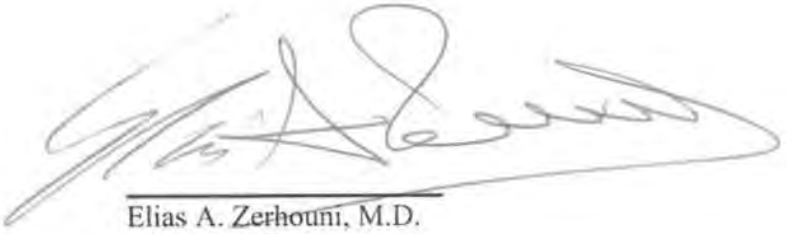
DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Scientific Leadership Structure for Basic Behavioral Research



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Executive Summary

In the fiscal year 2008 Congressional Appropriations Committee Reports for the Department of Health and Human Services, the Senate Committee on Appropriations, requested a report by December 1, 2007 indicating the scientific leadership structure for basic behavior research within the appropriate grant-making NIH Institute or Center (IC).

This report, prepared in response to the Senate Committee's request, indicates the scientific leadership structure for basic behavioral and social science research within each appropriate IC that has facilitated and sustained the NIH effort in this area.

Over the past several years, representatives of the behavioral and social sciences and Congress have expressed concern about the scientific leadership for basic behavioral and social sciences (bBSSR) research at the NIH. However, upon reviewing the appropriate databases, NIH has found that support for basic behavioral and social science research has grown steadily over the last few years (May 2006 NIH Report). This growth in funding has been achieved through the efforts of the scientific leadership of each appropriate IC for bBSSR.

This report presents the scientific leadership structure for basic behavioral and social science research within the appropriate grant-making ICs responsible for supporting the NIH effort in this area.

In addition, the Office of Portfolio Analysis and Strategic Initiatives (OPASI) in collaboration with the Office of Behavioral and Social Sciences Research (OBSSR) can play a trans-NIH coordinating role in assisting the grant-making ICs and the Office of the Director (OD) to: (a) conduct portfolio analyses to capture the existing NIH-wide portfolio of bBSSR, including areas of overlap, across the ICs; (b) identify potential gaps or new trans-NIH extraordinary opportunities in bBSSR; (c) describe and communicate to various audiences the depth and breadth of the NIH-wide portfolio and its overarching themes; and (d) encourage each relevant IC to respond to gaps and opportunities in their area. In the above sense, OPASI and OBSSR also play a central leadership role in bBSSR. But since the OD program offices have no grant making authority and can only advise the ICs regarding their strategic priorities, this leadership role of OPASI and OBSSR is limited. The trans-NIH current portfolio and future strategic

investments in bBSSR will be described in a report to the House Appropriations Committee, due to be submitted in May 2008**.**

Following the descriptions of the coordinating and leadership roles of OPASI and OBSSR, the leadership structure for bBSSR within each of the individual grant-making ICs that has a bBSSR portfolio is described. It should be noted that every IC has as diverse leadership structure unique to that IC's particular needs. Therefore, there is a lack of uniformity in the presentations of leadership structures across the IC's overall and for bBSSR specifically. The heterogeneity permits each IC the flexibility needed to accommodate their different visions, missions, sizes and goals. Thus the leadership structures for bBSSR in this report reflect this heterogeneity of format, structure and function.

I. Introduction

The NIH has long recognized the importance of basic behavioral and social science research (bBSSR) to its mission. The level of importance is demonstrated by the fact that through the scientific leadership of appropriate NIH Institutes and Centers (ICs), over $1.0 billion each year has been spent in support of this research area since FY 2004.

In the fiscal year 2008 Congressional Appropriations Committee Reports for the Department of Health and Human Services, the Senate Committee on Appropriations stated:

> *"The Committee is aware that basic behavioral research focused on such areas as cognition, perception, emotion, social interaction, and learning have led to important advances and improved treatments for depression, bipolar and other affective disorders, diabetes, compliance on behavior change related to diabetes, heart disease, cancer, obesity, and more effective public health announcements and interventions. In view of the fact that 8 out of the 10 leading causes of death have a significant behavioral component and that basic research is the underpinning of advances in behavioral research, the Committee is concerned by the continued lack of focus of scientific leadership at NIH for this important field of science. It is therefore requested that the Director submit a report to the Committee by December 1, 2007, indicating the scientific leadership structure for this field within the appropriate grant-making Institute (Senate Report 110 – 107, Page 156)."*

This report, prepared in response to the Senate Committee's request, identifies the scientific leadership structure for basic behavioral and social science research within each appropriate IC that has facilitated and sustained the NIH effort in this area.

II. Background

Over the past several years, the U.S. Congress has expressed concern about the scientific leadership for basic behavioral and social sciences research (bBSSR) at the NIH. In an effort to address these concerns, in October 2003, a working group to the Advisory Committee to the Director of NIH was established to examine bBSSR across NIH. This working group reviewed the existing portfolio of bBSSR

to identify opportunities to examine barriers to the submission and review of applications in this area, and to make recommendations for improving NIH's program in basic behavioral and social sciences research. In its 2004 report the working group concluded that bBSSR and training are critical to the NIH mission, and that greater support for this work is needed throughout NIH. However, in the May 2006 NIH Report to the Senate Appropriation Committee, it was shown that NIH supported $2.68 billion in total BSSR and over $930 million in basic BSSR in FY 2003. This support, according to the May 2006 report, grew to $2.9 billion and $3.0 billion for BSSR in FY 2004 and FY 2005, respectively, of which over $1.0 billion each year supported basic BSSR. Further, the NIH's commitment to bBSSR was also evident upon review of the ICs' extramural research program descriptions and referral guidelines in the Working Group of the ACD, 2004 report. In FY 2006 and FY 2007, NIH support of bBSSR totaled over $1.0 billion and $1.1 billion, respectively. In FY 2006 and FY 2007, NIH support of BSSR totaled over $3.0 billion, respectively.

Basic Behavioral and Social Sciences Research Definition

Basic research in the behavioral and social sciences is designed to further our understanding of fundamental mechanisms and patterns of behavioral and social functioning relevant to the Nation's health and well-being, and their interactions with each other, with biology and the environment.

As is the case with basic biomedical research, basic behavioral and social sciences research is designed to elucidate knowledge about underlying mechanisms and processes, knowledge that is fundamental to improving the understanding, explanation, observation, prediction, prevention, and management of illnesses, as well as promoting optimal health and well-being. The range of focus includes different levels of complexity. Basic behavioral and social sciences research involves both human and animal studies and spans the full range of scientific inquiry, from processes within the intra-individual level ("under the skin"), to mechanisms "outside the skin" that explain inter-individual, group, organizational, community, population, macroeconomic and other systems level patterns of collective behavior. While the primary focus of basic BSSR must be relevant to behavioral and social factors, the domains and units of analysis can include intra-organismic as well as inter-organismic factors ("cells to society"), over varying units of time from nanosecond to centuries, and including lifespan developmental phases and phenomena that may occur within and across generations. Some would argue that it is impossible to separate basic and applied science because one is bound up in the context of the other. Yet despite the complexities, it is useful to classify research into basic and applied categories,

recognizing that there will always be a grey area or a band of uncertainty whose width will vary according to one's vantage point and the rapidly evolving state of scientific knowledge.

Although this research area does not directly address disease outcomes per se, behavioral and social processes play a critical role in understanding the links of molecular, genetic, and neural processes with health and disease. Basic behavioral and social science research provides knowledge, methodology, and measures that are essential for prediction, prevention, understanding individual variation, and controlling illness, for minimizing the collateral impact of disease, and for promoting health. Because of its centrality to the NIH mission, it is crucial that basic behavioral and social science research be supported.

NIH has provided evidence that support for bBSSR has grown steadily over the last few years. This growth in funding has been achieved through the efforts of the scientific leadership of the NIH's Office of the Director through its trans-NIH program coordination role and through the scientific leadership of each appropriate IC for bBSSR.

III. Office of the Director: Trans-NIH Program Coordination

Office of Portfolio Analysis and Strategic Initiatives (OPASI)

The Office of Portfolio Analysis and Strategic Initiatives (OPASI), situated in the Office of the Director, provides the NIH and its constituent ICs with the methods and information necessary to manage their large and complex scientific portfolios, identifies – in concert with multiple other inputs – important areas of emerging scientific opportunities or rising public health challenges, and assists in the acceleration of investments in these areas, focusing on those involving multiple ICs. The mission of OPASI's Division of Resource Development and Analysis is to employ resources (databases, analytic tools, and methodologies), and to develop specifications for new resources, when needed, in order to conduct assessments based on NIH and other databases in support of portfolio analyses and priority setting in scientific areas of interest across NIH. The Division of Strategic Coordination is responsible for integrating information and managing the process by which recommendations are developed to inform the priority-setting and decision-making processes of the NIH in formulating trans-NIH strategic initiatives. These initiatives will address exceptional scientific opportunities and emerging public health needs. The Division of Evaluation and Systematic Assessments will plan, conduct, coordinate, and support program

evaluations, including but not limited to, IC-specific project evaluations, trans-NIH evaluations, and systematic assessments such as those required by the Government Performance and Results Act and the OMB Program Assessment Rating Tool.

The following are examples of ongoing, trans-NIH initiatives supporting basic BSSR.

NIH Roadmap for Medical Research

The NIH Roadmap provides a framework of the priorities NIH as a whole must address in order to optimize its entire research portfolio. It lays out a vision for a more efficient and productive system of medical research. The NIH Roadmap identifies the most compelling opportunities in three main areas: new pathways to discovery, research teams of the future, and re-engineering the clinical research enterprise. Several NIH Roadmap initiatives include ongoing support for bBSSR, as described below:

The NIH Director's Pioneer Awards are designed to support individual scientists of exceptional creativity who propose pioneering – and possibly transforming approaches - to major challenges in biomedical and behavioral research. The term "pioneering" is used to describe highly innovative approaches that have the potential to produce an unusually high impact on a broad area of biomedical or behavioral research, and the term "award" is used to mean a grant for conducting research, rather than a reward for past achievements. To be considered pioneering, the proposed research must reflect ideas substantially different from those already being pursued in the investigator's laboratory or elsewhere. Current awardees include researchers addressing basic behavioral science questions, including the following: the impact of evolution on psychological features; the fundamental nature of emotion, as revealed by the integration of neuroscience, social psychology, psychophysiology, and cognitive science; constructs and the functions of sleep in model organisms and in human beings; the extent to which familial, environmental, gene-environment, and diagnostic drift/substitution contribute to autism. In addition, neuroscientists are pursuing projects to elucidate the neural circuitry underlying the behavioral states that characterize general anesthesia; to define the links between behavioral decisions and specific neurons, with the goal of achieving an integrated understanding of how the brain computes; to understand the role of non-coding RNA (ribonucleic acid) function in brain development , and how these underlie behavioral measures of vision, audition and social behaviors; to examine how seizures in early life alter neuronal networks in the developing brain to cause cognitive disorders such as learning

deficits, neuropsychiatric symptoms, and autism; and to pursue an understanding of neural dynamics in the fruit fly, with a focus on neural circuits involved in sensorimotor decision-making. For additional information, see http://nihroadmap.nih.gov/pioneer/AwardRecipients.aspx.

RFA 07-004, *Facilitating Interdisciplinary Research via Methodological and Technological Innovation in the Behavioral and Social Sciences (R21)* (http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-07-004.html). This initiative supports research to develop technologies and methodologies that enhance the interdisciplinary integration of human social and/or behavioral science with other disciplines across varying levels of analysis. Seventeen applications were funded beginning in FY 2007 with NIH Roadmap set-aside funds and additional support by various ICs and OBSSR. Projects funded under this program include research to develop tools for assessing human action in the workplace; improved statistical modeling software; techniques to measure and analyze cortisol levels in population health studies; improved measures of navigation; and cyberinfrastructure. For additional information, see http://nihroadmap.nih.gov/interdisciplinary/fundedresearch.asp.

Also funded under the NIH Roadmap in FY 2007 are nine new Interdisciplinary Research Consortia. The consortia consist of multiple research projects with multiple principal investigators, core research support facilities, training, career development, and education components. A number of the consortia have bBSSR components, including the study of feeding behaviors as related to obesity; stress and self-control as related to addiction; geroscience; and behavioral phenotyping as related to neuropsychiatry. See http://www.nih.gov/news/pr/sep2007/od-06.htm for a complete listing of Research Consortia awardees.

NIH Genes, Environment and Health Initiative

The overarching goal of the NIH Genes, Environment and Health Initiative (GEI) is to discover the genetic and environmental roots of common diseases. Established in FY 2007, GEI has two components. The Genetics Program is a pipeline for analyzing genetic variation in groups of patients with specific illnesses. The Exposure Biology Program is an environmental technology development program to produce and validate new methods for monitoring environmental exposures that interact with a genetic variation to result in human diseases.

The Exposure Biology Program is supporting a number of bBSSR projects. RFA DA 07-005, *Field-Deployable Tools for Quantifying Exposures to Psychosocial*

Stress and to Addictive Substances for Studies of Health and Disease (U01) (http://grants.nih.gov/grants/guide/rfa-files/RFA-DA-07-005.html), developed under the leadership of OBSSR and NIDA, supports research to develop new technologies and measures to assay psychosocial stress and/or addictive substances (licit and illicit) for use within large-scale studies of diverse populations. RFA CA 07-042, *Improved Measures of Diet and Physical Activity for the Genes and Environment Initiative (GEI) (U01)* (http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-07-032.html), developed under the leadership of NCI and NHLBI, supports projects to develop new or to adapt existing technologies (such as sensors; scanning and/or measurement devices; imaging techniques; wireless technologies; and bioinformatics tools and solutions) for dietary intake and physical activity assessment. See http://www.genome.gov/26022424 for additional information.

NIH Blueprint for Neuroscience Research

The NIH Blueprint for Neuroscience Research is a cooperative effort among the 16 NIH Institutes, Centers and Offices that support neuroscience research (http://www.neuroscienceblueprint.nih.gov/). By pooling resources and expertise, the Blueprint supports the development of new tools, training opportunities, and other resources to assist neuroscientists in both basic and clinical research. A number of Blueprint Activities support bBSSR, including the following:

- *The NIH Toolbox for Assessment of Neurological and Behavioral Function*, a contract to Evanston Northwestern Healthcare Research Institute. The contract supports development of a set of standardized neurological and behavioral measures of cognition, emotion, sensation and motor function. The toolbox will foster uniformity among the basic measures used and allow comparisons or data compilations across multiple studies. This innovative approach to measurement will be responsive to the needs of researchers in a variety of settings, with a particular emphasis on measuring outcomes in clinical trials and functional status in large cohort studies, e.g. epidemiological studies and longitudinal studies.
- Neuroscience Information Framework, a contract to create a public online inventory of neuroscience resources, searchable by particulars or by concept.
- NIH Study of Normal Brain Development, which is tracking brain and behavioral development in about 500 healthy American children, from birth to age 18.
- The NIH Neuroscience Microarray Consortium, which makes “gene-chip” technology more available to NIH investigators. Using this technology, it has recently been shown, for example, that people with one variant of a gene that

is active in the brain have better episodic memory – the ability to remember events and facts – than do people without that variant.

- Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC), a web-based bank of software and other tools used for neuroimaging. Users can add tools to the site, and rate tools already on the site, which is currently in beta-testing.

Office of Behavioral and Social Sciences Research (OBSSR)

The Office of Behavioral and Social Sciences Research furthers the mission of NIH by emphasizing the critical role that behavioral and social factors play in health, health care and well-being. OBSSR serves as the focal point for coordination and development of NIH policies, goals, and objectives in the behavioral and social sciences at NIH. OBSSR is also a liaison between the NIH intramural and extramural communities, other Federal agencies, academic and scientific societies, national voluntary health agencies, the biomedical research community, the media, and the general public on matters pertaining to behavioral and social sciences research.

OBSSR's vision is to bring together the biomedical, behavioral, and social science communities to work more collaboratively to solve the pressing health challenges facing our nation. OBSSR's plan includes facilitating: (a) the next generation of basic behavioral and social science research; (b) transdisciplinary "team science" that integrates biomedical, behavioral and social-ecological perspectives; (c) research that integrates the systems and multiple levels of analysis – from cells to society – required to understand and model how individual, group, societal and contextual factors interact; and (d) the translation, implementation, dissemination and maintenance of best practices to strengthen the science of dissemination, put what is known into widespread practice, reduce the burden of chronic disease and help eliminate inequities in health and health care. OBSSR's vision is described in more detail in its just published, *The Contributions of Behavioral and Social Sciences Research to Improving the Health of the Nation: A Prospectus for the Future* (http://obssr.od.nih.gov/Content/Strategic_Planning/Strategic+Plan_2007/ObssrIndex.htm)

The OBSSR convenes the NIH Behavioral and Social Sciences Research Coordinating Committee bi-monthly to enhance information exchange, communication, integration, and coordination of behavioral and social sciences research and training activities at the NIH. The Coordinating Committee is charged with serving as an advisory body to the Director of OBSSR and serving

as a point of coordination among the IC Directors, OBSSR, NIH staff, and the external scientific community.

Although OBSSR does not have grant-making authority, it participates in many research initiatives developed by individual ICs. Additionally, OBSSR plays an important leadership role in advising and encouraging individual grant making ICs on research gaps and emerging opportunities in both basic BSSR and applied BSSR and in partnering in developing new research initiatives in collaboration with ICs. The following are examples of ongoing, OBSSR-led initiatives supporting basic BSSR.

Research on Mind-Body Interactions in Health. OBSSR worked with several ICs to solicit applications for and establish five Centers for Mind-Body Interactions and Health in 1999. This success of the Centers program spawned a number of additional initiatives in 2003 to support additional infrastructure, developmental/exploratory efforts, and research projects on mind-body interactions and health. Among the current studies supported under this program are projects studying neighborhood and family effects on stress and health; mindfulness meditation to regulate dietary intake; social disparities in epigenetic regulation of neurodevelopment; health beliefs and behavior; effects of mindfulness-based stress reduction on immune response to the human papilloma virus; stress and immunity in older adults; and social inequality and health.

Social and Cultural Dimensions of Health. This initiative is designed to stimulate research to elucidate basic social and cultural constructs and processes used in health research, to clarify social and cultural factors in the etiology and consequences of health and illness, to link basic research to practice for improving prevention, treatment, health services, and dissemination, and to explore ethical issues in social and cultural research related to health. Projects currently receiving support focus on health effects of racial segregation in aging adults; neighborhood design and obesity in older women; stigma and the cultural context of residential settings for the elderly; religion and cancer-related behaviors in African Americans; and socioemotional pathways involved in cardiovascular risk disparities.

Methodology and Measurement in the Behavioral and Social Sciences. This program was created to encourage research to improve the quality and scientific power of data collected in the behavioral and social sciences. Projects currently funded through this initiative focus on the measurement and use of geospatial factors; modeling risk in context; modeling inequalities in health, poverty and location; HIV risk assessment reactivity; measures of patient-reported, cultural

and linguistic competence; neuropsychological assessment in children; assessment of social, cognitive and physical function; pain assessment in non-communicative, palliative care patients; integration of cell phones into random digit dial health surveys; and development of methods for statistical analysis that will improve research in many behavioral and social science disciplines.

Understanding and Promoting Health Literacy. The goal of this program is to promote research that identifies and measures the nature and scope of low health literacy, lifespan and cultural differences in health literacy (especially those related to health disparities), as well as the impacts and consequences of low health literacy on health outcomes, prevention, treatment, adherence, risk assessment of environmental factors, chronic disease management, and health care related activities. Currently funded projects include studies of health literacy and cognitive function in older adults; development of instruments to measure health literacy and health numeracy; examination of oral health literacy; and the role of health literacy in patient adherence. Type 2 diabetes, oral health, maternal health, attention deficit hyperactivity disorder; cardiovascular disease, hypertension, and cancer are some of the health issues that are specifically examined.

Genetics and the Social Environment. OBSSR, the National Human Genome Research Institute, and the National Institute of General Medical Sciences contracted with the Institute of Medicine to convene a committee to explore research gaps and opportunities on the topic of interactions between the social environment and genetics that affect human health. The resultant report, *Genes, Behavior and the Social Environment: Moving Beyond the Nature/Nurture Debate* (2006), included a number of recommendations to move this important field of research forward. OBSSR, in partnership with numerous ICs, has issued a number of program announcements soliciting applications for competitive supplements (i.e., revisions) that will allow investigators funded for genetics research to add a behavioral/social science component or vice versa, i.e., investigators funded for behavioral/social science research to add a genetics component. See http://grants.nih.gov/grants/guide/pa-files/PAR-08-065.html, http://grants.nih.gov/grants/guide/pa-files/PAR-08-066.html, and http://grants.nih.gov/grants/guide/pa-files/PAR-08-067.html for additional information.

NIH support for bBSSR is progressing and new initiatives continue to be developed. OPASI and the newly established Division of Program Coordination, Planning, and Strategic Initiatives along with OBSSR actively participate and coordinate many of the initiatives and other activities related to bBSSR across the

NIH. In the following section, the report indicates the scientific leadership structure for bBSSR in appropriate ICs.

IV. Basic Behavioral Research Scientific Leadership Structure

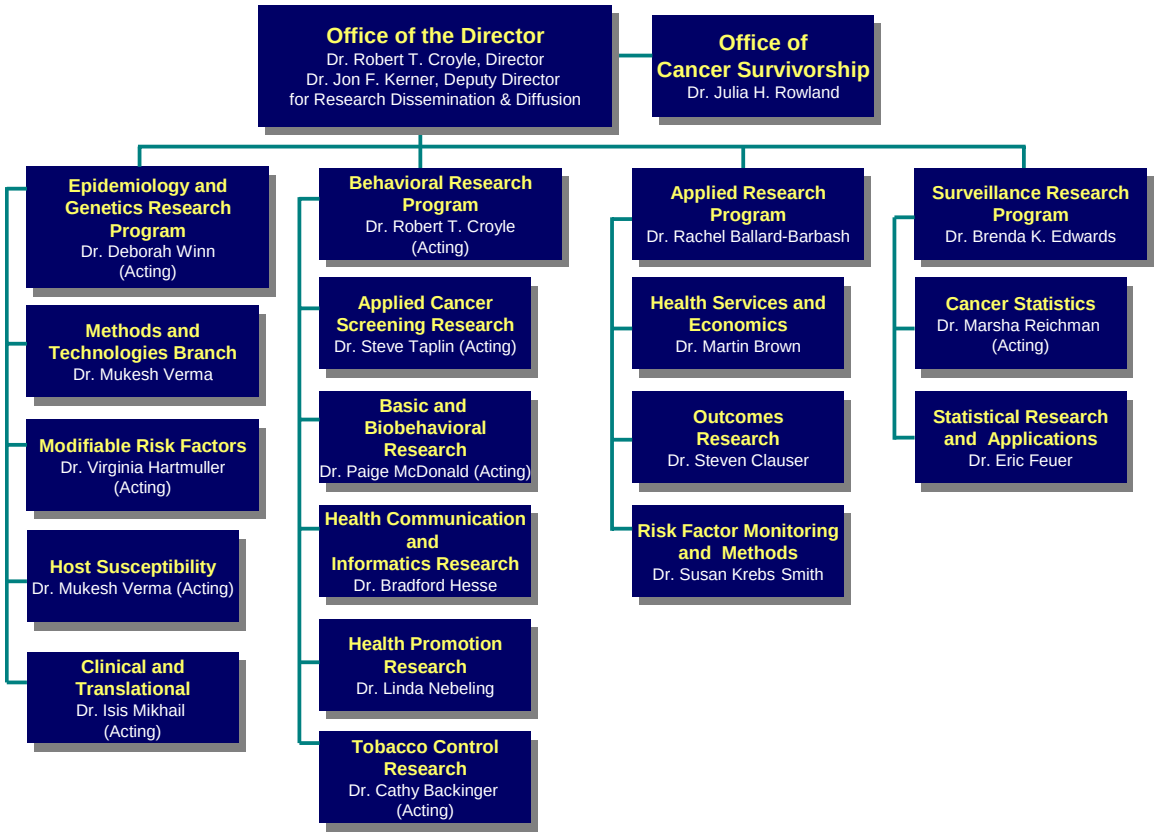
1. National Cancer Institute

The scientific leadership for basic behavioral research at the National Cancer Institute (NCI) is focused within the Division of Cancer Control and Population Sciences (DCCPS), Basic Behavioral Research Branch (BBRB). DCCPS was created in 1997 and the Basic Behavioral Research Program was formed at that time as one of the three (now four) fundamental components of the new Division. BBRB aspires to serve as a national model for promoting, sponsoring, and supporting biobehavioral and basic (social, cultural, behavioral) research and training. The research supported is aimed at identifying the mechanisms, principles, and theoretical underpinnings of cancer-related behavior and behavior change across all ages, racial and ethnic groups, socioeconomic strata, and cancer diagnoses. BBRB seeks to understand behavior and behavior change in its social, cultural and economic context, including how basic and biobehavioral research relates to cancer health disparities.

NCI's mission is accomplished by:

- Supporting extramural funding mechanisms (R01s, R03s, R21s, R13s, P01s, P50s) and Program initiatives (Requests for Applications, Program Announcements)
- Sponsoring conferences, workshops, and training for cancer control researchers in order to disseminate research findings, foster research collaborations, and provide education about the NIH grant application and review process
- Soliciting and incorporating input from the extramural scientific community in an effort to build the basic and biobehavioral research agenda and develop Program initiatives
- Promoting the science of basic and biobehavioral research through publications in professional journals and presentations at national, regional, and local conferences sponsored by professional organizations involved in health research
- Promoting the agenda of the BBRB at national, regional, and local conferences, interested organizations, and academic institutions

National Cancer Institute
Division of Cancer Control and Population Sciences
Organizational Chart



Basic and Biobehavioral Research: Research Agenda

BBRB supports a broad spectrum of basic and biobehavioral research. Examples of the type of research supported include the following:

- Basic research in social, cultural, cognitive, and psychological processes (e.g., risk perception, decision making)
- Biological mechanisms of psychosocial or behavioral processes related to cancer control
- Decision processes involved in cancer prevention, detection, and treatment
- Methodology and measurement in behavioral science research
- Development and testing of models and theories of health behaviors
- Psychosocial and behavioral consequences of cancer risk assessment
- Understanding processes and mechanisms underlying health communication

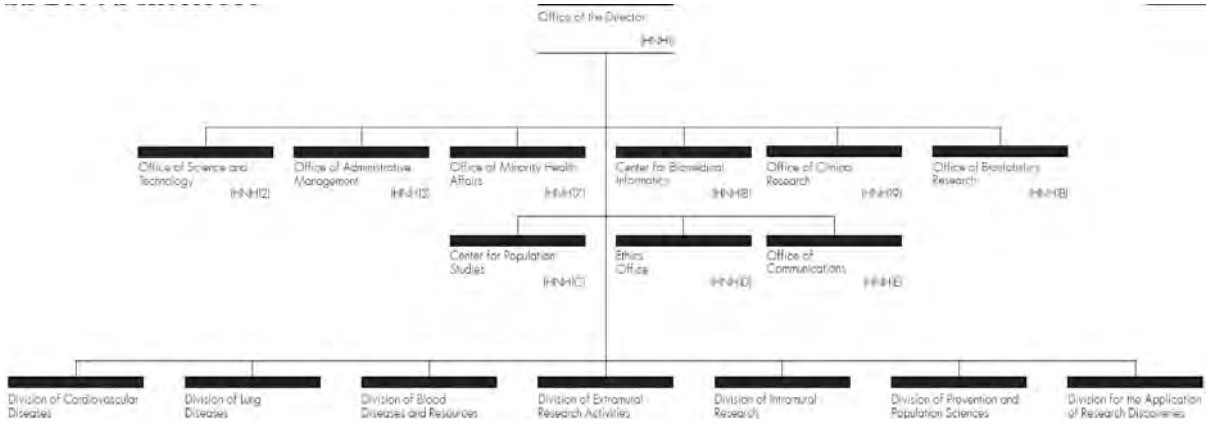
- Genetic and environmental influences on health behaviors related to cancer control
- Mediators and moderators of adaptation and coping
- Research that links levels of analysis from broad social influences to biological mechanisms (this may apply to such areas as health disparities, stress, and gene by environment interactions)
-

Novel approaches, measures, and methods (including qualitative and mixed methods) to the study of health disparities and basic social and behavioral research. This includes testing these approaches in the study of culture, race, ethnicity, socioeconomic status, and community.

2. National Heart, Lung, and Blood Institute

The following organizational chart depicts the leadership structure within the National Heart, Lung, and Blood Institute (NHLBI). Basic behavioral research supported by the NHLBI is centered largely in its Division of Prevention and Population Sciences. The Division and its relevant branch program areas are described below.

National Heart, Lung, and Blood Institute
Organizational Chart



Division of Prevention and Population Sciences (DPPS): The DPPS supports population-, community-, and clinic-based research on the causes, prevention, and treatment of cardiovascular, lung, and blood diseases, and sleep disorders. Research includes a broad array of epidemiological studies to describe disease and risk factor patterns in populations and to identify risk factors for disease; clinical trials of interventions to prevent disease; studies of genetic, behavioral, sociocultural, and environmental influences on disease risk and outcomes; and studies of the application of prevention and treatment strategies to improve clinical care and public health. Behavioral research is primarily represented in interventions to prevent or slow disease development and progression and in efforts to change behaviors that affect risk factor development. The DPPS has three branches:

- Clinical Applications and Prevention Branch: supports research and research training in behavioral, environmental, clinical, and healthcare approaches to reduce occurrence and consequences of cardiovascular diseases. Prevention research examines effects of interventions to slow or halt risk factor or disease development or progression. The interventions, many of which focus on high-risk individuals and populations, include medications, behavioral strategies, and environmental changes. Studies examine behavioral issues such as lifestyle, nutrition and exercise patterns, and other psychological and sociocultural factors, along with environmental and genetic influences relevant to prevention. Clinical application research addresses approaches to improve healthcare delivery and patient outcomes.

- Epidemiology Branch: supports research and research training in the epidemiology of cardiovascular, lung, blood, and sleep diseases and disorders. Research focuses on identifying temporal trends and population patterns in the prevalence, incidence, morbidity, and mortality of cardiovascular, lung, blood, and sleep diseases and disorders and includes single- and multi-center observational epidemiology studies of their development, progression, and treatment. Studies identify environmental, behavioral, physiological, and genetic risk factors for disease and risk factor development, including characterization of gene/gene and gene/environment interactions.

- The Women's Health Initiative Branch: supports (in collaboration with the National Cancer Institute, the National Institute of Arthritis and Musculoskeletal and Skin Diseases, the National Institute on Aging, the National Institute of Neurological Disorders and Stroke, and the Office of Research on Women's Health) clinical trials and observational studies to improve understanding of the causes and prevention of major diseases

affecting the health of women. Current studies focus on cardiovascular disease, cancer, and fractures. The large multicenter observational epidemiology studies seek to identify risk markers for disease or to develop better ways to quantify known markers using questionnaire, clinical examination, and laboratory data. The large and long-term multicenter clinical trials test promising but unproven interventions, such as hormone therapy, diet, and supplements, to prevent major diseases and evaluate overall effects on health. The Branch has established an infrastructure to support the use of data and blood samples from the studies by the scientific community.

3. National Institute of Diabetes and Digestive and Kidney Diseases

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)'s portfolio of Basic Behavioral and Social Sciences Research includes support of over 100 grants, the majority of which are funded through the R01 mechanism. The goal of NIDDK-supported basic behavioral and social research is to provide essential knowledge necessary for better prediction, prevention, and control of illnesses. The basic behavioral and social research portfolio is divided into three categories: (A) research on behavioral and social processes; (B) biopsychosocial research; and (C) research on the development of procedures for measurement, analysis, and classification.

A. Research on Behavioral and Social Processes

This category contains projects studying feeding behavior, motivation, memory, and environmental factors that influence behavioral functioning. There is a compelling need to identify the behavioral mechanisms and dietary attributes which foster overconsumption (hyperphagia) of high-fat foods.

B. Biopsychosocial Research

This category contains research projects studying behavioral neuroscience and behavioral genetics. Understanding normal and dysfunctional body weight regulation requires knowledge of the factors that initiate, maintain, and terminate an individual meal. Each of these aspects of meal consumption is influenced by oral and post-oral factors, whose separate and integrative contributions to satiety are not fully understood. Following ingestion and the initiation of digestion, nutrients trigger a variety of post-ingestive signals from upper gastrointestinal and vascular sites that terminate feeding, produce satiety, and reduce the appetitive nature of food. Feeding behavior is controlled in part by post-absorptive fuel metabolism. The liver monitors fuel metabolism and generates signals that the

brain uses to control feeding behavior. NIDDK researchers are studying which liver cell types are the source of hepatic signals that control feeding behavior, and which neurons are involved in the transmission and processing of hepatic metabolic hunger signals.

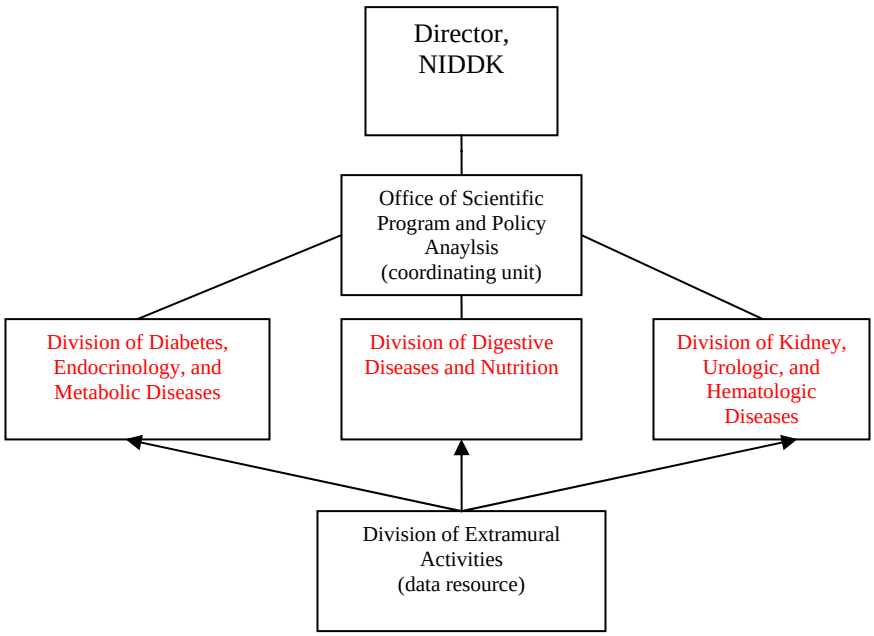
Scientists are also trying to elucidate the central nervous system (CNS) mechanisms that underlie the increase in body adipose tissue mass that is associated with consuming a high fat diet. CNS anabolic effectors are those which, when activated, elicit increased food intake and decreased energy expenditure, resulting in increased stored energy in the form of adipose tissue mass. CNS catabolic effector pathways do just the opposite—they decrease food intake and increase energy expenditure resulting in decreased adipose tissue mass. Hormones responsive to the level of adiposity inhibit anabolic pathways while activating catabolic pathways; the balance between these pathways ultimately governs the animal's feeding behavior.

C. Research on the Development of Procedures for Measurement, Analysis, and Classification

This category contains research projects that support instrument development.

The following chart illustrates the scientific leadership structure for basic behavioral and social sciences research at NIDDK.

National Institute of Diabetes and Digestive and Kidney Diseases
Basic Behavioral and Social Sciences Research
Organizational Chart



Division of Diabetes, Endocrinology, and Metabolic Diseases

The Division of Diabetes, Endocrinology and Metabolic Diseases (DEM) is the largest of 3 extramural Program Divisions in the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), created by statute in 1985 (PL 99-158). It is responsible for maintaining an extramural research program that includes both basic and clinical research encompassing all forms of diabetes and its complications (http://www2.niddk.nih.gov/Research/ScientificAreas/Diabetes/).

In addition, the mission includes basic and clinical research in endocrinology (http://www2.niddk.nih.gov/Research/ScientificAreas/Endocrinology/), with an emphasis on bone and mineral endocrinology, neuroendocrinology, and mechanisms of hormone action, particularly the role of the nuclear receptor super family in signal transduction and regulation of gene expression related to obesity

and metabolism. The division also supports research on genetic metabolic diseases, such as cystic fibrosis and lysosomal storage diseases, and on gene therapy (http://www2.niddk.nih.gov/Research/ScientificAreas/GeneticGeneTherapy/).

In recent years, there has been considerable expansion of research programs in obesity (http://www2.niddk.nih.gov/Research/ScientificAreas/Obesity/). To facilitate coordination of obesity-related research in NIDDK, two co-Directors of the Office of Obesity Research were named, one each from the Division of Digestive Diseases and Nutrition (DDN) and DEM Divisions. An area of emphasis in the division has been the application of new technologies in genomics, proteomics, metabolomics, functional imaging, and bioengineering to research within its mission.

While NIDDK is the lead institute for diabetes and endocrinology research, substantial research in these areas is supported in other institutes and centers. NIDDK shares the lead responsibility for cystic fibrosis research with NHLBI and collaborates closely with the Office of Rare Diseases (ORD) and other institutes in research on inborn errors. The division also supports collaborative research projects with the Centers for Disease Control and Prevention (CDC), Indian Health Service (IHS), and other agencies.

Division of Digestive Diseases and Nutrition (DDN)

The Division of Digestive Diseases and Nutrition is one of 3 extramural Program Divisions in NIDDK, created by statute in 1985 (PL 99-158). It is responsible for maintaining an extramural research program in digestive diseases and nutrition. (http://www2.niddk.nih.gov/Research/ScientificAreas/DigestiveDiseases/). The scope of research is very broad and includes both basic and clinical research in fundamental aspects of the digestive system and disease targeted research involving the esophagus, stomach, small intestine, large intestine and anorectum, liver, biliary system and exocrine pancreas. In addition, the mission includes basic and clinical research in nutrition and basic and clinical research in obesity, including obesity prevention. In recent years, there has been considerable expansion of research programs in obesity (http://www2.niddk.nih.gov/Research/ScientificAreas/Obesity/). In 2003, the Liver Diseases Research Branch was created within the Division to coordinate and facilitate liver diseases research in NIDDK (http://www2.niddk.nih.gov/Research/ScientificAreas/Liver/).

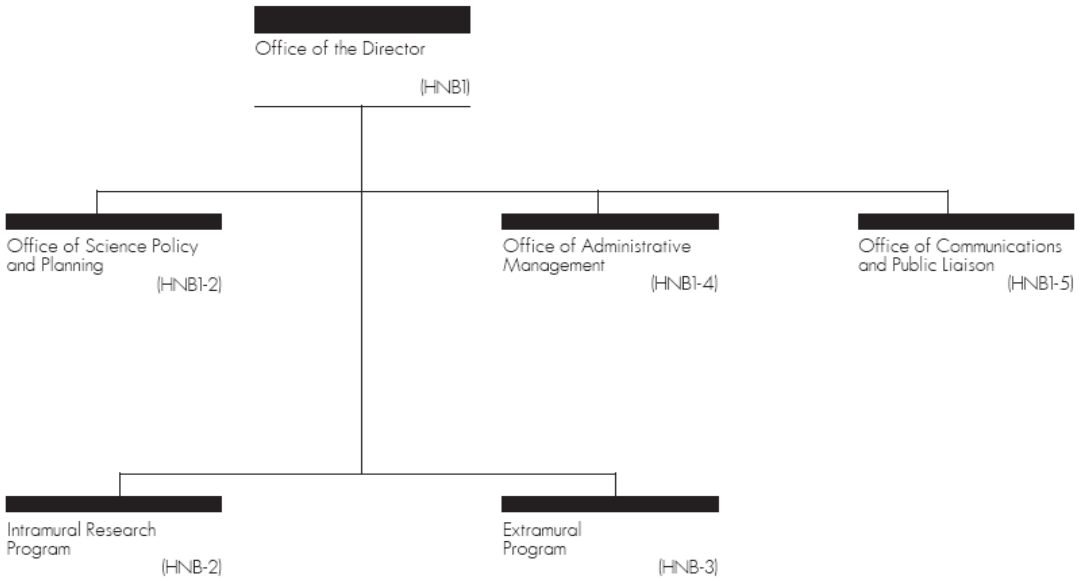
Division of Kidney, Urologic, and Hematologic Diseases (KUH)

The Division of Kidney, Urologic, and Hematologic Diseases (KUH) supports basic and clinical research studies of the kidney and urinary tract and of disorders of the blood and blood-forming organs. The goal is to increase understanding of kidney, urologic, and hematologic diseases to enhance prevention and treatment strategies. KUH supports research on both common and rare diseases, pediatric and adult disease, and acute and chronic disease. In addition, KUH supports a robust training program for professional development of investigators in nephrology, urology and hematology.

4. National Institute of Arthritis and Musculoskeletal and Skin Diseases

The following organizational chart depicts the leadership structure within the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). The scientific leadership for basic behavioral and social sciences research is focused within the Division of Extramural Research, Behavioral and Prevention Research Program, Division of Skin and Rheumatic Diseases. The program seeks to foster basic and clinical biopsychosocial research in arthritis, systemic lupus erythematosus, fibromyalgia, skin, and related diseases. Research supported includes examination of behavioral, psychological, and social factors and their interaction with physiological processes in the prevention, etiology, course, management, and outcomes of disease. Multidisciplinary collaboration is encouraged.

National Institute of Arthritis and Musculoskeletal and Skin Diseases
Organizational Chart

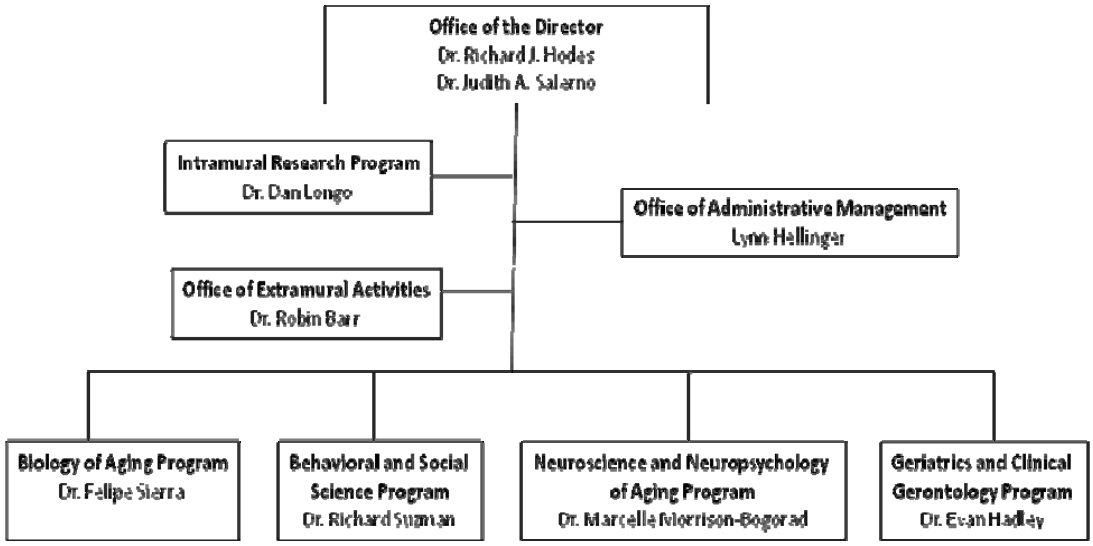


5. National Institute on Aging

The following organizational chart depicts the leadership structure within the National Institute on Aging (NIA). NIA supports basic and clinical behavioral and social research to improve the health and quality of life of older Americans, to understand principles of and strategies for healthy aging processes, and to reduce health disparities among older persons and populations. Behavioral and social research is supported across several NIA extramural Programs, most prominently in the Behavioral and Social Research Program and the Neuroscience and Neuropsychology of Aging Program.

Primary leadership for extramural support to basic behavioral and social research at the NIA resides in the Behavioral and Social Research (BSR) Program. This Program is one of the four programs that comprise the extramural research organization. The BSR portfolio is largely basic research. In addition, NIA support focused basic behavioral and social science research through the Neuroscience and Neuropsychology of Aging (NNA) Program, where the primary emphasis is on the behavioral and social aspects of cognitive function and related diseases and conditions among older adults, especially Alzheimer's disease.

National Institute on Aging
Organizational Chart



Several components of NIA's intramural research program also conduct behavioral and social science research. These include the Laboratory of Epidemiology, Demography, and Biometry, the Laboratory of Experimental Gerontology, the Laboratory of Neurosciences, and the Laboratory of Personality and Cognition. In addition, two of the major longitudinal studies of aging – the Baltimore Longitudinal Study on Aging and the Healthy Aging in Neighborhoods of Diversity – receive oversight from the Scientific Director.

6. National Institute of Allergy and Infectious Diseases

National Institute of Allergy and Infectious Diseases (NIAID) supports a portfolio of behavioral and social sciences research within its three extramural research divisions, which encompasses adherence to therapeutic regimens or preventive interventions, behavioral factors that influence the risk and/or transmission of asthma, allergic diseases, sexually transmitted diseases, HIV/AIDS, and other infectious diseases, as well as the behavioral factors that increase organ donation.

The NIAID Division of AIDS in FY 2007 created a Prevention Sciences Program (PSP) that includes a Prevention Research Branch that coordinates NIAID activities related to HIV/AIDS behavioral research. There are now five full-time equivalent staff members within the Prevention Research Branch and NIAID is currently recruiting for the PSP Director and Prevention Research Branch Chief positions.

Division of AIDS (DAIDS):
The Division of AIDS supports domestic and international studies that evaluate behavioral interventions to prevent the sexual, parenteral, and perinatal transmission of HIV. To date, the majority of the behavioral studies have been conducted through the HIV Network for Prevention Trials (HIVNET). In early 2000, the HIV Prevention Trials Network was established to support large-scale randomized, controlled trials of promising biomedical and behavioral strategies for the prevention of HIV transmission among at-risk adult and pediatric populations. In addition to other prevention strategies, the network supports community outreach and educational efforts in preparation for HIV prevention trials, studies of factors affecting acceptability of and adherence to prevention modalities, and socio-cultural factors related to implementation of successful prevention strategies.

In addition, studies within the Adult AIDS Clinical Trials Group, Pediatric AIDS Clinical Trials Group and the Community Program for Clinical Research on AIDS are examining adherence/compliance to therapeutic regimens and other behavioral issues that impact quality of life and the clinical management of HIV-infected people.

National Institute of Allergy and Infectious Diseases
Organizational Chart

Division of Microbiology and Infectious Diseases (DMID):
Prevention and control strategies for infectious diseases focus on blocking transmission, identifying and treating cases, and interrupting progression of disease. Behavioral research can help prevent and control disease by: changing behaviors to prevent exposure; increasing acceptance of vaccines in both child and adult populations; promoting health behaviors leading to diagnosis of infection; and improving adherence to treatment regimens.

The most active area of behavioral research is within the Sexually Transmitted Diseases (STD) Branch and is supported through seven multidisciplinary STD Cooperative Research Centers (STD CRCs) as well as individual (R01 and U01) behavioral research projects. This intervention-oriented research is directed at prevention of STDs in a variety of populations. Studies are ongoing in high-risk adolescent populations, STD clinic populations, minority women, and patients in HMOs and in rural populations. Some of the objectives include characterization of the differences in rural versus urban social networks; identification of sexual partner networks that contribute to the spread of STDs; improvement of STD education programs for clinicians; and development of effective screening instruments to identify high-risk patients in clinical settings. In the recently

awarded STD CRCs, behavioral research projects focus on adolescents and social networks as communities in which STDs are transmitted.

Division of Allergy, Immunology and Transplantation (DAIT)
The objective of the Division of Allergy, Immunology and Transplantation (DAIT) behavioral research is to translate information from biomedical research on immune-mediated diseases into behavioral changes that will lead to the early diagnosis, effective treatment, and eventual prevention of these diseases, particularly among minority populations. DAIT supports behavioral research in asthma, transplantation and organ donation.

7. National Institute of Child Health and Human Development

The National Institute of Child Health and Human Development (NICHD) supports research activities to ensure that every child is born healthy and wanted; that women suffer no harmful effects from reproductive processes; that all children have the chance to achieve their full potential for healthy and productive lives free from disease or disability; and to ensure the health, productivity, independence and well-being of all people through optimal rehabilitation. In support of this mission, the NICHD conducts and supports basic behavioral research, infrastructure, and training activities *across the Institute* to identify the mechanisms and pathways that influence behavior, and its development. Branch chiefs lead related research activities in the Demographic and Behavioral Sciences Branch (DBSB), the Child Development and Behavior (CDB) Branch, and the Reproductive Sciences Branch (RSB), in NICHD's extramural research program. The DBSB branch chief also serves as the NICHD liaison to the NIH's Office of Behavioral and Social Sciences Research. Plus, the DBSB and CDB branch chiefs lead an informal internal behavioral and social sciences consortium. In addition, activities at NICHD's Division of Intramural Research are led by Laboratory Chiefs, and Section and Unit Heads. A brief description of research activities are provided below, as well as organizational charts.

<u>Center for Population Research</u>

- *Demographic, Behavioral and Social Sciences Branch*: The DBSB supports demographic, behavioral, and social sciences research on fertility, families, population movement, morbidity and mortality, HIV/AIDS, and population composition. The Branch supports individual

research projects as well as research training and infrastructure in the population sciences.

- *Reproductive Sciences Branch*: Among the scientific research that the branch supports are projects aimed at understanding how processes in the brain and hormones affect reproductive behavior, expanding fundamental knowledge of the mechanisms that underlie human reproduction.

Center for Research for Mothers and Children

- *Child Development and Behavior Branch*: The CDBB supports research and research training relevant to the psychological, psychobiological, language, cognitive, behavioral, and educational development of children.

Division of Intramural Research

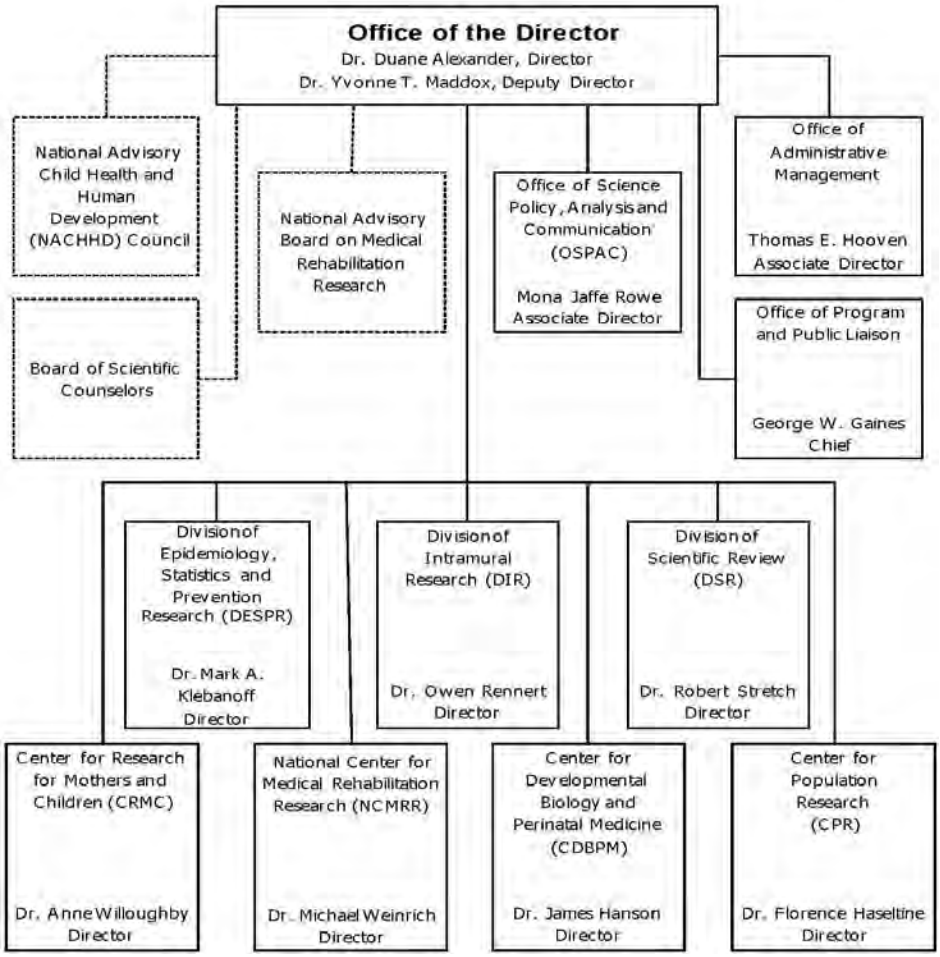
- *Section on Metabolic Regulation, Endocrinology and Reproduction Research Branch*: Scientists are investigating how signal transduction mechanisms affect synaptic transmission and plasticity, processes that are essential to learning and memory. Genetically modified mouse models are being used to characterize how a brain protein called neurogranin regulates these processes.

- *Laboratory of Comparative Ethology*: Through comparative longitudinal studies of non-human primate models, researchers are examining some of the basic mechanisms of biobehavioral development, including how genetic and environmental factors shape development.
    - *Section on Child and Family Research*: Researchers are investigating how certain factors affect physical, mental, emotional, and social development in human beings, up to age 20.
    - *Section on Comparative Behavioral Genetics*: Using nonhuman primate models, researchers are studying the neural basis of crying to understand how it is produced and how it elicits care-giving behavior in other individuals.

- *Section on Cell Biology and Signal Transduction, Laboratory of Cellular and Synaptic Neurophysiology*: Using insect models, researchers are combining electrophysiological, anatomical, behavioral, and other techniques to examine the ways neural circuits, driven by sensory stimuli, process information.

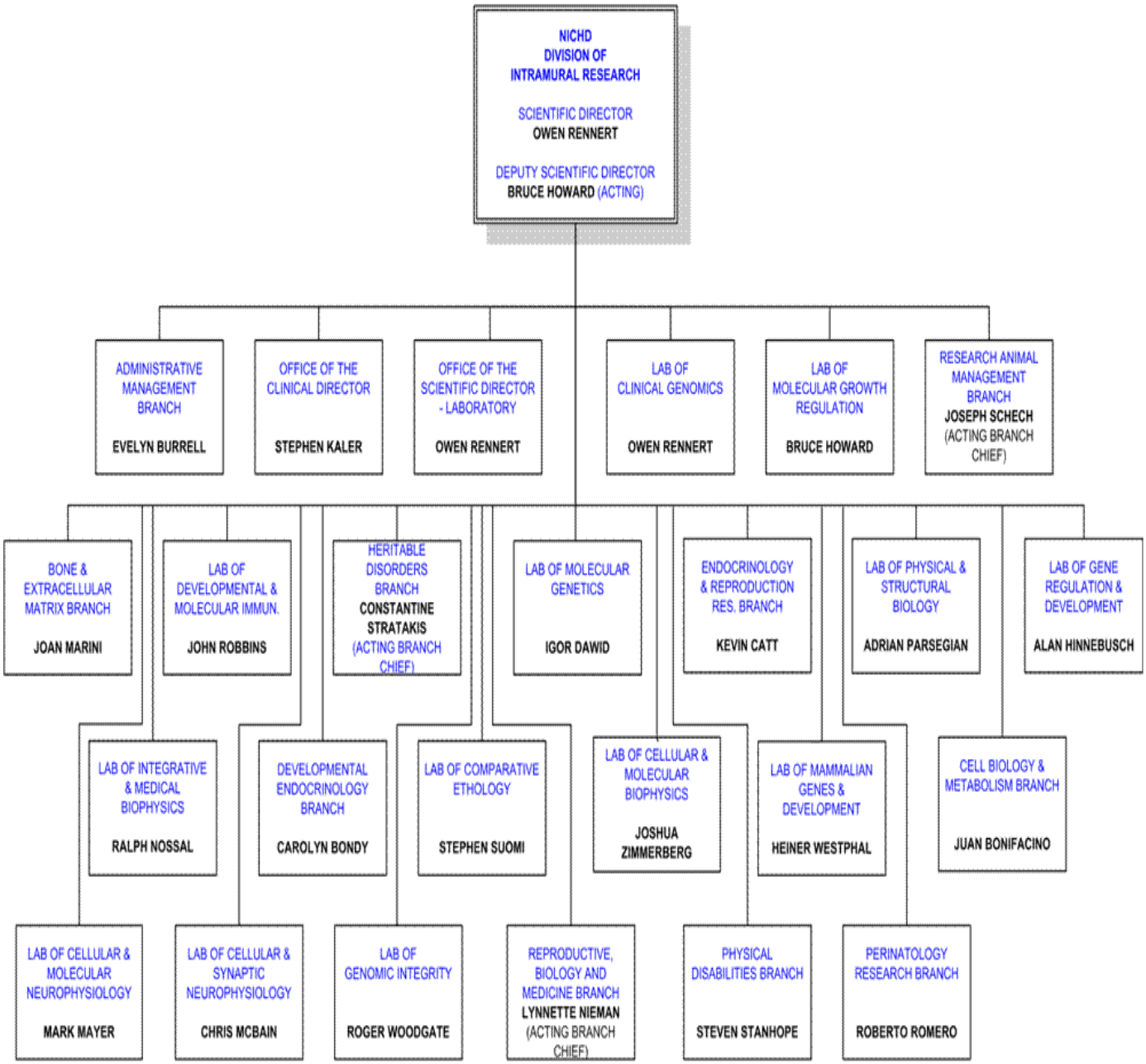
Section on Tissue Biophysics and Biomimetics, Laboratory of Integrative and Medical Biophysics: NICHD scientists are processing and analyzing diffusion tensor magnetic resonance imaging data as a part of a trans-NIH effort to characterize brain development in normal, healthy children and adolescents.

National Institute of Child Health and Human Development
Organizational Chart



National Institute of Child Health and Human Development
Intramural Research Labs and Branches
Organizational Chart

November 1, 2005



8. National Institute of Dental and Craniofacial Research

The National Institute of Dental and Craniofacial Research (NIDCR) investments indicate the recognition that many dental and craniofacial diseases (e.g., dental caries, periodontal diseases, oral cancers) are significantly influenced by personal behaviors, such as hygiene practices, dietary choices, or tobacco and alcohol use. Also, the relatively accessible oral cavity provides excellent opportunities for non-invasive biobehavioral studies of tissue response to psychosocial stressors or environmental changes.

NIDCR supports both basic behavioral and social science research and applied health promotion/behavioral intervention research. NIDCR's comprehensive research centers include support for ten behavioral/social science research projects, including community outreach projects that are tied to the central themes of the various centers.

The following organizational chart depicts the leadership structure within the NIDCR. The scientific leadership for basic behavioral and social sciences research is focused within the Division of Extramural Research, Behavioral Research (BSSR) Branch.

Behavioral and Social Sciences Research Branch

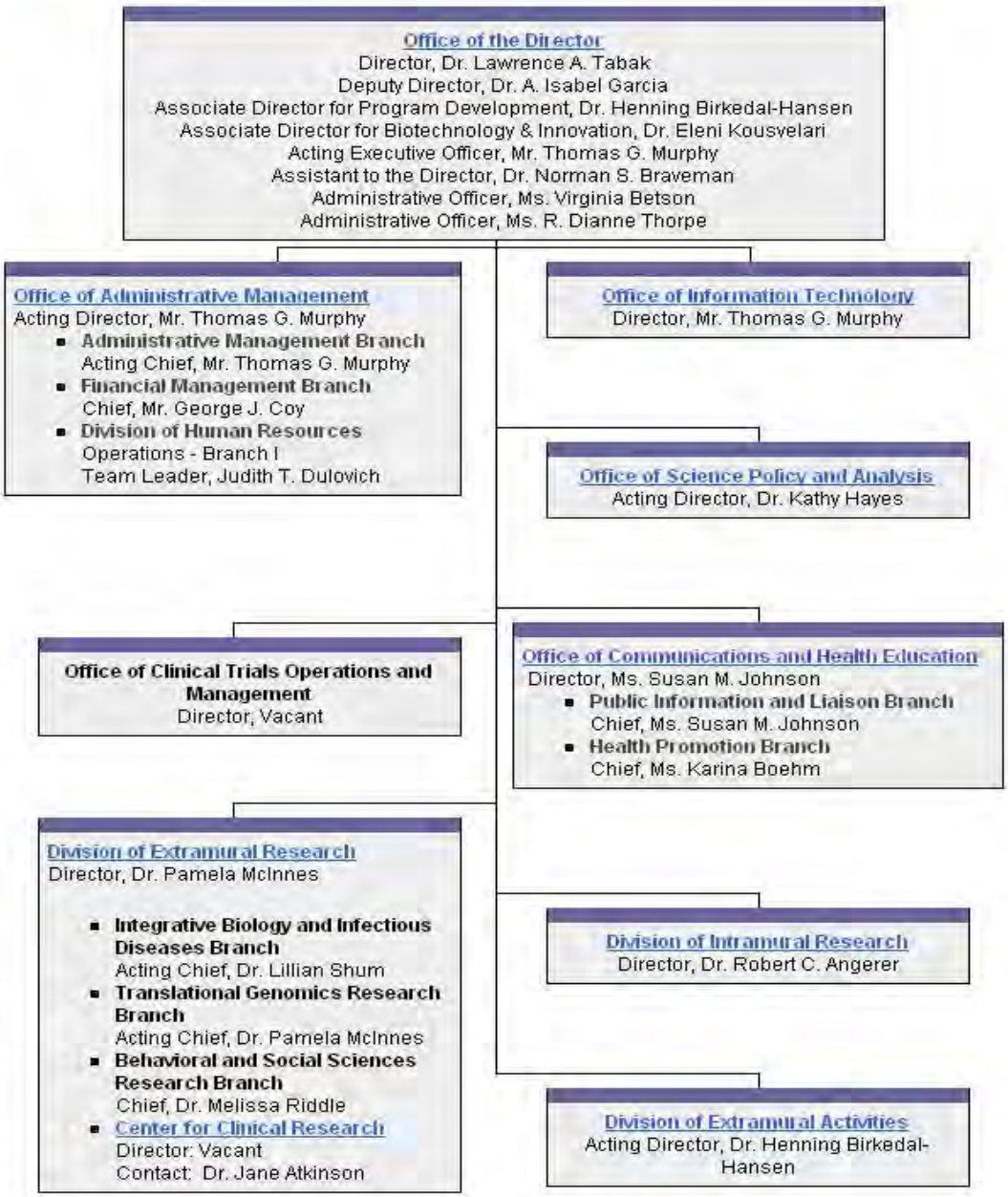
The Behavioral and Social Sciences Research (BSSR) Branch at the NIDCR supports basic research that identifies the mechanisms by which behavioral and social factors contribute to oral health. Basic BSSR in all areas of oral health are encouraged, including research that clarifies:

- how health behaviors develop and are maintained across the lifespan;
- how behavioral and social factors influence wound healing, immunity to infection, and other health and oral health outcomes;
- the mechanisms linking psychosocial processes (e.g., cognitive, emotional, behavioral, and social processes) and the experience of acute and/or chronic pain;
- the role of health communication in oral health, including communication between patients and oral health care professionals, communication between oral health and other health care professionals, oral health literacy (i.e., an individual’s ability to utilize oral health care), diffusion and dissemination of health information, etc.;

- the mechanisms by which serious and/or chronic craniofacial illnesses (e.g., temporomandibular joint and muscle disorders, craniofacial anomalies and injuries, oral, head or neck cancers, oral complications of HIV infection, etc.) are related to patient, family and social functioning.

The Center for Clinical Trials at the NIDCR is committed to identifying effective preventive, diagnostic, and treatment approaches for craniofacial, oral, and dental diseases and disorders. The Center supports planning grants, grants for collection of pilot data, and Phase-III clinical trials, with the goal of providing sufficient scientific evidence for consideration of a change in health policy or standard of care. Basic behavioral and social sciences research is encouraged in all stages of clinical trials research. Studies may test possible mechanisms and/or patterns of behavior or social functioning relevant to oral health, both in development of interventions and in full-scale testing of interventions.

National Institute of Dental and Craniofacial Research
Organizational Chart



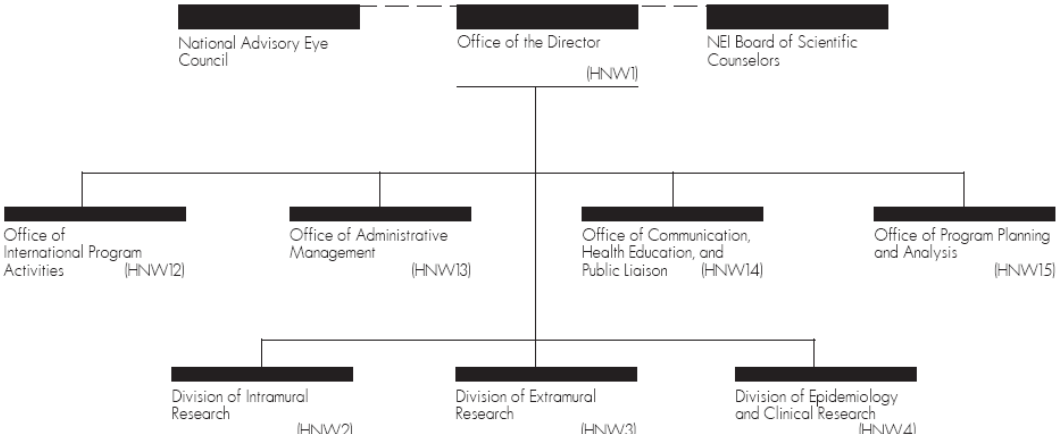
9. National Eye Institute

Basic behavioral and social sciences research is represented in some form throughout the National Eye Institute (NEI) Division of Extramural Activities and Scientific Programs. The following organizational chart depicts the leadership structure within the NEI.

In 1968, Congress established the NEI to conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind. Although seldom fatal, eye diseases cause suffering, disability, and loss of productivity for millions of people in this country and throughout the world. The most pronounced effects of diseases of the eye and disorders of vision are on an individual's quality of life. They affect the ability to act independently, recognize family and friends, read, drive a car, and perform a host of other activities that we consider routine daily tasks.

Our ability to perform these tasks under neurosensory control is one of the most fundamental and critical of our human abilities and one that has been an important area of NEI-sponsored research. Much of this work has concentrated on the visual/oculomotor system that controls sensory-motor coordination. By understanding how visual system neurons convey complex messages, scientists can explore how physical and behavioral components of the message contribute to higher visual cognitive functions like perception, attention, and memory. This information is vital to our understanding of visual system deficits and in developing visual prosthetic devices to compensate for other visual system defects or blindness.

National Eye Institute
Organizational Chart

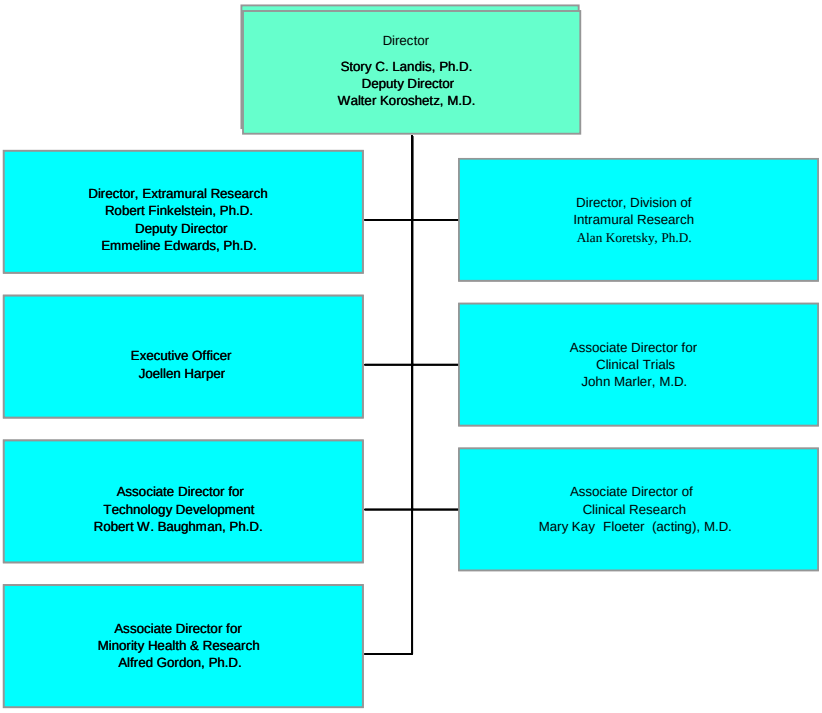


10. National Institute of Neurological Disorders and Stroke

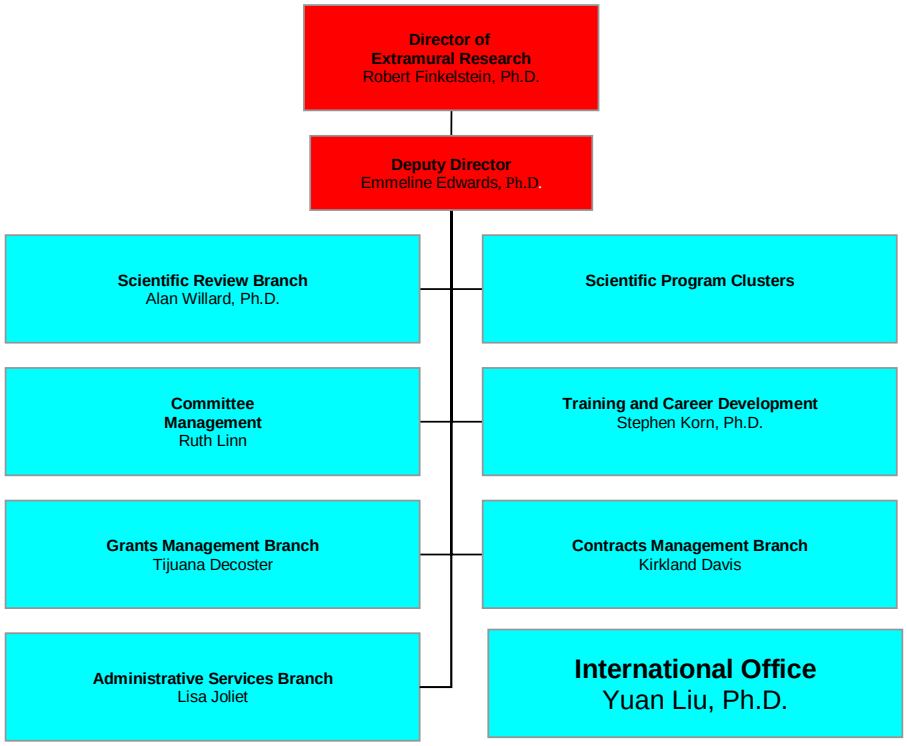
The mission of the National Institute of Neurological Disorders and Stroke (NINDS) is to reduce the burden of neurological disorders by conducting and supporting research on the normal and diseased nervous system. To this end, NINDS supports a broad portfolio of both basic and clinical behavioral and social science research and training. This includes basic studies of the neural bases of cognition and behavior, and clinical studies of the adverse effects of neurological disease on cognitive and behavioral functioning, along with the development of behavioral interventions designed to ameliorate the symptoms of some neurological disorders.

The following organizational chart depicts the scientific leadership structure within the NINDS. Basic behavioral and social sciences research is represented in the Division of Extramural Research (DER). The NINDS, DER is composed of a number of thematic program clusters. The majority of basic behavioral research is handled by the Systems and Cognitive Neuroscience Cluster. It is important to note that basic behavioral research grants can also be found in other cluster portfolios.

National Institute of Neurological Disorders & Stroke
Organizational Chart



National Institute of Neurological Disorders & Stroke
Division of Extramural Research
Organizational Chart



11. National Institute of General Medical Sciences

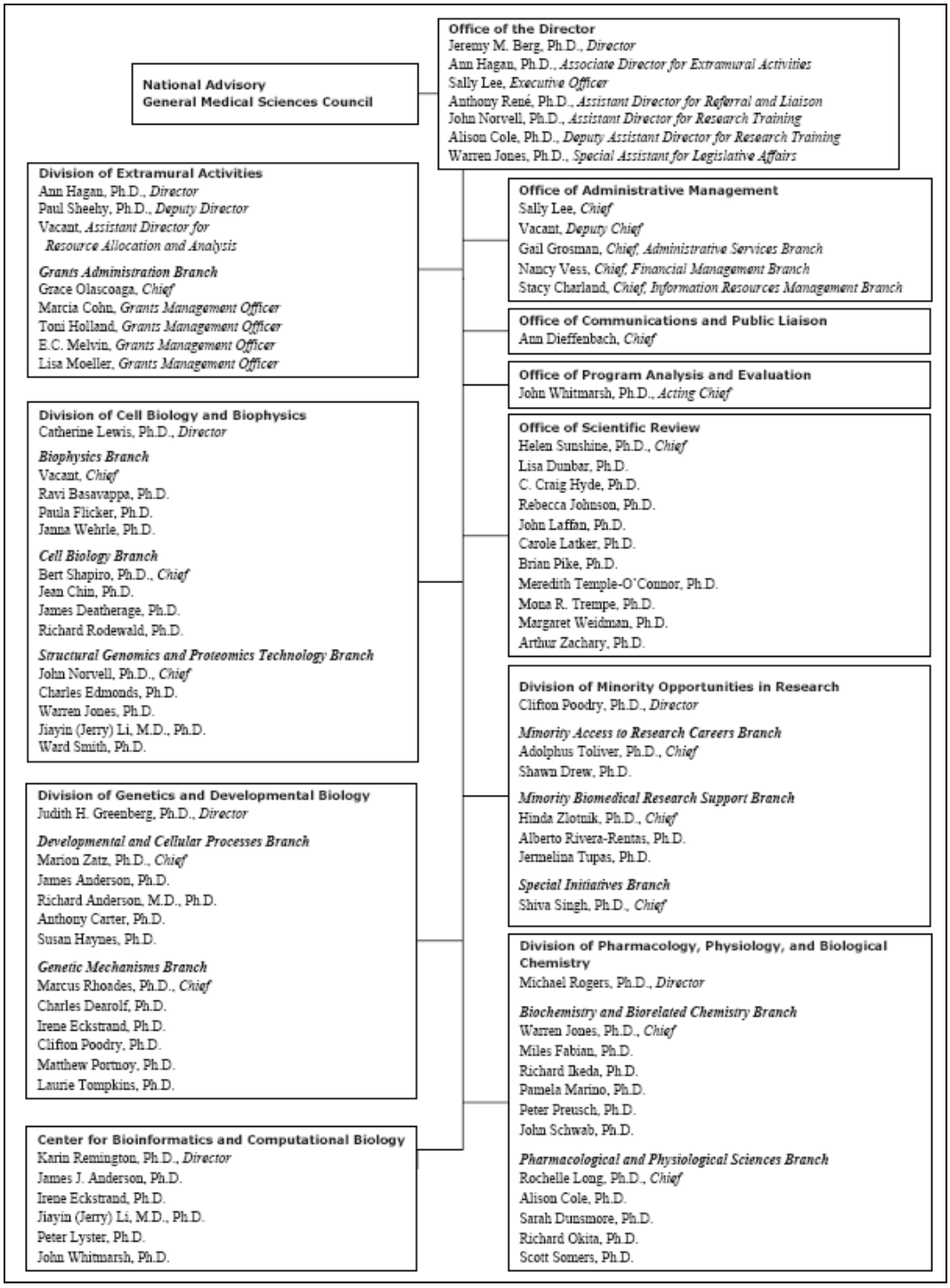
The National Institute of General Medical Sciences (NIGMS) is organized into four divisions (Cell Biology and Biophysics; Genetics and Developmental Biology; Pharmacology, Physiology, and Biological Chemistry; and Minority Opportunities in Research), one center (Bioinformatics and Computational Biology), and a training group that cuts across the divisions and center. The following organizational chart depicts the scientific leadership structure within the NIGMS.

The authorization language for NIGMS states, "The general purpose of the National Institute of General Medical Sciences is the conduct and support of research, training, and, as appropriate, health information dissemination, and other programs with respect to general or basic medical sciences and related natural or behavioral sciences which have significance for two or more national research institutes or are outside the general area of responsibility of any other national research institute." In keeping with this mission, NIGMS supports basic behavioral research and training programs related to its basic biomedical research and training programs. These programs fall into four organizational units within NIGMS and are coordinated through the Associate Director for Extramural Activities and the Office of the Director.

The first program is supported within the Division of Genetics and Developmental Biology and is focused on studies of behavioral genetics in model organisms. This program consists of unsolicited grants involving genetic and molecular biological studies of behavioral traits in model organisms. In addition, a program announcement was released, originally in 2005 on "Collaborative Research for Molecular and Genomic Studies of Basic Behavior in Animal Models" (http://grants.nih.gov/grants/guide/pa-files/PA-07-096.html) to encourage collaborations between behavioral scientists and molecular biologists directed toward understanding basic mechanisms in behavior.

The second program, supported within the Center for Bioinformatics and Computational Biology, is focused on the development of computational models that include aspects of human behavior. This program is centered in the Models of Infectious Disease Agent Study (MIDAS) network (http://www.nigms.nih.gov/Initiatives/MIDAS/), an effort directed toward developing and testing computer-based models for how infectious diseases spread through populations. The MIDAS network includes basic behavioral and social scientists who provide guidance on approaches to modeling human behavior and on the derivation of behavioral and social outputs from the modeling results.

National Institute of General Medical Sciences
Organizational Chart



The third program, the Support of Competitive Research (SCORE) Institutional Development grants, is supported within the Minority Biomedical Research Support branch of the Minority Opportunity in Research division. It includes component projects from a wide range of fields including basic behavioral research at minority-serving institutions. The SCORE grants are intended to increase the research competitiveness of the faculty at these institutions as well as the institutional research capabilities.

The final program is supported within the NIGMS training group. The new "Predoctoral Training at the Interface of Behavioral and Biomedical Sciences" (http://grants.nih.gov/grants/guide/pa-files/PAR-06-503.html) was launched in 2006 with the goal of developing basic behavioral scientists with rigorous broad-based training in biology and biomedical science, who are available to assume leadership roles related to the Nation's biomedical, behavioral, and clinical research needs. The program provides interdisciplinary research training experiences and curricula for predoctoral trainees that integrate both behavioral and biomedical perspectives, approaches, and methodologies.

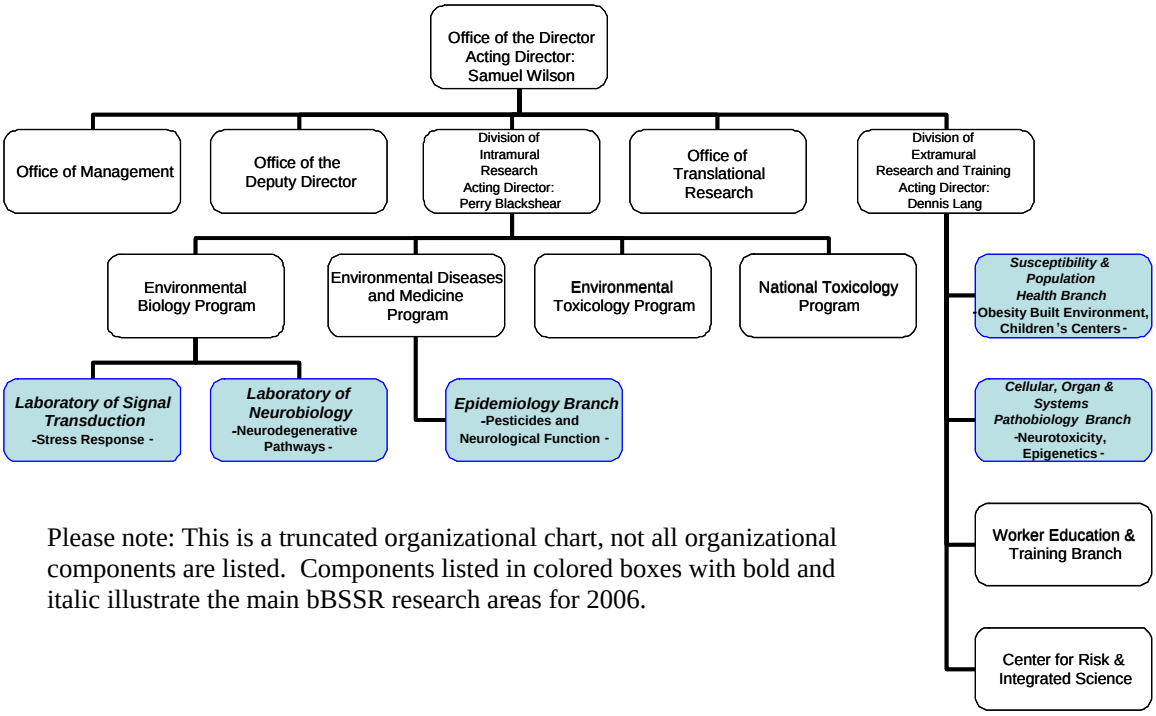
Furthermore, NIGMS has a staff representative on the trans-NIH Behavioral and Social Science Research Coordinating Committee. This role not only provides an opportunity for staff to keep the NIGMS Director informed of important issues regarding basic behavioral research, but also to share with the NIH community and the Office of Behavioral and Social Sciences Research (OBSSR) essential information on NIGMS' activities and initiatives relevant to basic behavioral research.

12. The National Institute of Environmental Health Sciences

The National Institute of Environmental Health Sciences (NIEHS) strives to reduce the burden of human illness and dysfunction from environmental causes through a multidisciplinary biomedical research program, prevention and intervention efforts, and a communication strategy that encompasses training, education, technology transfer, and community outreach. Because of the desire of the public for research about health risks of exposure to physical and chemical agents, NIEHS is playing an increasingly important role in numerous public health issues.

The following organizational chart depicts the scientific leadership structure for basic behavioral and social science research at the NIEHS. The Institute's activities share the following objectives: 1) To improve understanding of how environmental factors affect human health; 2) To develop better means of preventing environmentally related health problems; and 3) To promote partnerships among scientists, health care providers, and community members. NIEHS' Division of Extramural Research and Training supports several translational research activities, which include environmental health science education, NIEHS Center Community Outreach and Education Program (COEP).

National Institute of Environmental Health Sciences
Organizational Chart



Please note: This is a truncated organizational chart, not all organizational components are listed. Components listed in colored boxes with bold and italic illustrate the main bBSSR research areas for 2006.

Division of Extramural Research and Training

Susceptibility and Population Health Branch
(1) Develops plans and administers research grants, contracts, cooperative agreements, and interagency agreements related to physical, chemical, biological, social, and psychosocial environmental exposures and their impact on individual and population health, including: a) individual and population susceptibility, as broadly determined by genetic, behavioral, and sociocultural factors; b) gene-environment interactions, from effects of allelic variants and toxicant-induced mutations to protein structure-function relationships; c) environmental and molecular epidemiology; d) intervention and prevention, from molecular to community-based approaches; and e) use of biomarkers of exposure, susceptibility and effect in population-based studies; (2) provides management of the NIEHS Core Centers program and other specialized Center programs, including those addressing children's health and health disparities; (3) oversees development and coordination of the NIEHS Environmental Genome Project; (4) plans and administers NIEHS translational research, from education and outreach to applied prevention and treatment strategies; (5) provides professional liaison for scientific review of these activities; (6) coordinates activities with other NIEHS organizations and maintains liaison with appropriate Federal and non-Federal organizations, institutions, scientists, health care providers, educators, and community members; and (7) assesses and evaluates progress.
http://inside-www.niehs.nih.gov/dert/about/sphbmsn.htm

13. National Institute on Deafness and Other Communication Disorders

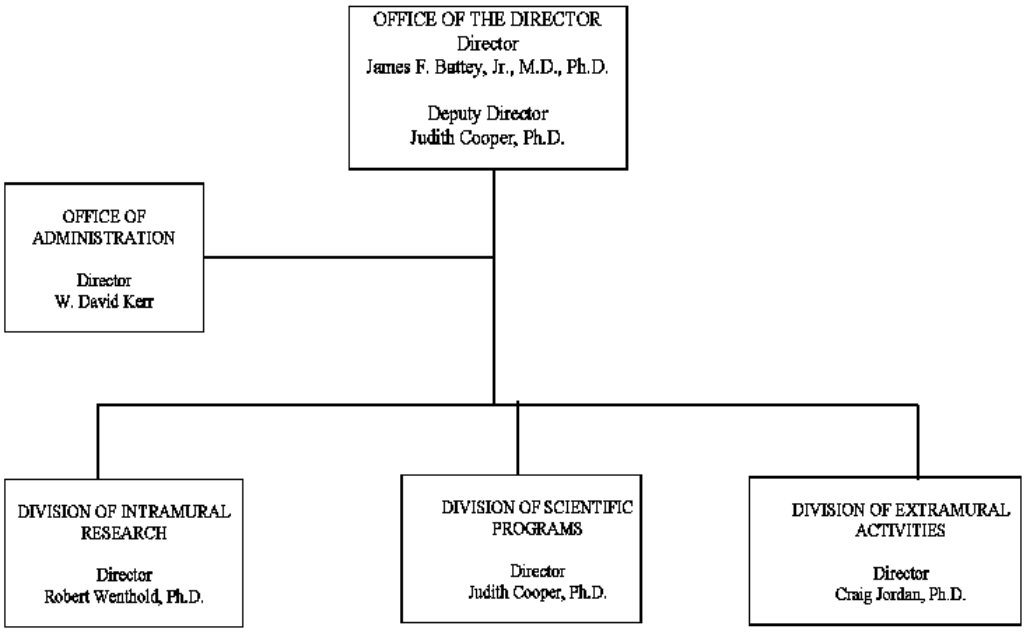
The National Institute of Deafness and Other Communication Disorders (NIDCD) was established in 1988; the NIDCD is mandated to conduct and support biomedical and behavioral research and research training in the normal and disordered processes of hearing, balance, smell, taste, voice, speech, and language. The Institute also conducts and supports research and research training related to disease prevention and health promotion; addresses special biomedical and behavioral problems associated with people who have communication impairments or disorders; and supports efforts to create devices which substitute for lost and impaired sensory and communication function.

The following organizational chart depicts the leadership structure within the NIDCD. The scientific leadership for basic behavioral and social sciences research is focused within the Division of Scientific Programs

Basic Behavioral and Social Sciences Research (bBSSR) is supported in all the program areas of the NIDCD Division of Scientific Programs. Naturally, the voice, speech, and language programs have the largest share of bBSSR. Much of the research is in human communication abilities such as speech perception, speech production, language learning, and neurolinguistic rehabilitation. Psychophysics of hearing, taste, and smell constitute other robust areas of bBSSR supported by NIDCD. The bBSSR extramural research of NIDCD is mostly supported by R01 awards. There are also, R03s, R21s, Fs, Ks, and T awards. NIDCD has a representative that attends the NIH OBSSR Coordinating Committee meetings and facilitates interface between NIDCD and the OBSSR.

NIDCD also conducts bBSSR research in its intramural labs in the area of brain imaging and modeling of human communication.

National Institute on Deafness and Other Communication Disorders
Organizational Chart

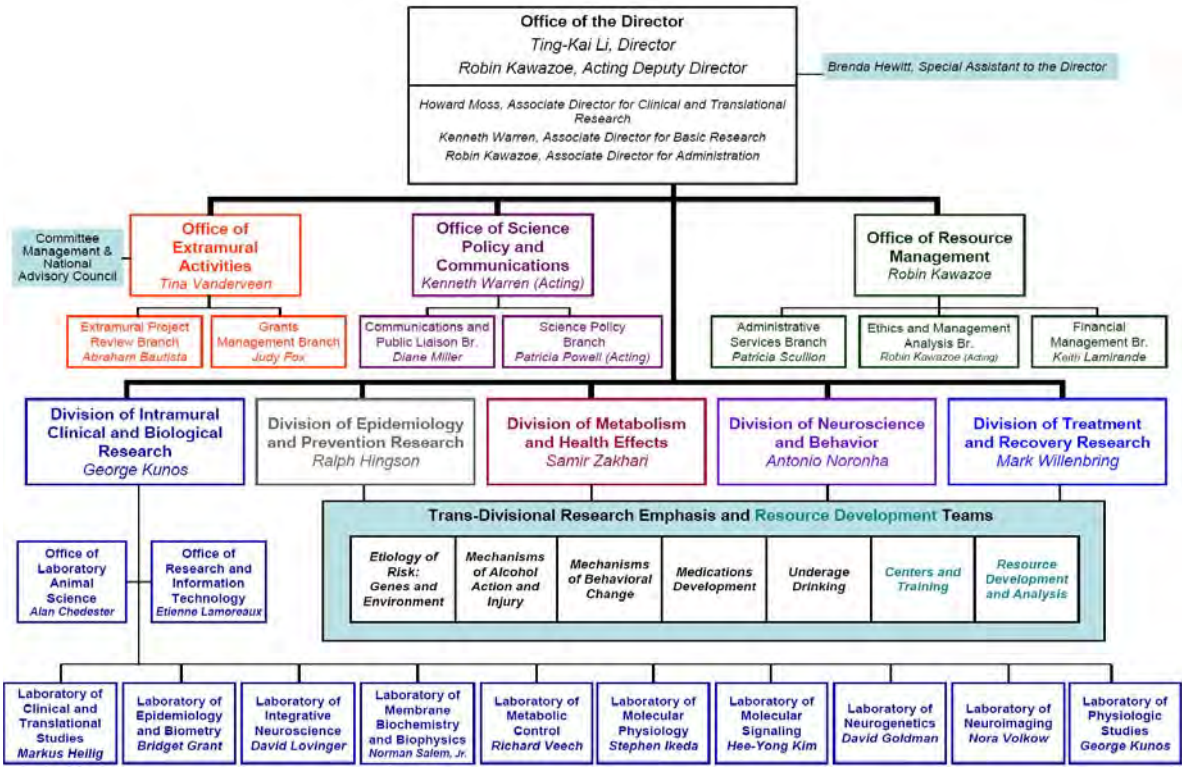


14. National Institute on Alcohol Abuse and Alcoholism

The following organizational chart depicts the leadership structure within the National Institute on Alcohol Abuse and Alcoholism (NIAAA), which is comprised of four extramural divisions, one intramural division and five trans-divisional research emphasis teams. A part of NIAAA's overall mission is to conduct and support research in a wide range of scientific areas including genetics, neuroscience, epidemiology, health risks and benefits of alcohol consumption, prevention, and treatment. Basic behavioral research at NIAAA is planned, conducted and monitored across three of NIAAA's extramural divisions and several of its research emphasis teams. Within the three extramural divisions (Division of Epidemiology and Prevention Research—DEPR, Division of

Neuroscience and Behavior—DNB, and Division of Treatment and Recovery Research—DTTR), funding opportunity announcements are initiated by individual program officials to promote research, based on priorities of the divisions and the interdisciplinary research emphasis teams.

National Institute on Alcohol Abuse and Alcoholism
Organizational Chart



Program staff from various extramural and intramural divisions also participates on interdisciplinary research emphasis teams, four (of five) of which include a focus on basic behavioral research. These teams identify gaps in research and discuss strategic approaches to addressing gaps in research knowledge. The mission of the Underage Drinking team includes integrated scientific understanding of the environmental, biobehavioral, and genetic factors that promote initiation, maintenance, and acceleration of alcohol use among youth, and factors that lead to the progression of harmful use, and dependence. For

example, the work of the team has led to investigation of the antecedents of adolescent drinking and patterns of behavior that predispose youth to use alcohol at an early age, to engage in high risk patterns of drinking, and to be at increased risk for chronic relapsing alcohol dependence and associated problems later in life. The Mechanisms of Behavioral Change team has developed a program of research based on the acknowledgement that most individuals who are alcohol dependent do not seek treatment, and the team has promoted research on mechanisms underlying mediating and moderating factors that influence decisions to seek and maintain participation in treatment for alcohol dependence. This team has expanded its work to become a trans-NIH Mechanisms of Behavior Change Interest Group, to address mechanisms of behavior across broader areas of research. Risk for alcohol dependence involves complex and dynamic associations between environmental exposures to risk factors and genetic predisposition to adverse health outcomes. Work of the Etiology of Risk: Genes and Environment team has focused on expanding the field of alcohol research beyond identification of genes associated with vulnerability for alcohol dependence to include investigations of the complex interdependence of genetic variation and specific measured environmental effects on development of alcohol use disorders (AUD). Such efforts have stimulated investigations of the feasibility of using animal models as well as human cell lines and twin studies to learn more about genetic and environmental contributions to such outcomes as comorbid development of AUD and other mental health disorders. The Medications Development team has promoted research in reducing negative side effects (e.g., memory impairment, cognitive problems) of pharmacological compounds used to treat alcohol dependence. In addition to developing funding opportunity announcements to stimulate recommended research, team activities have included organizing extramural expert panel reviews and workshops culminating in recommendations for future research.

Program officials within extramural divisions also manage portfolios of grants focusing on several dimensions of basic behavioral research that span from social environmental and interpersonal contexts to individual-level cognitions, perceptions and decision-making. Within DEPR and DTTR, basic behavioral research is integrated into applied, intervention and clinical alcohol research studies, and includes such areas as the effects of: social contexts on malleable risk and protective factors; stress related negative affect, impulsivity and coping; and behavioral inhibition/impulsivity, and cognitions associated with patterns of risky behavior. In addition, planning and monitoring for alcohol-related HIV/AIDS research involving basic behavioral research (e.g., behavioral risk factors) is coordinated within DEPR. Further, DTRR has launched a multi-faceted initiative focused on underlying psychological, social, and neurobiological

mechanisms that drive changes in health behavior. In DNB, specific studies focused on basic behavioral research include such areas as: effects of social isolation on stress response and behavioral changes; memory and affective regulation; sleep and brain development; brain imaging and inhibitory control; effects of hormonal changes on cognitive functioning; and neurocognitive processes underlying emotional regulation.

In the Division of Intramural Clinical and Biological Research (DICBR), within the Laboratory of Clinical and Translational Studies, intramural staff investigators and fellows conduct basic and clinical behavioral research in areas such as: the effects of exposure to stress and emotional trauma on individuals' capacity for high-level cognitive and executive functions; and the genetics of anxious temperament and clinical anxiety related phenotypes.

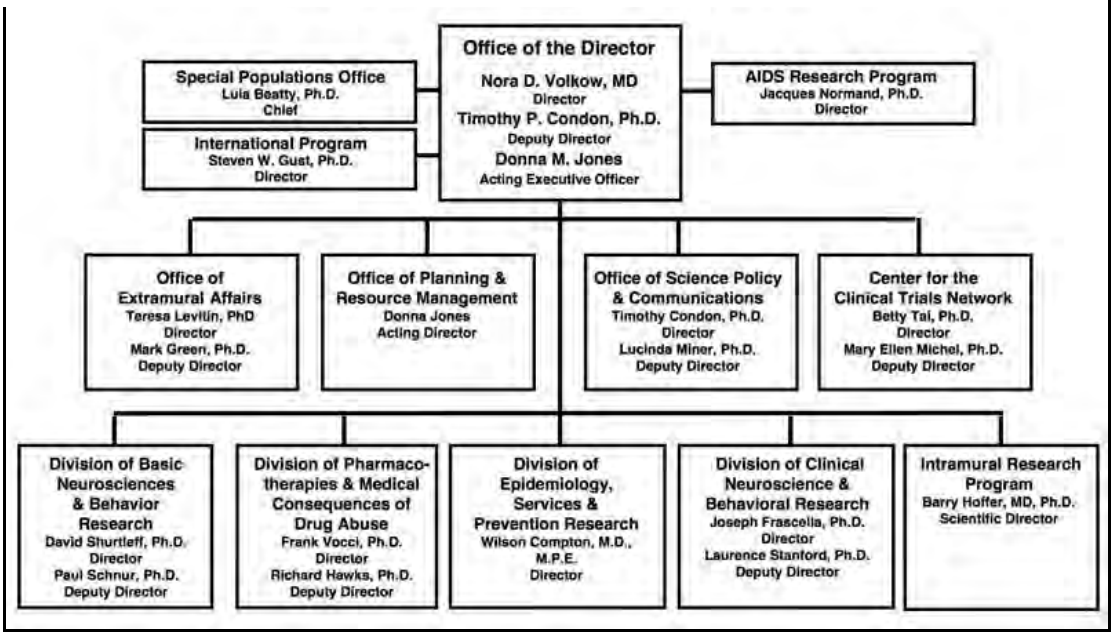
Two program staff members represent NIAAA on the trans-NIH Behavioral and Social Science Research Coordinating Committee. This role not only provides opportunities for staff to keep the NIAAA Director informed of important issues regarding basic behavioral research, but also to share with the NIH community and the Office of Behavioral and Social Sciences Research (OBSSR) essential information on NIAAA's activities and initiatives relevant to basic behavioral research.

15. National Institute on Drug Abuse

The National Institute on Drug Abuse (NIDA) supports both human and animal basic research to determine how behavioral and cognitive factors underlies, or can lead to, drug addictions. NIDA researchers look at variables such as individual differences (e.g., "sensation-seeking," drug history, prior learning experiences, or prenatal drug exposure); environmental factors (e.g., learning and conditioning, parenting), genetic predispositions, as well as motivational factors that may contribute to drug craving or relapse. NIDA also supports studies that look at the effects of drugs on memory and learning, perceptions, as well as supporting studies that determine the potential abusability of drugs. NIDA supports research that will lead to a better understanding of risky behavior, generally, such as research on self-control or impulsivity. Studies on social factors, such as peers, schools and family as they influence the development of drug abuse are also supported.

The following organizational chart depicts the scientific leadership structure within the NIDA. Basic behavioral and social sciences research is represented in some form throughout all of our research divisions.

National Institute on Drug Abuse
Organizational Chart



Division of Basic Neuroscience and Behavioral Research (DBNBR): This Division supports basic biomedical and behavioral science research that relates to the public health problem of drug abuse and addiction. To this end, DBNBR develops and supports an extramural research program to further understanding of the neurobiological and behavioral effects of drugs of abuse. Research focuses on the mechanisms of addiction, effects of drugs on behavior and cognition, drug metabolism, and the complex interrelationship between HIV/AIDS progression and transmission and drug abuse. DBNBR also supports research training to increase the skills, quantity and quality and utilization of research investigators in biomedical and behavioral disciplines in the drug abuse field.

- **Functional Neuroscience Research Branch:** supports studies to develop an understanding of the effects of abused substances and treatment medications on basic neurobiology and their functional consequences using a variety of

approaches, including electrophysiology, in situ monitoring of neurochemicals and behavior.

- **Chemistry and Physiological Systems Research Branch:** supports research on all aspects of chemistry and physiological systems affected by drugs of abuse, including research investigating the effects of exposure to drugs of abuse on cardiovascular, pulmonary and other biological systems using in vivo and in vitro models.
- **Behavioral and Cognitive Science Research Branch:** supports human and animal experimental research within a broad context of behavioral and cognitive factors in drug addiction. Behavioral and cognitive variables play important precursor roles in the vulnerability to start, continue, or relapse to drug abuse, as well as in the transition between these stages of abuse and in the consequences or adverse outcomes of abuse.
- **Genetics and Molecular Neurobiology Research Branch:** supports research on the fundamental cellular mechanisms that underlie addiction and response to drugs of abuse and basic neurobiology, including animal and human molecular genetics studies of vulnerability to addiction and the role of epigenetics (long-term changes in gene expression resulting from exposure to environmental factors) in neurobiological processes.

Division of Pharmacotherapies and Medical Consequences of Drug Abuse: This program area at NIDA is responsible for medications development aimed at helping people recover from drug abuse and addiction and sustain abstinence. Capitalizing on research showing the involvement of different brain systems in drug abuse and addiction—beyond the dopamine system—NIDA's medications development program is pursuing a variety of newly defined targets and treatment approaches. This program area also seeks solutions addressing the medical consequences of drug abuse and addiction, including infectious diseases such as HIV.

- **Medical Consequences of Drug Abuse and Co-Occurring Infections Branch:** plans, develops and administers a national and international program of research on medical/clinical/health consequences associated with licit and illicit drugs of abuse, and their nexus to co-occurring viral and bacterial infections including HIV, hepatitis, tuberculosis, and others in multiple population.
- **Addiction Treatment Discovery Program:** supports studies of potential pharmacological treatments for substance abuse, with an emphasis on relapse prevention, in humans through preclinical testing and evaluation of

compounds, profiled in relevant animal models according to the compound's mechanism of action.

Division of Epidemiology, Services and Prevention Research: This major program area within NIDA seeks to promote integrated approaches to understand and address the interactions between individuals and environments that contribute to the continuum of drug abuse–related problems. The vision is to support research to prevent drug abuse and to optimize service delivery in real-world settings. Along with individual research studies, the program also supports major data collection systems and surveillance networks to help identify substance abuse trends locally, nationally, and internationally, to guide development of responsive interventions for a variety of populations.

- **Services Research Branch:** supports research to improve the quality of the drug abuse treatment system, including that provided in criminal justice settings. A high quality system delivers effective care at a reasonable cost to all those in need over the course of the drug use disorder, across multiple developmental stages, episodes of care, and service sectors.
- **Epidemiology Research Branch:** supports basic epidemiologic research studies that assess and examine rates (e.g., prevalence, incidence), emerging and current patterns, and trends of drug use/abuse and associated behavioral, social, and health consequences (e.g., HIV/AIDS, crime) in general and defined populations, with special attention to health disparities issues. Supports research on the dynamic interaction between contextual- and individual-level factors in contributing to and/or protecting against the adverse behavioral and social consequences as well as interventions that attempt to mitigate drug use/abuse and its adverse consequences.
- **Prevention Research Branch:** supports studies that test empirically or etiologically derived or theory-driven hypotheses with the potential for developing new drug abuse and drug abuse–related HIV prevention approaches (e.g., neurobiological, intra- and inter-personal emotional, cognitive, and social processes).

Division of Clinical Neuroscience and Behavioral Research (DCNBR): This Division identifies, validates, and explores the clinical implications of basic science discoveries.

- **Behavioral and Brain Development Branch:** supports a spectrum of research and research training programs that addresses relationships among drug use/abuse/addiction, social/physical environment factors, and human development, with emphasis on neurodevelopmental, cognitive, and

behavioral mechanisms that underlie these relationships. Studies cover the full developmental time course from prior to conception through adulthood and into senescence, and utilize a variety of behavioral and neuroscience research methods.

- **Clinical Neuroscience Branch:** advances a clinical research and research training program focused on understanding the neurobiological substrates of drug abuse and addiction processes, including the etiology of drug use and transition from drug use to addiction. Another major emphasis of this program is on individual differences in neurobiological, genetic, and neurobehavioral factors that underlie increased risk for and/or resilience to drug abuse, addiction, and drug-related disorders.
- **Behavioral and Integrative Treatment Branch:** supports broad research, research training, and career development programs directed toward the development and improvement of drug abuse treatment and intervention for associated problems. The Branch supports activities required to translate findings from basic science.

Intramural Research Program: NIDA's Intramural Research Program (NIDA-IRP) performs cutting edge research within a coordinated multidisciplinary framework. NIDA-IRP attempts to elucidate the nature of the addictive process; to determine the potential use of new therapies for substance abuse, both pharmacological and psychosocial; and to decipher the long-term consequences of drugs of abuse on brain development, maturation, function, and structure, and on other organ systems.

- **Behavioral Neuroscience Research Branch:** characterizes the brain circuitry involved in the habit-forming actions of drugs of abuse, with the goal of identifying circuit elements anatomically and neurochemically, as well as their functions in normal motivated behavior. Particular program areas include: brain reward circuitry associated with brain stimulation and intravenous drug reward, neuroadaptations in the reward circuitry resulting from drug experience, electrophysiology of drug self-administration, and knockout mouse models of drug abuse.

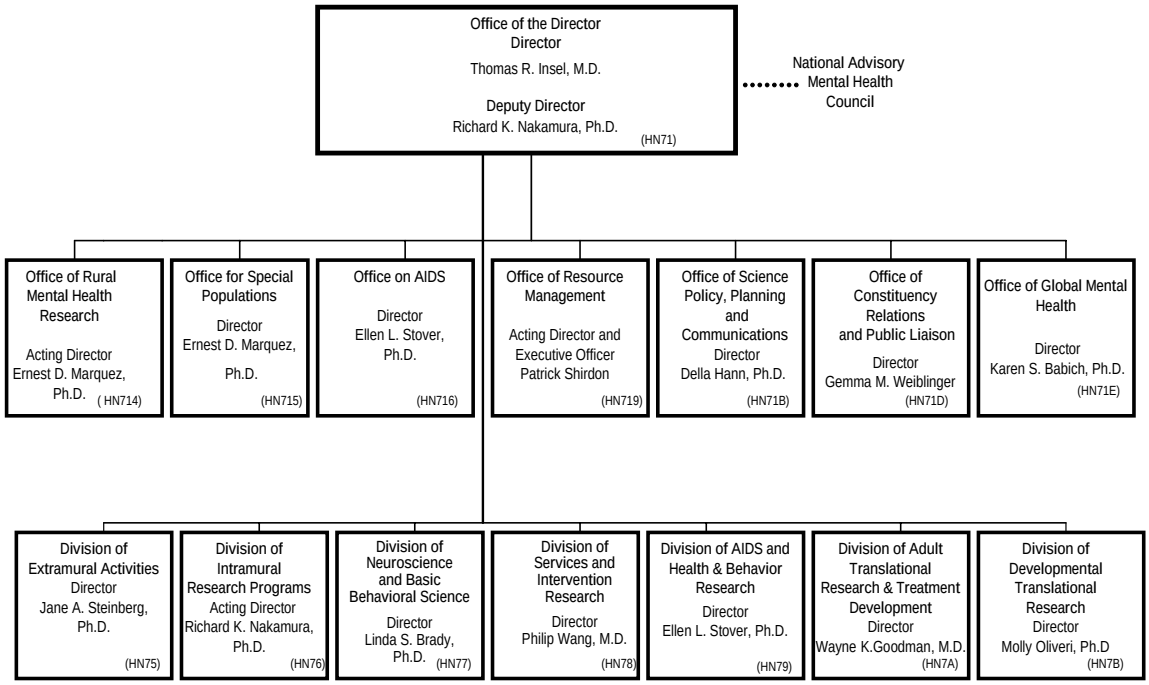
16. National Institute of Mental Health

Basic Behavioral and Social Sciences Research (bBSSR) provides fundamental knowledge, tools, and principles that are critical in fulfilling the National Institute of Mental Health's (NIMH) mission of reducing the burden of mental and behavioral disorders. In pursuit of this mission, NIMH is committed to bBSSR through support and conduct of high quality research that builds on our record of achievement in mental health research. To meet shifting priorities in public health, the National Advisory Mental Health Council (NAMHC) in May 2004 issued a report that identified several over-arching principles necessary for advancing bBSSR. These include emphases on: (1) basic research undertaken in service of the NIMH public health mission, (2) an interdisciplinary, integrated systems approach across multiple levels of analysis, and (3) the development of novel tools that allow integrative study of environment and behavior.

Taking into account this report, as well as solicited input from our various stakeholders—patients and their advocates, scientists, physicians and their professional societies, Congress, and the NAMHC—NIMH has sharpened and refocused the priorities of its bBSSR portfolio toward research with particular relevance to the NIMH mission, potential traction for making rapid progress, and capacity for innovation. NIMH will apply these criteria by encouraging and supporting basic research that 1) links brain, behavior, and experience and 2) informs, and is informed by, our understanding of etiology, our need for diagnostics, and our quest for new interventions to prevent or treat mental and behavioral disorders.

The following organizational chart depicts the scientific leadership structure within the NIMH. The Extramural bBSSR portfolio of NIMH is broadly organized within branches and programs that fall in five separate research Divisions:

National Institute of Mental Health
Organizational Chart



The **Division of Neuroscience and Basic Behavioral Science (DNBBS)** ensures that relevant basic science knowledge is harvested to create improved diagnosis, treatment, and prevention of mental and behavioral disorders. Within DNBBS, the Behavioral Science and Integrative Neuroscience Branch supports research targeted at understanding the normal operation of brain structures and functions and how these may be dysregulated in psychiatric disease. Programs collectively focus on cognitive, affective, social, motivational, and regulatory systems and their development across the lifespan in humans, in non-human primates, and in other animals. The Affect and Social Behavior Program focuses on the basic processes, development, and regulation of emotion, mood, agonistic and affiliative behaviors, and social communication. The Cognitive Science Program emphasizes higher-level perception, action planning and monitoring, attention, conditioning, learning, memory, knowledge, reasoning, decision-making, and executive function. The Circadian Rhythms, Sleep, and Regulation of Behavior Program supports research on the role of sleep in learning and memory and mechanistic studies of the neurobiology of sleep and circadian rhythms and how these processes influence cognitive and emotional functions in waking state. The Theoretical and Computational Neuroscience Program emphasizes studies modeling all levels of neuronal processing, from single cell activity to complex behaviors. The Molecular, Cellular, and Genomic Neuroscience Branch supports basic research on the elucidation of the genetic, molecular, and cellular mechanisms underlying brain functions. Current emphasis is placed on developing new and using existing animal models and measures of fundamental processes altered in mood and cognitive disorders. In addition, this Branch supports research aimed at identifying molecular and cellular mechanisms responsible for the differential behavioral effects of acute and chronic drugs. Programs in this Branch include the Functional Neurogenomics Program, the Developmental Neurobiology Program, the Neuroendocrinology and Neuroimmunology Program, and the Psychopharmacology Program.

The **Division of Developmental and Translational Research (DDTR)** supports research that employs a developmental perspective on a variety of related basic behavioral processes and the psychopathology that arises from their dysfunction. DDTR emphasizes research on biobehavioral processes that regulate emotion, mood, appetite, circadian rhythms, and developmental changes in behavior (such as CNS maturation and neuroendocrine development), as well as the environmental influences on these processes. In addition, DDTR sets high priority on refining standardized behavioral assessment tools that are sensitive to developmental change, cultural diversity, and variation in functioning. Within this Division, the Neurodevelopmental Disorders Branch supports research on basic biobehavioral processes involved in childhood psychiatric disorders, such as

attentional and perceptual processing, executive function, inhibitory controls (e.g., sensory gating), social cognition and communication, and affiliative behaviors.

The **Division of AIDS and Health and Behavior Research (DAHBR)** places high priority on identifying the basic behavioral processes that determine health behaviors (e.g., smoking, diet, exercise, adherence) among people with mental disorders in order to develop interventions to improve functional outcomes and reduce morbidity and mortality. The Health and Behavior Research Branch supports research on basic behavioral processes (such as cognition, emotion, decision-making, and motivation) through the Behavioral Change Research Program. In addition, the Stigma and Health Disparities Program supports research on basic behavioral and social processes in stigma and discrimination associated with mental illness. The Center for Mental Health Research on AIDS supports research examining the emotional and social cognitive mechanisms involved in HIV sexual risk behavior.

The **Division of Services and Intervention Research (DSIR)** supports research on the effectiveness of treatment and prevention strategies, including basic research focused on optimizing and understanding the mechanisms of action of effective interventions. Within the Services Research and Clinical Epidemiology Branch, the Methodological Research Program supports high quality methods and measurements research, which includes measurement issues in the basic behavioral and social sciences.

The **Division of Adult Translational Research and Treatment Development (DATR)**, the Adult Psychopathology and Psychosocial Intervention Research Branch promotes research on how fundamental biobehavioral mechanisms (such as emotion, cognition, motivational processes, and interpersonal relationships) impact the development, onset, and course of adult psychopathology. Emphasis is placed on studies that combine approaches from neuroscience and behavioral science to elucidate the role of psychosocial factors in the alterations of brain functioning associated with mental disorders.

17. National Institute of Nursing Research

The National Institute of Nursing Research (NINR) supports research to establish the scientific basis of care across the lifespan, including research to: improve the management of symptoms during illness and recovery; enhance quality of life in those with chronic illness; promote healthy lifestyles and behaviors; reduce the risk of disease and disability; and enhance end-of-life and palliative care. Understanding the fundamental behavioral and social aspects of promoting health, preventing disease, and improving quality of life is an essential aspect of all research of strategic importance to NINR. Therefore, basic behavioral and social sciences research (bBSSR) is an area of research that cuts across all of the research programs managed by the Institute.

Leadership Structure

Basic behavioral and social sciences research is represented in some form throughout all of our research divisions. The NINR leadership structure for the management of bBSSR is similar to that for most other areas of research. Most of the bBSSR supported by NINR is conducted by extramural investigators funded through research grants. Therefore, NINR-supported bBSSR is primarily managed by NINR's extramural program directors, all of whom are located within NINR's Office of Extramural Programs (OEP). The following organizational chart depicts the scientific leadership structure within the NINR. Five research programs are managed within OEP:

- Self-Management, Symptom Management and Caregiving
- Health Promotion and Disease Prevention
- Research Capacity Development
- Technology Integration
- End-of-Life

Because bBSSR is a cross-cutting area of interest across all of NINR's programs, the portfolios managed by each program director all contain a significant number of research grants focused on one or more aspects of bBSSR. Requests for Applications or Program Announcements pertaining to bBSSR also originate in OEP. OEP is located within NINR's Division of Extramural Activities, which is a part of the Office of the Associate Director for Scientific Programs. NINR's Office of the Director is ultimately responsible for overall leadership of the Institute, including the leadership of research efforts in bBSSR. All NINR activities, including the issuance of funding initiatives and the awarding of grants related to bBSSR, are managed in close consultation with the National Advisory Council for Nursing Research (NACNR).

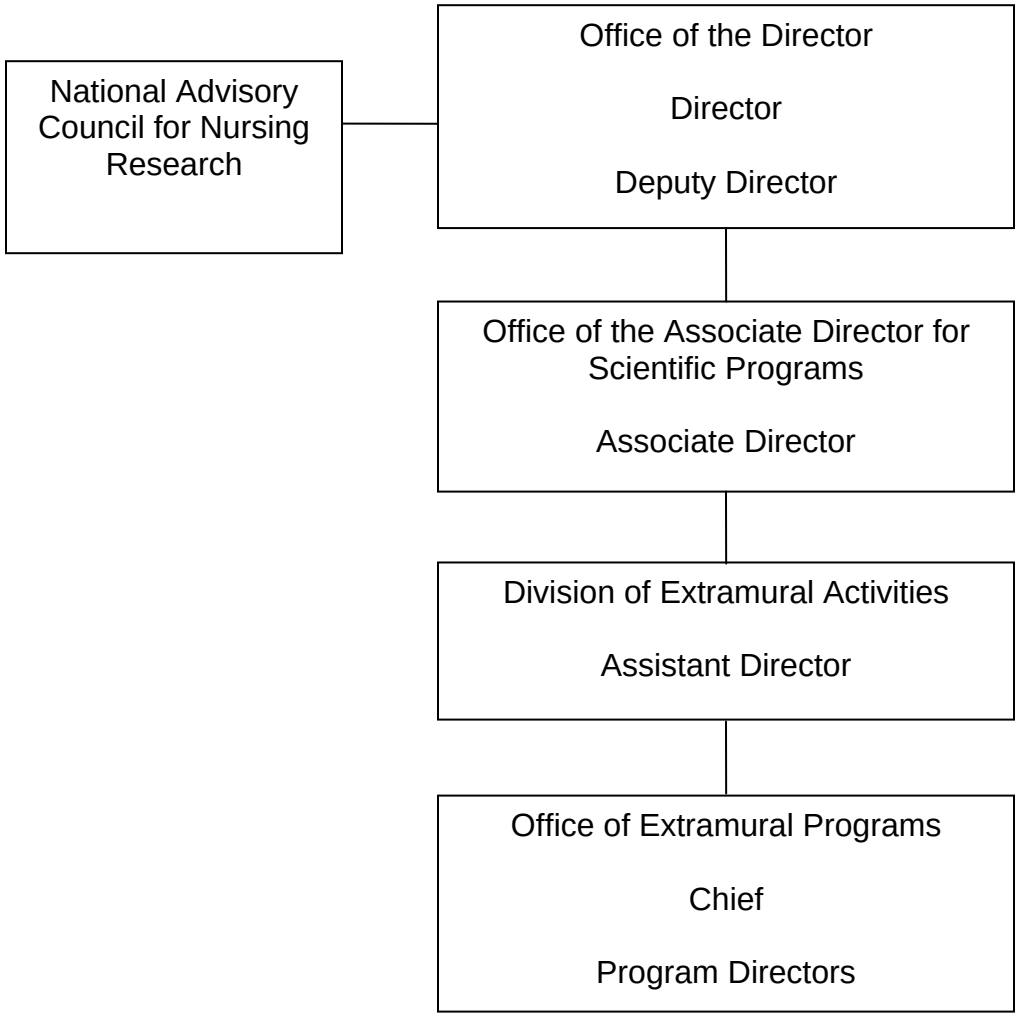
Strategic Management

NINR released a new Strategic Plan in October 2006, entitled "Changing Practice, Changing Lives." This Strategic Plan lists areas of research on which NINR will maintain a strategic focus in the coming years. One of the areas of opportunity discussed in the Plan is biobehavioral research, a major component of bBSSR. Biobehavioral research explores the interplay between biology and behavior, and plays a fundamental role in the research that NINR supports on health promotion, disease prevention, and quality of life.

Because of biobehavioral research's strategic importance to the Institute's mission, NINR activities in this area, and in all of bBSSR, are actively and closely managed by program staff and Institute leadership. New funding initiatives related to bBSSR are developed through a planning process involving both NINR staff and the NACNR. Also, as part of this process, NINR's portfolio in bBSSR is reviewed and assessed on an annual basis prior to NINR's yearly planning retreat. In addition, research progress in bBSSR is assessed on a continual basis throughout the year.

This robust process of program planning, management, and analysis ensures that NINR's program in bBSSR remains focused on the specific areas of research in which the public health need is greatest, and in which NINR resources can have their greatest impact. Finally, an NINR program director serves as a representative to the trans-NIH BSSR coordinating committee to ensure that NINR activities in bBSSR are managed in close coordination with other bBSSR activities throughout the NIH.

National Institute of Nursing Research
Organizational Chart

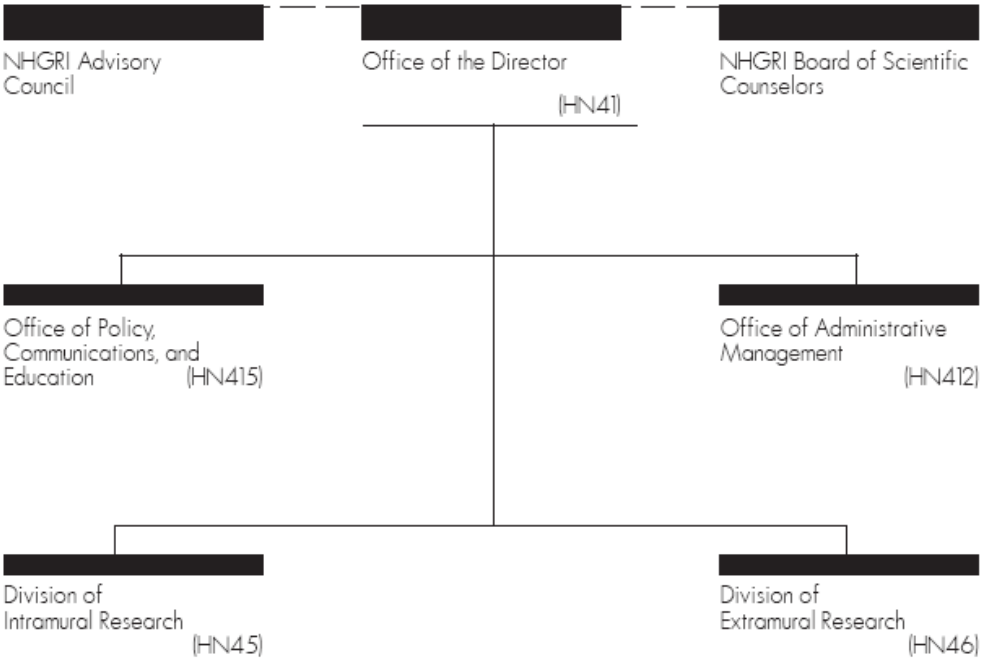


18. National Human Genome Research Institute

The following organizational chart depicts the leadership structure within the National Human Genome Research Institute (NHGRI). The scientific leadership for basic behavioral and social sciences research is focused within the Division of Intramural Research, Social and Behavioral Research Branch (SBRB). The SBRB has the overarching and broad objective to investigate social and behavioral factors that facilitate the translation of genomic discoveries for health promotion, disease prevention, and health care improvements. This research encompasses four conceptual domains: (1) testing the effectiveness of strategies for communicating information about genetic risks; (2) developing and evaluating behavioral interventions; (3) using genomic discoveries in clinical practice; and (4) understanding the social, ethical, and policy implications of genomic research.

The specific research challenges being investigated by SBRB scientists include improving methods of communication about genetic risk to lay populations, establishing best practices in genetic counseling, investigating approaches for successfully integrating genetics into primary care settings, and studying broad issues relating to the appropriate public dissemination of genomic discoveries. SBRB investigators also are detailing the bioethical considerations for the involvement of human subjects in genomic research.

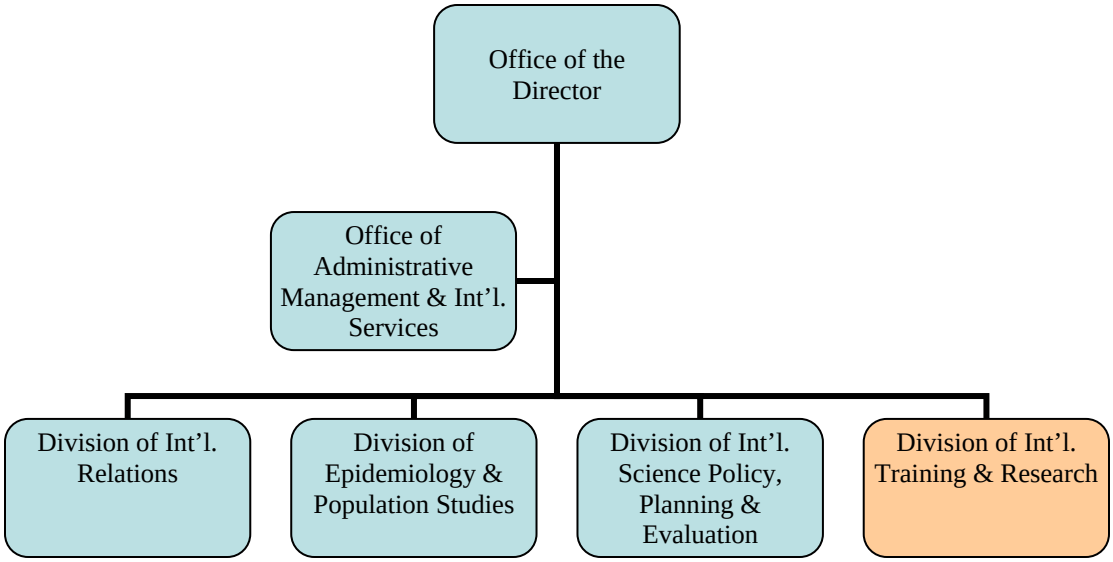
National Human Genome Research Institute
Organizational Chart



19. John E. Fogarty International Center

The scientific leadership for basic behavioral and social sciences research at John E. Fogarty International Center (FIC) lies within the Division of International Training and Research (DITR). DITR administers FIC's research and research training grants and fellowships programs, which include several programs for which there are grants addressing basic behavioral and social sciences research. The following organizational chart depicts the scientific leadership structure within the FIC. Basic behavioral and social sciences research is represented in the DITR.

John E. Fogarty International Center
Organizational Chart



Fogarty International Research Collaboration Award – Behavioral and Social Sciences (FIRCA-BSS)

The FIRCA program aims to facilitate collaborative behavioral and social sciences research between United States scientists supported by the National Institutes of Health and investigators in developing countries. An important role of the program is to foster discovery and reduce global health disparities through the support of international research cooperation across the continuum of basic and applied social and behavioral health sciences.

AIDS International Training and Research Program (AITRP)

The AIDS International Training and Research Program (AITRP) began in 1988 as one of the first generation of research training programs sponsored by the Fogarty International Center (FIC) at the National Institutes of Health (NIH). This program provides training for scientists from institutions in low- and middle-income countries to strengthen HIV-related research and public health capacities at their institutions. The primary goal of this program is to build multi-disciplinary biomedical, behavioral and social science research capacity for the prevention, care and treatment of HIV/AIDS and HIV-related conditions for those adults and children affected by HIV/AIDS in the collaborating country.

Global Research Initiative Program for New Foreign Investigators

The Global Research Initiative Program for New Foreign Investigators (GRIP) promotes productive reentry of NIH-trained foreign investigators into their home countries as part of a broader program to enhance the scientific research infrastructure in developing countries, to stimulate research on a wide variety of high priority health-related issues in these countries, and to advance NIH efforts to address health issues of global importance. The specific goal of this initiative is to provide funding opportunities for the increasing pool of foreign biomedical and *behavioral* scientists, clinical investigators, nurses, and other health professionals with state-of-the-art knowledge of research methods to advance critical issues in global health through behavioral and social sciences research upon returning to their home countries. Upon completion of their research experiences using this grant mechanism, developing country participants supported by this Funding Opportunity Announcement are expected to continue to pursue independent and productive careers, including expert training and consultation and/or research of biomedical issues within their home institutions.

International Clinical, Operational, and Health Services Research Training Award (ICOHRTA)

The International Clinical, Operational and Health Services Research and Training Award (ICOHRTA) for non-communicable diseases and disorders supports training to facilitate collaborative, multidisciplinary, international clinical, operational, health services and prevention science research between U.S. institutions and those in low- to middle-income countries to support the development and implementation of evidence-based interventions. These awards are intended to strengthen the global capacity to conduct clinical, operational, health services and prevention science research necessary to measure incidence and prevalence of non-communicable disorders and diseases; characterize disease burdens; devise, evaluate and implement practical and affordable therapeutic or preventive interventions; and to help developing nations contribute to and benefit from international efforts to apply current knowledge and new discoveries to clinical and public health practice. To meet this goal, the program is to develop a cadre of researchers in clinical, operational, health services and prevention science research at institutions in low- to middle-income countries that can respond to global health threats related to non-communicable disorders and diseases, particularly those that are priority health issues in their countries and regions. They will be prepared to build and take advantage of collaborative research efforts with partners globally, as well as within their countries and regions.

International Tobacco and Health Research and Capacity Building Program

This program supports transdisciplinary research and capacity building projects that address the burden of tobacco consumption in low- and/or middle-income nations by 1) pursuing observational, intervention and policy research of local importance and 2) building capacity in these regions in epidemiological and behavioral research, prevention, treatment, communications, health services and policy research. The program is designed to promote international cooperation between investigators in the United States and other high-income nation(s) pursuing research programs on tobacco control, and scientists and institutions in low- and/or middle-income nation(s), where tobacco consumption is a current or anticipated public health urgency. The major portion of the research is conducted in a low- and/or middle-income nation(s), and greater than 60 percent of the direct costs requested must be used in a low- and/or middle-income nation(s) or "in-country" for either research and/or capacity strengthening of foreign institutions.

Global Research Training in Population Health (POP)

This program supports research training of low- and middle-income country scientists with the long-term objective of strengthening low- and middle-income country research programs and institutions related to population health, including the study of: a) demographic processes, including: aging, child health, adult health, mortality, morbidity, fertility, migration, urbanization, population dynamics and environment, nutrition, sex and gender, and other *social, behavioral,* and economic factors that influence population dynamics; and b) reproductive processes (including biology, immunology, genetics, endocrinology), fertility and infertility, contraceptive development, contraceptive clinical trials, contraceptive and reproductive health evaluation. It provides a variety of short-, medium- and long-term advanced training opportunities for participants from low- and middle-income country institutions within the context of ongoing U.S. research collaborations. Emphasis is on research training for doctoral and post-doctoral level scientists and clinicians. It is expected to strengthen the ability of scientists from low- and middle-income countries to contribute to global population research efforts and to communicate and disseminate knowledge in support of population policies appropriate for their home countries and established international guidelines. It contributes to building and maintaining centers of research excellence with significant research resources in population health sciences to serve as foci in low- and middle-income countries and regions for research training. This is an institutional training grant. Individuals from foreign countries who wish to become trainees must apply to the project director of an awarded grant.

Stigma and Global Health Research Program

The purpose of the Stigma and Global Health Research Program is to stimulate interdisciplinary, investigator-initiated research on the role of stigma in health, and on how to intervene to prevent stigma and mitigate its negative effects on the health and welfare of individuals, groups and societies world-wide. The objectives of this program are to encourage research across a variety of scientific disciplines including the biomedical, social and behavioral sciences, to elucidate the etiology of stigma in relation to public health as well as to develop and test interventions to mitigate the negative effects of stigma on health outcomes. Studies may examine stigma and public health in domestic, international and cross-cultural contexts, with an emphasis on studies that are relevant to global health issues. Applicants are encouraged to undertake interdisciplinary studies, where possible, using behavioral, social and biomedical science approaches.

20. National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) is dedicated to exploring complementary and alternative (CAM) healing practices in the context of rigorous science; educating and training CAM researchers; and disseminating authoritative information to the public and professionals. Consistent with this mission, NCCAM supports studies in five primary areas that have a varying degree of overlap with conventional medical research. These five CAM domains are: alternative medical systems; biologically based therapies; manipulative and body-based methods; mind-body medicine; and energy therapies.

Because the behavioral and social sciences are widely studied within the context of conventional medical research, they are represented to only a limited extent within the NCCAM research portfolio. As such, NCCAM supports behavioral and social science studies when a CAM modality is under evaluation, or when an otherwise conventional modality is employed for an unorthodox purpose. These studies fall primarily within the domains of mind-body medicine, energy therapies, and biologically based therapies. NCCAM-supported research in behavioral and social science research includes those in which the disease (e.g., depression) or outcome (e.g., stress reduction, quality of life) is associated with some health behavior regardless of the type of intervention, as well as those studies in which the intervention itself is considered behavioral (e.g., meditation, imagery, etc.), regardless of the disease or outcome.

The following organizational chart depicts the scientific leadership structure within the NCCAM. Basic behavioral and social sciences research is focused within the Division of Extramural Research and Training.

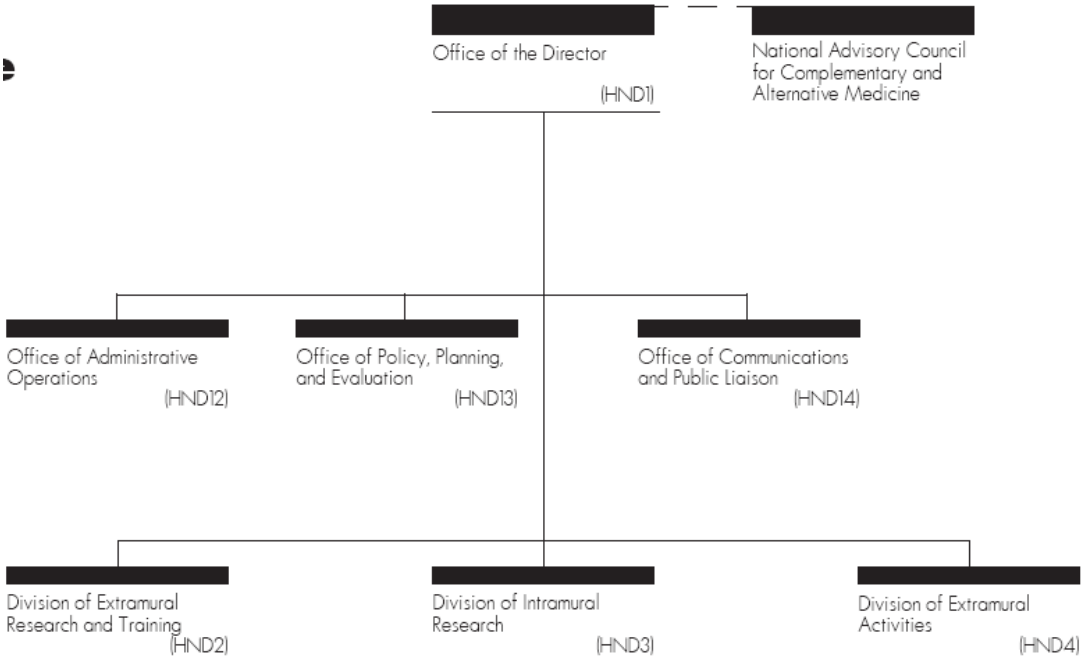
<u>NCCAM Division of Extramural Research and Training</u>
NCCAM supports a diverse research portfolio in basic behavioral research through the Division of Extramural Research and Training (DERT). DERT program officers oversee NCCAM-funded research and research training programs conducted across the country and around the world, coordinate research efforts with other NIH Institutes and Centers, and provide guidance to extramural investigators on NCCAM research priorities, funding opportunities, and mechanisms of research support.

<u>NCCAM Basic Behavioral Research</u>
While there is not a separate program focused on behavioral research, NCCAM does have an active and diverse portfolio in this area, which encompasses the

major complementary and alternative medicine (CAM) domains. The research portfolio includes mechanistic studies to elucidate underlying processes of an intervention, epidemiological studies of the key psychological characteristics and health of a given population, and clinical studies of how an intervention affects health and disease. Studies in basic behavioral research are being conducted in a variety of CAM approaches and disciplines, including yoga, tai chi, meditation, and guided imagery. These interventions and approaches have the potential to prevent or ameliorate disease, facilitate adherence to treatment regimens, and enhance health and well-being.

<u>NCCAM Science Program Officer for Behavioral Research</u>
Catherine Stoney, Ph.D., is the science program officer responsible for the stewardship and oversight of the behavioral research portfolio. Dr. Stoney reports to the DERT Director, who reports to the NCCAM Director.

National Center for Complementary and Alternative Medicine
Organizational Chart



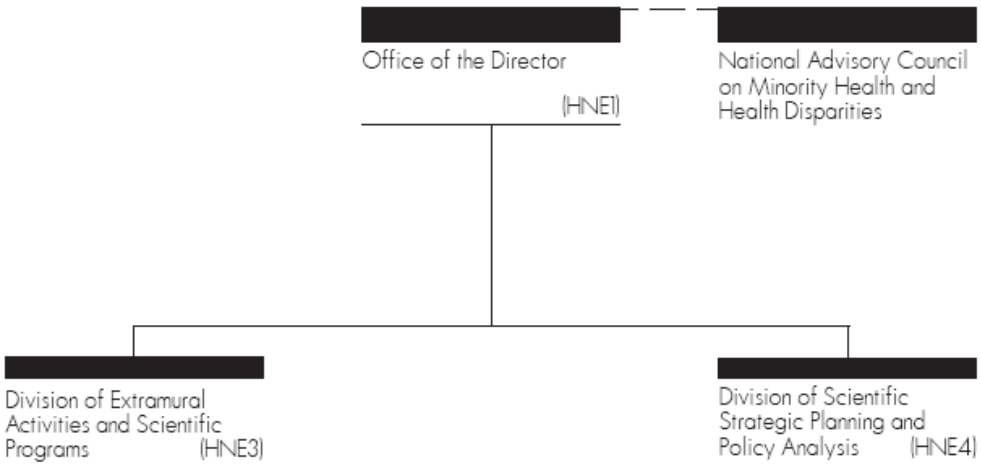
21. National Center on Minority Health and Health Disparities

Office of the Director

(1) Provides overall leadership and direction to the programs, plans, and activities of the National Center on Minority Health and Health Disparities (NCMHD); (2) determines the goals and priorities of the Center; (3) serves as the focal point for the coordination of the NIH minority health and health disparities research programs as authorized; (4) develops and directs new and special scientific programs of the Center; (5) leads the Center's coordination of programs and strategic partnerships with the NIH Institutes and Centers, Federal agencies, and other stakeholders; (6) provides management and administrative services to the Center; (7) oversees the Center's ethics program; and (8) plans and directs the Center's communications activities, including developing and disseminating information on minority health and health disparities.

The scientific leadership for basic behavioral and social sciences research is focused within the NCMHD Division of Extramural Activities and Scientific Programs. The following organizational chart depicts the leadership structure within the NCMHD.

National Center on Minority Health and Health Disparities
Organizational Chart



Division of Extramural Activities and Scientific Programs
Serves as the focal point for planning, directing, implementing and managing the NCMHD extramural research programs; (2) provides leadership for the NCMHD's legislatively mandated extramural research programs and other NCMHD research, research training, research capacity building, career development, and community outreach programs; and (3) directs the scientific peer review and grants management activities for all NCMHD programs ensuring that all awards are made in accordance with applicable policies, statutes and regulations.

V. Conclusion

This report was prepared in response to the fiscal year 2008 Congressional Appropriations Committee Report requesting that:

> *The NIH Director "submit a report to the Committee by December 1, 2007, indicating the scientific leadership structure for this field within the appropriate grant-making Institute (Senate Report 110 – 107, Page 156)."*

Over the past several years, the U.S. Congress has expressed concern about the scientific leadership for basic behavioral and social sciences research at the NIH. However, upon reviewing the appropriate NIH databases, it was found that support for basic behavioral and social science research has grown steadily over the last few years. This growth in funding has been achieved through the efforts of the scientific leadership for bBSSR at each IC. Hence, in response to the Senate Committee's request, the NIH has provided in this report the scientific leadership structure for basic behavioral and social science research within each appropriate IC.

In summary, NIH support for bBSSR is progressing and new initiatives continue to be developed even in the current static budget environment. OBSSR, OPASI and the newly established Division of Program Coordination, Planning, and Strategic Initiatives actively participate and coordinate many of the initiatives and other activities related to bBSSR across the NIH. OBSSR and OPASI will continue to examine the NIH-wide portfolios of bBSSR within and across the ICs, will identify gaps and opportunities in the bBSSR portfolio, will participate in funding opportunity announcements developed by individual or small groups of ICs and will also lead in the development of new initiatives. The current NIH-wide approach of having leadership for bBSSR within and across all the appropriate ICs and having OBSSR and OPASI play a coordinating role, provides an optimal way to sustain the support for basic Behavioral and Social Sciences Research within and across the health and illness continuum, and within and across diseases, organ systems and the human lifespan developmental periods and transitions from in-utero to old age.