

# 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.

