiveness research (CER) in the context of nursing science for identifying and implementing the most effective health care options while at the same time constraining escalating health care costs. The discussion centered on the ways in which evidence-based research, which has long been a cornerstone of nursing science, is an integral part of CER, and how comparative effectiveness analysis in nursing science enables the identification of the most relevant and effective applications of nursing research.

**Linda H. Aiken, PhD, RN, FAAN, FRCN (Chair)**

Claire M. Fagin Leadership Professor of Nursing, Professor of Sociology, and Director of the Center for Health Outcomes and Policy Research, University of Pennsylvania School of Nursing

**Mary Blegen, PhD, RN, FAAN**

Professor in Community Health Systems and Director of the Center for Patient Safety, University of California, San Francisco, School of Nursing

**Mary G. Boland, DrPH, RN, FAAN**

Dean and Professor, School of Nursing and Dental Hygiene, University of Hawaii at Manoa

**Kathryn Bowles, PhD, RN, FAAN**

Associate Professor of Nursing, University of Pennsylvania School of Nursing

**Maryann F. Fralic, DrPH, RN, FAAN**

Professor and Director of Corporate Relations, Johns Hopkins University School of Nursing

**Kevin Frick, PhD, MA**

Associate Professor, Johns Hopkins Bloomberg School of Public Health

**Patricia A. Grady, PhD, RN, FAAN**

Director, National Institute of Nursing Research, National Institutes of Health

**Debbie Gross, DNSc, RN, FAAN**

Professor, Leonard and Helen Stulman Endowed Chair in Mental Health and Psychiatric Nursing, Johns Hopkins University School of Nursing

**Mary E. Kerr, PhD, RN, FAAN**

Deputy Director, National Institute of Nursing Research, National Institutes of Health

**Bernadette Melnyk, PhD, RN, CPNP/NPP, FAAN, FNAP**

Dean and Distinguished Foundation Professor in Nursing, College of Nursing & Health Innovation, Arizona State University

**Richard Moberg, BSEE, MSE**

President, Moberg Research, Inc.

**Colonel Veronica Thurmond, PhD**

Director of Research, Quality Assurance, Program Evaluation, and Surveillance, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury

# Advancing End-of-Life Science

April 16, 2009

Participants identified ways to incentivize the development, discovery, and delivery of end-of-life (EOL) science, including how to best equip the next generation of EOL scientists to succeed in an ever-changing and complex research environment. They also noted the importance of developing a scientific agenda to improve symptom management, enhance quality of life, and improve decision making and communication among caregivers, families, patients, and providers. Discussions revolved around the need to continue building a strong foundation in EOL science and creating effective, innovative interventions across a spectrum of diverse populations, settings, cultures, and conditions.

**Pamela S. Hinds, PhD, RN, FAAN (Chair)**

Director, Department of Nursing Research,  
Children's National Medical Center

**Judith Baggs, PhD, RN, FAAN**

Professor, Senior Associate Dean for Academic  
Affairs, Oregon Health & Science University  
School of Nursing

**Richard E. Behrman, MD, JD**

Director, Teddy Bear Cancer Foundation

**Ann Berger, MD**

Chief, Pain and Palliative Care Service,  
National Institutes of Health Clinical Center

**Ann Cashion, PhD, RN, FAAN**

Chair, Acute and Chronic Care Department;  
Director, Center for Health Evaluation and  
Lifestyle Promotion; Professor, Department of  
Nursing, University of Tennessee Science Center

**Kathy Foley, MD**

Professor of Neurology, Neuroscience and Clinical  
Pharmacology, Weill Medical College of Cornell University;  
Chair, The Society of Memorial Sloan-Kettering Cancer  
Center; Attending Neurologist in the Pain and Palliative  
Care Service, Memorial Sloan-Kettering Cancer Center

**Patricia A. Grady, PhD, RN, FAAN**

Director, National Institute of Nursing Research,  
National Institutes of Health

**Susan E. Hickman, PhD**

Associate Professor, School of Nursing; Senior  
Scholar, Center for Ethics in Health Care, Oregon  
Health & Science University School of Nursing

**Felicia Schanche Hodge, DrPH**

Professor, School of Nursing; Professor, School of  
Public Health; Chair, American Indian Studies,  
University of California, Los Angeles School of Nursing

**Mary E. Kerr, PhD, RN, FAAN**

Deputy Director, National Institute of Nursing Research,  
National Institutes of Health

**Rear Admiral Ann Knebel, DNSc, RN, FAAN**

Deputy Director for Preparedness Planning, Office of  
the Assistant Secretary for Preparedness and Response,  
U.S. Department of Health and Human Services

**Ann Marie McCarthy, PhD, RN, FAAN**

Professor and Chair, Parent, Child, and Family Area,  
University of Iowa College of Nursing

**Deborah B. McGuire, PhD, RN, FAAN**

Professor and Director, Developing Center of  
Excellence in Palliative Care Research, University  
of Maryland School of Nursing

**Michele Mittelman, RN, MPH**

Nursing Editor, Alternative Therapies in Health and Medicine

**Marie T. Nolan, PhD, RN**

Associate Professor, Director, PhD Program,  
Johns Hopkins University School of Nursing

**Richard Schulz, PhD**

Professor of Psychiatry, Epidemiology, Sociology,  
Psychology, Community Health, and Health and  
Rehabilitation Sciences; Director, University Center  
for Social and Urban Research; Associate Director,  
Institute on Aging, University Center for Social and  
Urban Research, University of Pittsburgh

# Future Approaches to Health Promotion and Disease Prevention

May 15, 2009

At this meeting participants examined current approaches to health promotion and disease prevention at the bench, the bedside, and beyond. They sought to identify proactive, innovative solutions that would result in substantial improvements in the health of individuals across the lifespan. They noted that such improvements will require a multifaceted approach encompassing science, community-based efforts, national policy, and economic initiatives.

**Elaine Larson, PhD, RN, FAAN, CIC (Chair)**

Professor of Epidemiology, Mailman School of Public Health; Professor of Pharmaceutical and Therapeutic Research; Associate Dean of Research; Director, Center for Interdisciplinary Research on Antimicrobial Resistance, Columbia University School of Nursing

**Donna Berry, PhD, RN, AOCN, FAAN**

Affiliate Professor, University of Washington; Director for Research in Nursing and Patient Care Services, Dana Farber Cancer Institute

**Louis Burgio, PhD**

Harold R. Johnson Professor of Social Work; Research Professor, Institute of Gerontology; Adjunct, University of Michigan

**Victoria S. Conn, PhD, RN, FAAN**

Associate Dean and Potter-Brinton Professor, University of Missouri School of Nursing

**Jean Davis, PhD, RN**

Assistant Dean for Adult Health; Graduate Program Director for Adult Health, Associate Professor, Wayne State University, College of Nursing

**Sandra Dunbar, DSN, RN, FAAN**

Professor, Charles Howard Candler Professor of Cardiovascular Nursing, Department of Adult and Elder Health Nursing, Nell Hodgson Woodruff School of Nursing, Emory University

**Lorraine Frazier, PhD, RN, MS, FAAN**

Nancy B. Willerson Distinguished Professor in Nursing, The University of Texas Health Science Center at Houston School of Nursing

**Susan Gardner, PhD, RN, CWCN**

Associate Professor, College of Nursing, University of Iowa

**Patricia A. Grady, PhD, RN, FAAN**

Director, National Institute of Nursing Research, National Institutes of Health

**Jeff Harris, MD, MPH, MBA**

Director, Investigator, Health Promotion Research Center, University of Washington School of Public Health

**Mary E. Kerr, PhD, RN, FAAN**

Deputy Director, National Institute of Nursing Research, National Institutes of Health

**Bette Jacobs, PhD, RN, FAAN**

Dean and Professor, Georgetown University School of Nursing and Health Studies

**Pamela Salsberry, PhD, RN**

Professor, The Ohio State University College of Nursing

**Antonia Villarruel, PhD, RN, FAAN**

Professor, University of Michigan School of Nursing

# Emerging Needs and Opportunities in Science and Health Care

June 10, 2009

In the coming decades, we face new and emerging health challenges, including our rapidly aging population, increases in the prevalence and burden of chronic diseases, and escalating costs of health care. We also continue to face significant health disparities, an urgent need for improvements in quality of health care, and critical shortages in the health workforce. Emerging needs and opportunities go hand in hand; thus, the goal of this meeting was to identify proactive, innovative solutions to these challenges, which will allow us to continue to advance cutting-edge science, translate science into practice, and improve the health of the Nation.

**Kathleen A. Dracup, DNSc, RN, FNP, FAAN (Chair)**

Dean and Professor, University of California,  
San Francisco, School of Nursing

**Geraldine Bednash, PhD, RN, FAAN**

Chief Executive Officer and Executive Director,  
American Association of Colleges of Nursing

**Michael A. Counte, PhD**

Professor, Department of Health Management and  
Policy, Saint Louis University School of Public Health

**Everette J. Freeman, EdD**

President, Albany State University

**Patricia A. Grady, PhD, RN, FAAN**

Director, National Institute of Nursing Research,  
National Institutes of Health

**Margaret Grey, DrPH, RN, FAAN**

Dean and Annie Goodrich Professor,  
Yale University School of Nursing



**Mary E. Kerr, PhD, RN, FAAN**

Deputy Director, National Institute of Nursing Research, National Institutes of Health

**Theodore Mala, MD, MPH**

Director, Tribal Relations and Traditional Healing, Southcentral Foundation

**Karen Meneses, PhD, RN, FAAN**

Professor and Associate Dean for Research, University of Alabama at Birmingham School of Nursing

**Russell R. Pate, PhD**

Vice Provost for Health Sciences, University of South Carolina

**Nilda Peragallo, DrPH, RN, FAAN**

Dean and Professor, University of Miami School of Nursing and Health Studies

**Ellen B. Rudy, PhD, RN, FAAN**

Dean Emeritus, University of Pittsburgh School of Nursing

**Carolyn Sampsel, PhD, RNC, FAAN**

The Carolyne K. Davis Collegiate Professor of Nursing; Associate Dean for Research, Professor, Women's Studies, College of LS&A; Professor, Obstetrics & Gynecology, Medical School, University of Michigan School of Nursing

**Marilyn S. Sommers, PhD, RN, FAAN**

Lillian S. Brunner Professor of Medical-Surgical Nursing; Associate Director, Center for Health Disparities Research, University of Pennsylvania School of Nursing

**Alexa Stuijbergen, PhD, RN, FAAN**

Professor and Associate Dean for Research, University of Texas at Austin School of Nursing

**Ellen-Marie Whelan, PhD**

Senior Health Policy Analyst, Associate Director of Health Policy, Center for American Progress

**Betty Smith Williams, DrPH, RN, FAAN**

President, National Coalition of Ethnic Minority Nurse Associations

**May Wykle, PhD, RN, FAAN, FGSA**

Dean and Florence Cellar Professor of Gerontological Nursing, Case Western Reserve University, Frances Payne Bolton School of Nursing



# AD HOC STRATEGIC PLAN COMMITTEE MEMBERS

**Carolyn Sampelle, PhD, RN, FAAN (Chair)**  
University of Michigan

**Melissa Gutierrez Barrett, MPH**  
National Institute of Nursing Research

**Philip L. Cantelon, PhD**  
History Associates Inc.

**J. Randall Curtis, MD, MPH**  
University of Washington

**John P. Grason, PhD**  
National Institute of Nursing Research

**Barbara Guthrie, PhD, RN, FAAN**  
Yale University

**George Douglas Hussey, Jr.**  
National Institute of Nursing Research

**Mary E. Kerr, PhD, RN, FAAN**  
National Institute of Nursing Research

**Mary L. Miers, MA**  
Consultant

**Denise A. Russo, PhD**  
National Institute of Nursing Research

**Janet K. Williams, PhD, RN, FAAN**  
University of Iowa

# APPENDIX C: NATIONAL ADVISORY COUNCIL FOR NURSING RESEARCH ROSTER

**Patricia A. Grady, PhD, RN, FAAN (Chair)**  
National Institute of Nursing Research

**Marion E. Broome, PhD, RN, FAAN**  
Indiana University

**Glenna A. Dowling, PhD, RN, FAAN**  
University of California, San Francisco

**Stanley M. Finkelstein, PhD**  
University of Minnesota

**Everette J. Freeman, EdD**  
Albany State College

**Barbara J. Guthrie, PhD, RN**  
Yale University

**Kenton R. Kaufman, PhD**  
Mayo Clinic

**Diana E. Lake, MD**  
Memorial Sloan-Kettering  
Cancer Center

**Elaine Larson, PhD**  
Columbia University

**Courtney Lyder, ND, GNP, FAAN**  
University of California, Los Angeles

**Kathleen Potempa, DNSc, RN, FAAN**  
University of Michigan

**Susan C. Reinhard, PhD, RN, FAAN**  
AARP

**Marla E. Salmon, ScD, RN, FAAN**  
University of Washington

**Gail W. Stuart, PhD, RN, FAAN**  
Medical University of South Carolina

**James Tulsky, MD**  
Duke University

**Janet K. Williams, PhD, RN, FAAN**  
University of Iowa

## Ex Officio

**Anna C. Alt-White, RN, PhD**  
Department of Veterans Affairs

**Captain Maggie L. Richard, PhD, RNC**  
Department of the Navy

**Mary E. Kerr, PhD, RN, FAAN**  
**(Executive Secretary)**  
National Institute of Nursing Research





# APPENDIX D: A HISTORY OF NINR

## 25 YEARS OF BRINGING SCIENCE TO LIFE

### **1950s**

Federal support begins for nursing research at the National Institutes of Health (NIH) in 1955. The Nursing Research Study Section is established. The chair is the world-famous medical inventor and heart surgeon Michael DeBakey, who is credited with first articulating the need for a national nursing research institute.

### **1960s**

The Federal nursing research function is moved to the Division of Nursing within what is now the Health Resources and Services Administration. Support is provided for training of nurse investigators and for nursing research projects and pre- and postdoctoral fellowship programs.

### **1970s**

The American Nurses Association Commission on Nursing Research recommends recognition of nursing research in the mainstream of biomedical and behavioral science.

### **1980s**

Two reports are instrumental in the placement of nursing research at NIH. In 1983, an Institute of Medicine report called for a federal nursing research entity in the mainstream of science. A 1984 Task Force report requested by the NIH Director finds that nursing research activities within NIH are relevant to the NIH mission and can be expanded administratively.

### **November 20, 1985**

Public Law 99-158, the Health Research Extension Act of 1985, creates the National Center for Nursing Research (NCNR) at the NIH.

**April 16, 1986**

Department of Health and Human Services (DHHS) Secretary Otis S. Bowen creates the administrative structure of NCNR.

**April 1986 – June 1987**

Dr. Doris Merritt, Special Assistant to the NIH Director, is appointed as Acting Director of NCNR. The initial budget is \$16 million. The National Advisory for Nursing Research Council first meets in February 1987.

**June 1987 – March 1994**

Dr. Ada Sue Hinshaw is appointed as the first Director of NCNR.

**1992**

Dr. David Olds establishes that visits by home nurses significantly lower mothers' high blood pressure during pregnancy and result in better timing of subsequent pregnancies. Abuse and neglect of their children are also reduced.

**June 10, 1993**

NCNR achieves Institute status at NIH, becoming the National Institute of Nursing Research (NINR) after the NIH Revitalization Act of 1993 is signed into law.

**June 14, 1993**

DHHS Secretary Donna Shalala implements the NIH Revitalization Act transforming NCNR into an Institute, NINR.

**July 1994 – April 1995**

Dr. Suzanne Hurd serves as Acting Director of NINR.

**1994**

Dr. Loretta Sweet Jemmott, through various funding sources (including NINR) tests several gender-appropriate, culturally sensitive interventions on hard to reach, vulnerable populations and significantly reduces sexual risk behaviors for HIV. The Centers for Disease Control and Prevention selects three of the interventions for use as model curricula in their Division of Adolescent and School Health. The model, "Be Proud! Be Responsible!," is distributed nationwide.

**April 3, 1995**

Dr. Patricia A. Grady is appointed Director of NINR.

**November 1997**

NINR is designated as the lead NIH Institute to coordinate collaborative research at NIH and other Federal agencies on end-of-life care.

**1998**

Dr. Joanne Harrell, building on research that shows risk for cardiovascular disease can begin at an early age, demonstrates that a specially designed classroom educational program for elementary school children can significantly lower their cholesterol levels in just eight weeks.

**1998**

Dr. Nancy Bergstrom, in a multi-site study, tests the Braden scale for risk of pressure sores and finds its predictive capability accurate. The scale is now used widely in nursing homes and hospitals.

**1999**

Dr. Mary Naylor demonstrates that transitional care from hospital to home, consisting of discharge planning at the hospital and follow-up interventions in the residence, can improve significantly the health of older adult patients who are hospitalized with common medical and surgical problems. The interventions are conducted by multidisciplinary teams that include advanced practice nurses. Per patient days in the hospital, hospital readmissions, and costs to the health care system are all reduced substantially.

Dr. Jon Levine establishes that gender plays a key role in pain relief, with women obtaining satisfactory relief from kappa-opioid drugs, such as Stadol or Nubain, while men receive little benefit. Kappa-opioids have fewer side effects than more typically used morphine-like opioids.

## **2000**

The Summer Genetics Institute (SGI) is established by NINR and is based at the NIH. The SGI is a two-month, full-time summer research training program targeted at faculty, graduate students, and advanced practice nurses. It features classroom and laboratory components that are designed to provide a foundation in molecular genetics for use in clinical practice and the research laboratory. Students receive doctoral-level graduate credits.

Dr. Margaret Grey reports that providing training in coping skills, such as social problem solving, communication, and conflict management, for young people with type 1 diabetes mellitus has long-lasting positive effects. Their ability to control their disorder and quality of life is improved significantly. Ongoing research addresses behavioral interventions with parents and younger children to promote the children's metabolic control and their overall well-being.

## **2002**

Dr. Linda Aiken's ongoing research consistently shows that hospital working conditions and adequacy of nurse staffing per patient can affect patients' recovery. In hospitals where nurses have lower patient workloads, patients have substantially lower mortality rates.

## **2003**

Dr. Martha Hill finds that interventions conducted at the community level by a multidisciplinary health care team reduces high blood pressure in inner city young African-American males who are typically underserved by the health care system. This research illustrates that culturally sensitive, successful interventions can be conducted for vulnerable populations and can help reduce health care disparities.

## **2005–2006**

NINR celebrates 20 years at NIH and plays a key role in the NIH Roadmap Initiative, launched by the NIH Director to address opportunities and gaps in research that will accelerate the progress of science.

## **2007**

Dr. J. Randall Curtis and collaborators report that an intervention to improve communication between clinicians in Intensive Care Units and family members of dying patients significantly reduces feelings of stress, anxiety, and depression in the family members. The intervention, which consisted of a set of guidelines for conducting family conferences, reduced symptoms related to post-traumatic stress disorder in family members up to three months after the death of their loved one.

## **2009**

Dr. Pamela Mitchell reports that a behavioral intervention called Living Well with Stroke (LWWS) reduced the incidence of depression in stroke survivors. Post-stroke depression, which occurs in as many as one-third of stroke survivors, can lead to poorer response to rehabilitation and increased use of health care services. LWWS, which consists of counseling and physical activity sessions, significantly reduced depression scores both immediately after treatment and at a one-year follow-up.

## **2010–2011**

NINR commemorates the 25th Anniversary of nursing science at the NIH. The Institute looks to the next 25 years as a vast opportunity for nursing research to make ever increasing contributions to the science of health and to continue to improve the lives of individuals in the U.S. and around the world.





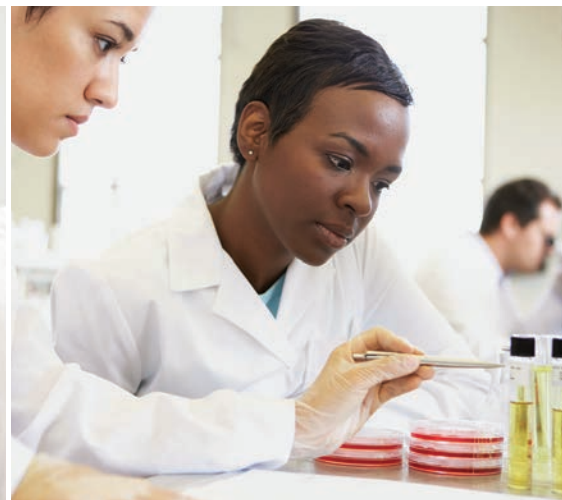
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