NATIONAL INSTITUTES OF HEALTH
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

NIH Health Disparities Strategic Plan and Budget Fiscal Years 2009-2013

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Foreword

The remarkable progress seen in biomedical science in recent years has improved the health and extended the average lifespan of most Americans to 77.9 years (*Health, United States, 2010*). However, due to a dauntingly complex set of factors, some of our citizens (often the most vulnerable) have lagged behind others in enjoying the fruits of our scientific and medical advances. This remains an unacceptable situation, and the National Institutes of Health (NIH) remains firmly and substantially committed to changing it for the better. As long as even one of our fellow Americans encounters barriers to optimal care—whatever the reason—our work is unfinished.

To combat the disparities in health suffered by specific populations, we must first understand how, where, why, and for whom they arise. The scientific community has documented well that these conditions are extraordinarily complex and multi-factorial in nature. They originate from ever-evolving interactions of genetic, biological, environmental, social, economic, and psychological influences. Clearly, to gain the understanding necessary to make substantial progress in efforts to eliminate health disparities, an ambitious and far-reaching research program is needed. A portfolio of efforts that will facilitate intensive exploration of how those areas interact to contribute to imbalances in health and inequities in health care is required.

With its wide-ranging expertise and robust resource base, the NIH is uniquely qualified to fashion and implement such a program, and the agency has long been committed to an ambitious health disparities research enterprise, NIH-wide and within each of its Institutes and Centers (ICs) and Office of the Director Program Offices. This *NIH Health Disparities Strategic Research Plan and Budget, Fiscal Years 2009-2013*, represents the renewal and expansion of that commitment to improve the health of individuals and ultimately eliminate health disparities in the United States.

To accomplish this, NIH has also long recognized the necessity to aggressively leverage the new knowledge that emerges from research to ameliorate health disparities whenever and wherever they occur—in racial/ethnic minorities, and in other medically-underserved populations such as individuals of low socioeconomic status or those who live in rural areas with limited access to care. The transfer and application of important new knowledge is a core element of our ongoing programs and initiatives related to health disparities.

Translating discoveries can take many forms, such as new drugs or medical devices, new behavioral interventions, new outreach and education activities, and many other types of innovative solutions. But as exciting as it may be, a discovery is of little value if it never achieves a life beyond the confines of the academic journal or the scientific meeting. NIH devotes considerable resources and efforts to ensuring that innovations are disseminated so as to have maximum impact upon the problems they address. In many cases, that means working very closely with the myriad stakeholders associated with health disparity populations. Often, those meaningful collaborations involve as much listening as speaking and as much learning as teaching.

Increasing diversity in the biomedical enterprise to better reflect the diversity of the Nation's population is another core concept underlying NIH efforts to combat health disparities. Across the agency and within its ICs, scores of programs devote sizeable human and financial resources to the recruitment, education, training, and career development of scholars involved in the many facets of health disparities research. Those efforts are designed to maintain and increase participation in health disparities research by recruiting and nurturing the next generation of scientists in the field, and provide enhanced opportunities for young people from health disparity populations to enter and stay in the field. Programs offering those opportunities span from K-12 through the undergraduate, graduate, post-graduate, and early- and mid-career levels, ensuring a richly diverse pipeline of well-trained, well-educated scientists.

The *NIH Health Disparities Strategic Plan and Budget* is designed to be an evolving document through the course of its life span, as the agency and its ICs respond to future scientific opportunities and public input from affected communities.

We invite and encourage your feedback, ideas, and suggestions as we constantly strive to improve and refine our strategies for meeting the profound challenges involved in improving the health and well being of all Americans by combating the health disparities that still pervade our society.

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Executive Summary

On September 13, 2010, the Department of Health and Human Services announced the transition of the National Center on Minority Health and Health Disparities (NCMHD), National Institutes of Health (NIH) to the National Institute on Minority Health and Health Disparities (NIMHD) in the Federal Register (75FR5582). The transition marked a significant milestone in the Nation's efforts to overcome our foremost and most persistent health challenge -- health disparities, which are differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups.

The transition, mandated by the Affordable Care Act, authorizes the NIMHD to plan, coordinate, review, and evaluate all minority health and health disparities research activities conducted and supported by the NIH Institutes and Centers (ICs) and Office of the Director Program Offices and it reaffirms the authority of the NIMHD director as the primary federal official with responsibility for coordinating such activities.

One of the first official acts of the NIMHD is the release of this *NIH Health Disparities Strategic Research Plan and Budget, Fiscal Years 2009-2013*. The plan will provide the blueprint for the ICs as they move forward with a wide range of programs and initiatives aimed at overcoming health disparities. It includes NIH-wide activities and programs conducted or supported by the individual ICs within their designated areas of expertise, and a variety of partnerships, collaborations, and networks, either in place or planned to involve the entire spectrum of health disparities stakeholders.

The plan reflects a process that has involved considerable input from many stakeholders, as well as detailed and extensive recommendations issued by the Institute of Medicine (in its 2006 report, *Examining the Health Disparities Plan of the National Institutes of Health: Unfinished Business*) and the 2008 *NIH* Summit: *Science of Eliminating Health Disparities*, which gathered more than 4,000 scientists, practitioners and community members to explore how the integration of science, practice and policy could be leveraged to improve health and ultimately eliminate health disparities in the United States.

For example, based upon one of the Institute of Medicine's recommendations, the trans-NIH committee charged with formulating the structure of the plan added a newly-recognized overarching goal to this iteration of the *NIH Health Disparities Strategic Plan and Budget*. Prior versions of the plan had identified Research, Research Capacity Building, and Community Outreach, Information Dissemination and Public Health Education as overarching goals. This version modifies the fourth overarching goal to read: *Integration* of Research, Research Capacity, and Outreach. It has become clear that given the multi-factorial nature of health disparities and the multidisciplinary approaches being employed to combat them, many projects undertaken by the NIH and its many partner organizations and agencies, intrinsically encompass elements of research, research capacity building and outreach/education.

The many initiatives described in the *NIH Health Disparities Strategic Plan* represent the major priorities and broad range of activities that the NIH ICs will undertake towards ultimately eliminating health disparities. The plan is not simply a compilation of all the programs and initiatives of the NIH entities, but a comprehensive aggregation of primary areas of emphasis across the NIH, each with its own objectives, both general and specific. To illustrate, under the overarching goal of Research, there are eight areas of emphasis:

- Genetics and Biologic Factors
- Behavioral and Social Sciences
- Translational Research
- Comparative Effectiveness Research
- Social Determinants of Health
- Health Services Research
- Innovative Health Technologies
- Global Health

Subdividing the overarching goals into these narrower areas of emphasis is a useful method to encompass the many thematic thrusts extant within the broader topics. Within the areas of emphasis, the individual programs, initiatives and planned or proposed activities are listed under the individual ICs, including many that involve multiple ICs.

Consistent with provisions of the *Minority Health and Health Disparities Research and Education Act of 2000,* Public Law 106-525, the Health Disparities Strategic Plan also: 1) establishes the health disparities research priorities, objectives, and activities proposed throughout the NIH; 2) includes an estimated budget by IC of the funding required to accomplish the objectives for each overarching goal; and 3) describes the means for achieving stated objectives, and the dates objectives are expected to be achieved.

The *NIH Health Disparities Strategic Plan and Budget* is an evolving document. It has been and will continue to be revised based on public comments received, public health need, scientific opportunity, changes in the availability of funds, and other factors. The plan will be posted on the NIMHD web site, and public comments on the plan will be encouraged and considered.

Strategic planning is an important management tool to help an organization do a better job by focusing its energy, by ensuring that members of the organization are working toward the same goals, by assessing and adjusting the organization's direction in response to a changing environment. It is a disciplined effort to produce fundamental decisions and actions that shape and guide what an organization is, what it does, and why it does it, with a focus on the future.[1] The *NIH Health Disparities Strategic Plan and Budget* will guide and shape NIH organizational direction in the coming years, as the extensive resources of the agency and its many partners, both within and outside of the federal government, are brought to bear to

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[1] *Adapted from Alliance for Non-Profit Management, adapted from Bryson's* Strategic Planning in Public and Nonprofit Organizations *(Jossey Bass Public Administration Series, 2004)*

aggressively and effectively address the enormous public health challenge presented by health disparities in our society. It is hoped and expected that there will be much more significant progress to report when it is time to once again renew and expand the NIH commitment to improving the Nation's health by combating health disparities in their many forms.

The NIMHD vision succinctly and articulately sums up the philosophy underpinning the *NIH Health Disparities Strategic Plan and Budget*: the NIMHD envisions an America in which all populations will have an equal opportunity to live long, healthy, and productive lives.

It's as simple—and yet, as profoundly challenging—as that.

Section I: Introduction

While the mission of the National Institutes of Health (NIH) is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability, a particular focus on populations with an unequal burden of disease is warranted. The National Institute on Minority Health and Health Disparities (NIMHD) is the focal point for the conduct and support of research, training, and dissemination of information with respect to minority health and other populations with health disparities. In accordance with provisions contained in the *Minority Health and Health Disparities Research and Education Act of 2000* (Public Law 106-525), the Director of NIMHD, in collaboration with the NIH Director and the Directors of the other Institutes and Centers (ICs), and NIH Office of the Director (OD) Program Offices of NIH (and in consultation with the National Advisory Council on Minority Health and Health Disparities) has the responsibility to establish an NIH-wide strategic plan and budget that encompasses the conduct and support of all health disparities research and other related activities of the NIH . This *NIH Health Disparities Strategic Plan and Budget* (hereafter known as the *Health Disparities Strategic Plan*) describes the agency's priorities and activities aimed at eliminating health disparities and improving the health of racial/ethnic minorities and other underserved populations.

The *Health Disparities Strategic Plan*: 1) establishes the health disparities research priorities, objectives, and activities proposed throughout the agency; 2) includes an estimated budget by IC of the funding required to accomplish the objectives for each overarching goal; and 3) describes the means for achieving stated objectives, and the dates objectives are expected to be achieved. This creates an avenue for integrated coordination across the different ICs, which are distinct in their missions and operations, thus providing sound and cohesive means to accomplish agency-wide strategic goals.

The development of this *Health Disparities Strategic Plan* was influenced by the recommendations from the Institute of Medicine (IOM) assessment of the *FY 2002-2006 NIH Health Disparities Strategic Plan* and the December 2008 *NIH Summit: Science of Eliminating Health Disparities*.

> "With respect to health disparities research activities of the agencies of the National Institutes of Health, the Director of the Institute shall ensure that the plan and budget…provide for—
>
> "(A) basic research and applied research, including research and development with respect to products;
>
> "(B) research that is conducted by the agencies;
>
> "(C) research that is supported by the agencies;
>
> "(D) proposals developed pursuant to solicitations by the agencies and for proposals developed independently of such solicitations; and
>
> "(E) behavioral research and social sciences research, which may include cultural and linguistic research in each of the agencies.
>
> 42 U.S.C. § 285t(f)(2)

In 2006, the IOM released a report on its evaluation of the FY 2002-2006 NIH Health Disparities Strategic Plan, *Examining the Health Disparities Research Plan of the National Institutes of Health: Unfinished Business*. The IOM Study Committee reviewed the challenges and needs of health disparities research and analyzed: (a) the adequacy of the Strategic Plan as a document and plan of action, including the ICs' individual strategic plans; (b) budget information; (c) trans-NIH organization of the efforts, and (d) experiences with implementation, coordination and monitoring. The report included several recommendations which the NIH is committed to implementing as the FY 2009-2013 *Health Disparities Strategic Plan* is developed, including the following:

- The NIH, through the NIMHD, the ICs, and, when appropriate, collaborating agencies, should undertake research to refine and further develop the conceptual, definitional, and methodological issues involved in health disparities research and to promote the understanding of the causes of health disparities.
- The Strategic Plan objectives should promote the integration of research on the multi-factorial nature of health disparities.
- The Strategic Plan should include measurable targets and time periods for the research capacity objectives. The development of the updated NIH Strategic Plan should include assessing the appropriateness of the individual strategic plans from the other ICs.
- Within the NIH, a clear and timely budget process should be linked to the Strategic Plan, and should be updated in a timely manner.

The NIH Health Disparities Summit produced a sweeping set of recommendations for future directions and priorities in health disparities research. They have served as an invaluable blueprint in subsequent planning and agenda setting efforts, including this Strategic Plan. Prominent among the recommendations was an emphasis on the social determinants of health and interdisciplinary research, which ICs were encouraged to consider when establishing program priorities. In addition, other Summit recommendations that helped shape the *Health Disparities Strategic Plan* included the development of: 1) strategies to bridge science, policy, and practice; 2) activities that address research gaps within health disparity populations; 3) activities to enhance capacity-building, infrastructure, and collaboration; and 4) efforts to leverage innovative opportunities to improve health education, outreach, and information dissemination. The recommendations provided a conceptual framework for the ICs to evaluate their past and current health disparities related activities, to inform on future program strategies.

While the recommendations contained in the IOM Report and the NIH Health Disparities Summit contributed substantially to the evolving context and content of the Strategic Plan, the document's structure was fashioned by a trans-NIH committee charged with translating those recommendations into concrete elements. The *Health Disparities Strategic Plan* is structured upon a foundation comprised of four overarching goals, each encompassing specific areas of importance within the individual ICs' health disparities strategic plans: (1) Research; (2) Research Capacity; (3) Community Outreach, Information Dissemination, and Public Health Education; and (4) Integration of Research, Research Capacity Building, and Outreach. These overarching goals will be the cornerstones supporting the substantial and sustained NIH efforts to eliminate health disparities. The *Health Disparities Strategic Plan* is a document that is periodically updated to reflect ever-changing scientific knowledge and the needs of the communities as it relates the elimination of health disparities.

E pluribus unum—"out of many, one"—is one of the most hallowed mottoes of the United States. The concept embodied in that timeless phrase also applies to the *Health Disparities Strategic Research Plan*, as all ICs of the NIH move forward as one to improve the lives and health of the millions of Americans who experience health disparities.

Performance Measures

The *Health Disparities Strategic Research Plan* represents the blueprint for health disparities activities at the NIH. As such, a means to account in measurable ways for the performance of the NIH ICs is an essential tool for operationalizing the efforts toward achievement of desired programmatic outcomes. The science of measuring health-related performance has made enormous progress over the last decade which reflects rigorous scientific and evidence-based review. Performance measurement can serve as a quality improvement tool by drawing attention to practices shown to contribute to desired outcomes and by identifying areas needing improvement.

Performance Measures are quantitative or qualitative ways to characterize and define performance. They provide a tool for assessing the actual progress made towards achieving the predetermined objectives or goals. While measuring performance is not a novel idea, the emphasis on outcomes has changed what needs to be measured. In establishing a roadmap for health disparities research and research-related activities, two common performance measures are of considerable value:

Process Measures: Designed to assess whether progress is being made toward the desired goal and whether appropriate programmatic activities are being undertaken to achieve that objective.

Outcome Measures: A desired end result of the programmatic activity that indicates achievement of an objective and goal. This type of measure is often used to measure the success of a program or project.

A performance measurement program begins by identifying goals and objectives, and then using those to guide the selection of suitable measures of desired outcomes and related processes. Selecting the right measures requires an understanding, still limited in some areas, of the often complex relationships between research/programmatic activities and health outcomes. Importantly, the performance measurement program should have the following characteristics:

- Measures should be aimed at a specific objective or goal and be results oriented.
- Measures should be meaningful and understandable.
- Data should be available to support the measure. Existing data sources, however, have generally not been created for this purpose and may not be readily adaptable to meet the need.

The development and adoption of performance measures for the *Health Disparities Strategic Plan* is a companion product to the codification of the IC health disparities research and research-related activities within the plan. The NIMHD will convene a trans-NIH workgroup to develop the process for each IC to establish appropriate performance measures, measurable targets and time periods to guide their execution of the *Health Disparities Strategic Plan*.

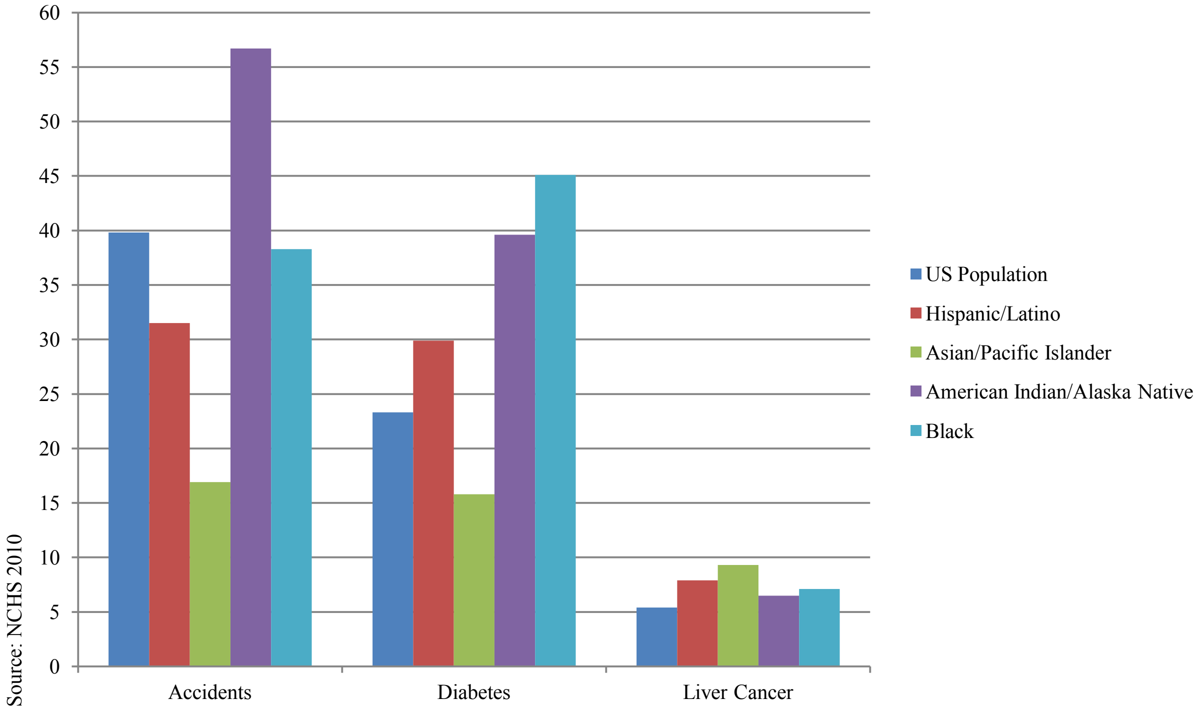
Section II: Background on Minority Health and Health Disparities

A. Definition of Health Disparities

Despite improvements in the overall health of the American people, racial/ethnic minorities and other populations suffer disproportionately in the burden of illness and premature death. These populations are referred to as health disparity populations. More specifically, P.L. 106-525 defines a population as a health disparity population, "if, as determined by the Director of the Center [NCMHD/NIMHD] after consultation with the Director of the Agency for Healthcare Research and Quality, there is a significant disparity in the overall rate of disease incidence, prevalence, morbidity, mortality, or survival rates in the population as compared to the health status of the general population." As such racial and ethnic minorities (i.e., African Americans, American Indians and Alaska Natives, Asians, Hispanics, and Native Hawaiians and Other Pacific Islanders), low socioeconomic status, and rural persons are currently designated as health disparity populations.

While some progress has been made, health disparities affecting racial and ethnic minorities still persist and are seen across a broad spectrum of diseases and adverse outcomes. For example, although the infant mortality rates have declined since 1983, large disparities continue to exist between African American mothers (13.4 deaths per 1,000 live births), American Indian and Alaska Native mothers (8.3 deaths), Puerto Rican mothers (8.0 deaths), and the U.S. population in general (6.7 deaths) (NCHS, 2011). As depicted in Figure 1, disparities between select racial and ethnic minority groups compared to the US population in general also can be seen across a variety of diseases and conditions, such as accidents, diabetes, and liver cancer (CDC 2010, NCHS 2011).

Figure 1. Age-adjusted death rates (per 100,000) for selected causes of death by race and Hispanic origin, 2006



Source: NCHS 2010

Socioeconomic status (SES), as measured by income or education, is also linked to increased mortality and to a wide range of health problems, including low birth weight, cardiovascular disease, diabetes, and cancer. Among persons aged 25-64 years, the age-adjusted death rate of those who have less than a high school diploma is 529.5 per 100,000—14.1% higher than the rate of 463.9 among those with a high school education and 2.7 times greater than the rate of 196.7 for those with some college or a collegiate degree (Xu, Kochanek, Murphy, & Tejada-Vera, 2010). These findings support the existence of a socioeconomic gradient in health in which increases in social position, through education or income, improves the likelihood of being in good health (Adler, 2002; Braveman et al. 2010; Pamuk et al. 2008).

As with racial and ethnic minority populations and low SES populations, rural populations in the U.S. have also been disproportionately burdened by many diseases and conditions, resulting in health disparities. Rural areas report a higher prevalence of chronic diseases, such as cancer, heart disease, and diabetes (Gamm et al. 2003) than non-rural areas. Similar to other health disparity populations, there exists a great deal of variation in reported health disparities in rural areas with many of the disparities being attributed to higher proportions of older, poorer, and less-educated persons.

Health disparities are not just a "problem" for the persons who are experiencing them, but a concern for the entire nation. The health of the racial and ethnic population in the U.S. will incrementally impact the overall health of the nation because of the large increases projected among them. Thus, if the health of these populations is not improved, the US overall world health ranking would be negatively impacted. Already the life expectancy at birth for the U.S. was 78 years in 2008, which was lower than most other comparable industrialized countries with lower health expenditures than the U.S. (WHO, 2010).

Health disparities are also costly and particularly burdensome to the US healthcare system. A 2009 report on the economic burden of health disparities in the U. S. commissioned by the Joint Center for Economic and Political Studies revealed that between 2003 and 2006, an estimated 30.6% of direct medical care expenditures for African Americans, Asian Americans, and Hispanics were excess costs due to health inequalities[2] (LaVeist et al. 2009). The same study revealed that the combined costs of health inequalities and premature deaths from preventable diseases in the United States in that same time period rose to $1.24 trillion. African Americans, Hispanics, and Asians accounted for $229.4 billion in direct medical expenditures due to health disparities. Overall, the report revealed that the premature loss of life, increased burden of preventable disease, and inadequate access to quality primary healthcare endured by health disparity populations and working people in general continues to pervade the healthcare system.

B. Determinants of Health Disparities

Efforts to document the determinants of health disparities have led to the realization that health disparities are complex, dynamic, and multidimensional in nature. Health and ultimately health disparities are shaped by the interaction of multiple factors, including: social, environmental, behavioral, and biological factors. These interacting factors are dynamic and vary in their impact depending upon when in the life course they occur, access to appropriate and timely health care, and the existence of effective policies and interventions. Figure 2 represents a conceptual model depicting how the physical environment, social environment, behavioral, and biological factors interact to affect an individual's health. It is the differences in the risk exposures and resources experienced by different populations in these environments that lead to health disparities.

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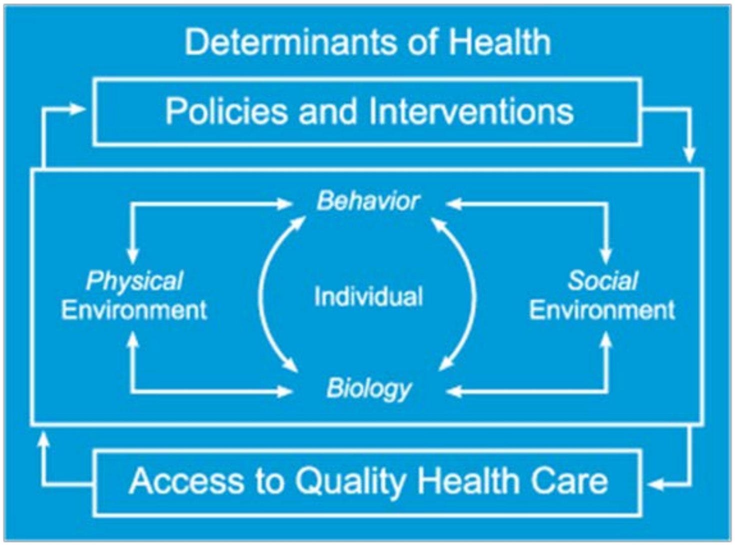
[2] The term "health disparities" is used interchangeably in this section with health inequality. The strategic plan document refers to the broader definition of health disparities research to include epidemiology studies, including the science of the distribution of diseases and risk factors across different populations groups. In recent health disparities literature, the concepts and principles of equity in health or inequality in health not only refer generically to all differences in health, but focus on social justice, or differences that are "avoidable, unfair, and unjust."

Figure 2. Determinants of health.



Source. Healthy People 2010: Understanding and Improving Health: DHHS

Physical Environment

The physical environment consists of the tangible elements in the communities where one lives, works, or plays and can also be less tangible in nature, such as environmental toxins, pathogens, or carcinogens. The physical environment can be helpful or harmful to individual health when it affects individuals' ability to engage in health promoting activities or presents physical hazards. Numerous studies have found that low income and racial/ethnic minority populations are more likely to reside in physical environments that are not conducive to health promoting activities such as engaging in physical exercise (Kumanyika, 2008; Taylor et al, 2006), or eating healthy diets (Larson, Story, & Nelson, 2009; Liese et al. 2007). Likewise, the environmental justice movement has also documented that health disparity communities are disproportionately exposed to environmental toxins and pollutants that result in poor health outcomes (Mohai et al., 2009; Rosen and Imus, 2007).

Social Environment

The social environment includes the interactions individuals have with others in families, communities, the criminal justice system, workplaces, schools, places of worship, etc. The social environment can have a profound effect on individual health, as well as on the health of the larger community (HP2010; Marmot, 2005). The social environment can be health-promoting in that it can function as a coping resource. For example, there has been documentation on the health benefits of religious activity (Coruh et al., 2005) and the effectiveness of health programs delivered through faith-based organizations (DeHaven et al., 2004). Other studies have documented the health promoting benefits of social integration and social cohesion (Durkheim, 1951; Fone et al., 2007). At the same time, negative and/or stressful interactions in the social environment can contribute to poor health outcomes. Social interactions that are perceived as discriminatory or racist have been shown to have adverse effects on health (Mays, Cochran, Barnes, 2007; Paradies, 2006) as well as socially isolating environments (Luanaigh & Lawlor, 2008).

Behavior

Behavioral patterns account for approximately 40 to 50% of premature deaths in the United States (McGinnis, Williams-Russo, & Knickman, 2002; Mokdad et al, 2004). Choices made regarding smoking, dietary patterns, physical activity, alcohol abuse, and sexual behavior exert powerful influences over health status and outcomes. In 2000, an estimated 435,000 deaths in the US were attributable to tobacco and 400,000 were attributable to poor diet and physical inactivity -- mainly due to obesity (Mokdad et al. 2004). Not only do behavioral patterns contribute to an individual's premature death, but they also create burdens for families and communities, and increase healthcare costs.

Biology

Predispositions to some diseases or conditions are rooted in one's genetic makeup at conception and can influence health over the lifespan. Genomic research is beginning to shed light upon why certain populations might disproportionately suffer from certain diseases and conditions. For example, genomic studies have found evidence of genetic variation accounting for some of the risks on chronic kidney disease, renal failure, and prostate cancer among different racial and ethnic groups (Rotimi & Jorde, 2010). Biology and genes have also been shown to affect the efficacy of drugs and therapeutic interventions for specific populations which can influence health outcomes (Ingelman-Sundberg, 2008).

Each of the above-mentioned factors contribute to individual and population health and ultimately to disparities in health. However, it is the interaction of these factors and the context in which the interaction occurs that is important to the understanding of health disparities. Whether or not a gene is expressed can depend upon exposure to environmental toxins in the physical environment. The decision to engage in certain dietary patterns or physical activity can be influenced by resources available in the physical environment. One's social and physical environment can influence behaviors such as substance abuse or sexual behavior. Finally, access to quality healthcare and the existence of policies and interventions to facilitate healthy choices are also paramount factors in the health of individuals and populations.

C. NIH Strategy to Address Health Disparities

The reduction and ultimate elimination of health disparities requires a transdisciplinary framework that fosters an integrated approach across multiple disciplines – biology, genetics, environmental science, economics, and behavioral and social sciences. It also requires a philosophical position that considers structural inequalities and provides the basis for scientific innovation that will ultimately influence practical implementation in communities to improve health. Understanding the interface between biology, behavior, environmental and social circumstances is essential to developing methodologies and interventions that address their complex etiologies.

While research is critical to understanding the causes of health disparities and identifying ways to reduce and ultimately eliminate disparities among populations, research alone will not solve the health disparity problem. To fully address the health disparity problem, the combined efforts of the ICs of the NIH and their partners will be utilized to a) conduct research, b) build research capacity, c) provide community outreach, information dissemination, and public health education, and d) engage in activities that integrate research, capacity building, and outreach.

Research

In order to improve health and enhance efforts to eliminate health disparities, the NIH will increase and diversify biomedical, behavioral, social science, social epidemiological, and health services research it conducts so as to:

- Advance understanding of the development and progression of diseases and disabilities that contribute to health disparities among racial and ethnic minority, low-income, rural, and medically underserved populations;
- Develop new or improved approaches for detecting, diagnosing, preventing, delaying, or treating the onset or progression of diseases and disabilities that contribute to health disparities; and
- Advance the understanding of the multi-factorial causes of health disparities, including non-biological bases of disease incidence and progression.

Research Capacity-Building

The NIH will expand its programs and develop new initiatives with respect to research capacity and infrastructure in order to:

- Increase the quality and quantity of research that provides information to guide efforts to eliminate health disparities;
- Increase the number of participants in clinical trials from racial/ethnic minority populations and other health disparity populations;
- Expand opportunities in research training and career development for, and provide research

supplements to, research investigators from racial/ethnic minority populations and other health disparity populations; and increase the number of researchers conducting health disparities research;

- Enhance research facilities across the nation aimed at improving the ability of these institutions to conduct health disparities research;
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- Increase representation of individuals from racial and ethnic minority populations and other health disparity populations on peer review panels;
- Promote the development of inter-institutional partnerships between historically research-intensive and historically minority-serving institutions that seek to build research infrastructure;
- Improve research data collection systems, and enhance data quality regarding health disparities, and develop uniform data systems that facilitate strategies for the elimination of health disparities; and
- In collaboration with schools and programs of public health, state and local health departments and academic health departments, support and promote community-based participatory research.

Community Outreach, Information Dissemination, and Public Health

The NIH will expand its current activities and create new programs in order to:

- Provide the latest research-based information to healthcare providers to enhance the care provided to individuals from health disparity populations; develop targeted public health education programs focused on particular disease areas in order to reach health disparity populations who experience health disparities within these disease areas; and facilitate, document, and disseminate practical strategies responsive to the health care needs, and appropriate to the cultural and linguistic needs of communities throughout the United States.
- Facilitate the incorporation of science-based information into the curricula of medical and allied health professions schools, theological education institutions, public health schools, and into continuing education activities of health professionals.
- Maintain ongoing communication linkages and partnerships with community-based and faith-based organizations, health care associations, foundations and academic institutions, and foster dialogue with racial and ethnic minority populations and other health disparity populations, including the underserved; and collaborate with public health and other health oriented policy centers to translate research findings into policy documents that can be used by policy groups and other stakeholders to explain new discoveries from a policy perspective to decision makers.
- Develop computer databases and internet resources to disseminate current information about scientific research and discoveries and other activities regarding health disparities.

Integration of Research, Capacity-Building and Outreach

The NIH will advance the understanding of the multi-factorial causes of health disparities, including non-biological bases of disease incidence and progression.

- Develop a coordinated interdisciplinary approach to reduce and ultimately eliminate health disparities, and
- Develop opportunities to leverage resources and enhance collaboration among NIH ICs with research emphasis on biological and behavioral factors.

Under the leadership and coordination of the NIMHD, each of the ICs and Office of the Director Program Offices of the NIH has developed strategies to address health disparities during the next five years. The following is an integration of those strategies which represent the NIH's five-year strategic plan to reduce and ultimately eliminate health disparities.

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NIH Health Disparities Strategic Research Plan and Budget

Fiscal Years 2009-2013

The *Health Disparities Strategic Plan* is structured according to four overarching goals and specific areas of emphasis within each goal:

I. Research

   a. Genetics and Biological Factors
   b. Behavioral and Social Sciences
   c. Clinical and Translational Research
   d. Comparative Effectiveness Research
   e. Social Determinants of Health
   f. Health Services Research
   g. Innovative Health Technologies
   h. Global Health

II. Research Capacity
   a. Research Infrastructure Enhancement
   b. Development of a Diverse Workforce
   c. Health Disparities Informatics Capacity

III. Community Outreach, Information Dissemination and Public Health Education
   a. Public Awareness Campaigns
   b. Public/Private Partnerships
   c. Diverse Participation in Clinical Trials
   d. Social Networking

IV. Integration of Research, Capacity-Building and Outreach
   a. Transdisciplinary Centers of Excellence
   b. Community-Based Participatory Research
   c. Partnerships/Networks

The initiatives described in this plan represent the major priorities and broad range of activities that the NIH will undertake to improve health and ultimately eliminate health disparities. The plan is an aggregation of primary research areas of emphasis and activities conducted and supported across the NIH.
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The following table lists total FY 2010 Actual and FY 2011 Estimate information by Institutes/Center for NIH Health Disparities activities.

NIH Health Disparities Budget - Total

Institute/Center/Office	FY 2010 Actual[1]	FY 2011 Estimate[2]
CF[3]	$22,847,307	$22,847,307
FIC	$40,000	$40,000
NCCAM	$16,685,357	$16,685,357
NCI	$264,618,266	$264,618,266
NCRR	$65,698,752	$64,056,283
NEI	$39,353,596	$39,353,596
NHGRI	$21,579,493	$21,579,493
NHLBI	$340,030,124	$340,030,124
NIA	$108,871,672	$108,871,672
NIAAA	$73,259,075	$73,259,075
NIAID	$263,905,964	$263,905,964
NIAMS	$32,055,917	$32,055,917
NIBIB	$15,398,051	$15,398,051
NICHD	$196,586,419	$196,586,419
NIDA	$154,315,664	$154,315,664
NIDCD	$36,671,943	$36,671,943
NIDCR	$42,561,780	$42,561,780
NIDDK	$228,534,154	$228,534,154
NIEHS	$35,585,109	$35,585,109
NIGMS	$220,339,673	$220,339,673
NIMH	$152,046,928	$152,046,928
NIMHD	$192,016,485	$192,016,485
NINDS	$122,848,309	$122,848,309
NINR	$53,613,315	$53,613,315
NLM	$3,903,360	$3,903,360
OD	$24,427,818	$24,427,818
TOTAL	$2,727,794,531	$2,726,152,062

[1] FY 2010 ARRA dollars ($351,295,597) for health disparities activities are not included.

[2] The FY 2011 estimate is as of February 14, 2011, as reported on the NIH Research Portfolio Online Reporting Tools (RePORT). This data does not reflect Public Law 112-10 Full-Year Continuing Appropriations Act, 2011.

[3] **OD Common Fund:** The Common Fund supports a broad range of projects related to health disparities research. These projects include, but are not limited to, improving medical education and clinical capacity in underserved communities, development of culturally relevant health assessment and informational materials, and research into basic mechanisms of diseases that affect minority or underserved populations.

**** NOTE: Clinical Center:** The NIH Clinical Center serves as the focal point for clinical research for the NIH Intramural Research Program (IRP). As such, all Clinical Center funding is provided from the intramural research mechanism of the NIH institute and center appropriations.

I. RESEARCH

In keeping with its role as the Nation's steward of biomedical and behavioral research, NIH has devoted considerable resources to the characterization of the root causes of health disparities. As a result of these efforts, a complex and multi-factorial web of interconnected and overlapping factors (biological, behavioral, environmental, and societal) has begun to emerge. For example, poverty and lack of education correlate with poor health and lower life expectancy, and discrimination based on racial, ethnic, and linguistic differences in the U.S. not only triggers biological stress, but also creates a barrier to accessing high quality health care. In addition, some groups are genetically susceptible to certain diseases, and when this inherited biological vulnerability combines with adverse social and/or environmental factors (e.g. poor diet, pollution, and economic stress) these groups experience poorer health outcomes. Confronting this formidable challenge is at the heart of the vigorous efforts NIH is undertaking to make advances in science that will translate into effective prevention and treatment interventions.

Much has been learned from past research, and that body of knowledge informs and shapes the research to come. As the understanding of the complex web of interrelated factors contributing to health disparities facing Americans has begun to be unraveled, the targets of investigations have become more refined. NIH research is aggressively pursuing innovative new hypotheses, while maintaining emphasis on translation of discoveries from the laboratory bench to the real world of communities, vulnerable populations, and patient groups.

From the most basic molecular research to research conducted at the bedside and in the community, NIH is fostering a substantial effort to characterize health disparities in the United States. As this wide range of investigations continues to yield important new information about the nature of health disparities and effective methods to prevent or ameliorate them, NIH research will continue to help improve the health and quality of life of millions of Americans.

A. GENETICS AND BIOLOGICAL FACTORS

Many of the NIH ICs conduct and support basic research seeking to characterize the contribution of the biological and genetic underpinnings to health disparities. Better understanding of disease etiologies and variations in genetic susceptibilities among racial and ethnic subpopulations will be necessary to elucidate their roles in the wider panoply of factors contributing to health disparities. NIH is currently conducting or planning an array of basic research initiatives designed to identify and characterize those biomolecular elements. These basic and genomic studies will focus on describing factors that can help to identify and reduce disease-related health disparities.

All people share the vast majority of human genetic information—any two individuals share 99.5% of their DNA sequence. Although the variants in sequence are mostly found in all populations, the frequency of an individual variant may differ among populations, and these differences include variants that have important medical consequences. Thus, while most human genetic research will apply broadly to all groups, it is also important to study whether specific genetic factors may underlie disparate rates of incidence or patterns of progression of disease when they are observed among different population groups. Studies have shown that genomic variants can contribute to heightened susceptibility and development of diseases such as diabetes, hypertension, heart disease, asthma, cancer, and even some infectious and autoimmune diseases.

For example, the COPD-Gene study, currently in progress, creates a large cohort of well-phenotyped subjects with or at risk for chronic obstructive pulmonary disease (COPD), and will identify susceptibility genes by genome-wide association analyses. These analyses will reveal clues regarding racial differences in susceptibility to the development of COPD. The cohort of more than 10,000 subjects will include more than 3,000 African Americans. With such a large cohort size, the study will have sufficient statistical power to identify genetic risk factors of at least moderate effect independently in both non-Hispanic whites and African Americans.

In addition to genetic and genomic investigations, NIH devotes substantial resources to research designed to elucidate basic biological functions as they contribute to the initiation and development of disease. As the other "-omics" fields (e.g., proteomics, metabolomics, transcriptomics, etc.) have matured, systems biology has emerged as a major field of inquiry, and bioinformatics has evolved to effectively process and interpret the massive datasets spawned in those fields. NIH remains at the cutting edge of this biomedical research and innovation.

Objectives:

1. To support research that increases understanding of health disparities, including the development and progression of diseases and conditions that contribute to health disparities, and the application of genomic knowledge to improve health.
2. To advance research on understanding gene-environment interactions to identify major genetic susceptibility factors for disease and to develop technologies for reliable and reproducible measurement of potential causative environmental exposures.

IC	**Activities**
NCI	• Conduct *Genome-Wide Association Studies* to evaluate the role of genetic factors contributing to risk/susceptibility and incidence of cancer disparities in different racial and ethnic groups. • Conduct research on variations in genetic susceptibility affecting disease outcomes. • Support epidemiological studies, including the *Survey of Prostate Cancer in Accra, Ghana* -The key aim of this study is to assess the burden of prostate cancer in Ghana among West Africans compared to African Americans, whose incidence rates are among the highest in the world.

NCI	• Conduct *Genetics of Renal Disease in African Americans* --This study aims to understand genetic predisposition to kidney disease in the African American population. • Conduct *Research on Variations in Tumor Biology* --Research on variations in tumor biology is currently underway in lung, colon, breast, and prostate cancers. • Conduct basic cancer research, including genetic/epigenetic research to understand and address cancer health disparities. • Conduct basic research on oncometabolomics to understand the role of metabolic factors as determinants of cancer disparities. • Development of a molecular diagnostic Assay to detect basal-like breast cancer with sensitivity and specificity that is able to distinguish basal-like breast cancer from other subtypes in both human cells and tissues. This program may lead to improved detection of breast cancer in African American women, who have been shown at disproportionately greater risk of developing ER-negative breast cancer. • Investigate imaging technologies to study tumor density, morphology, tumor size, tumor growth rate, staging, prognosis, drug efficacy among different racial/ethnic populations to advance our understanding of genetics and molecular biology of cancer health disparities. • Clinical pharmacogenetics project is designed to identify inherited factors that contribute to inter-individual differences in drug pharmacokinetics, pharmacodynamics, toxicity, and response within and between races. Studying inherited genetic variation in drug disposition and activity pathways is appropriate to identify potential sources of variation in drug efficacy that apply to various diseases, lifestyles, demographics, and racial backgrounds. • AIDS Malignancy Clinical Trials Consortium (AMC): Minority recruitment to clinical trials has been successful in the AMC; of the 1,934 patients accrued, 44% are of African American or Hispanic origin. Although this is representative of the HIV population, AMC is developing other strategies targeting racial/ethnic and medically underserved populations that include: 1) Establishing clinical trial sites in public hospitals that are accessed primarily by resource-limited and racial/ethnic and medically underserved populations. 2) Involving community advisors in all aspects of AMC activities. 3) Encouraging principal investigators at clinical sites to include physicians, research nurses, and study coordinators from racial/ethnic populations. 4) Developing new or improved approaches to treating AIDS-related malignancies. 5) Using patient navigators at AMC core sites to educate and recruit members of racial/ethnic and medically underserved populations into HIV/AIDS cancer trials.

NCI	• Animal Models for Cancer Health Disparities: The research goal is to support basic comparative research projects that investigate CHD using a new mouse population genetic resource developed with support from the NCI, NIEHS, NIDA, and the Ellison Foundation. This important resource – the Collaborative Cross – will allow comparative studies that model human genetic susceptibilities using defined and validated recombinant mouse strains. These models could be used to examine variants in specific gene or environmental factors that affect cancer rates in the context of heterogeneous populations. For example, the influence of differential allelic frequencies between populations can be modeled by setting up two recombinant mouse sub-populations that differ at specific cancer susceptibility genes known in human populations. These can then be analyzed for effects in the context of population genetic heterogeneity and for unique environmental effects (i.e. carcinogen exposure) that could validate and provide a mechanistic understanding of the findings from human studies.
NEI	• Assemble large research teams to complete Genome-Wide Association Studies to identify genetic and environmental risk factors for primary open-angle glaucoma, the leading cause of blindness in African-Americans. • Explore racial variations in optic nerve structure and biomechanics among glaucoma patients of African descent, mapping risk of glaucoma progression to factors including intra-ocular pressure, age, central corneal thickness, optic disc cupping, and ancestry.
NHGRI	• Support genome-wide association studies, genotyping, medical sequencing, and genetic epidemiology studies among diverse, well-characterized, ancestrally diverse population samples. • Support the development of methods of analysis that are particularly relevant to disparity populations and diseases, such as admixture mapping to find disease-associated genomic regions in admixed populations • Support research to understand genetic alterations that lead to cancers. • Identify how genetic variants influence the variation in tumor progression relative to environmental exposures and treatment. • Investigate the genetic causes of acquired blood disorders. • Test novel retrovirus vectors for transferring human genes into cells. • Study the human microbiome and how differences in the microbial community might contribute to chronic disorders, such as allergic disorders (e.g., eczema, asthma, and hay fever). • Continue to support the trans-NIH Genes, Environment, and Health Initiative with the goal of determining the etiology of common diseases by focusing on

NHGRI	genetic and environmental factors that increase the risk of these diseases and the interaction among these factors. • Support extramural and intramural research, including the Center for Research on Genomics and Global Health, to investigate the potential role of genetic and environmental factors in the pathophysiology of common complex diseases (e.g., obesity, diabetes, and hypertension) and variable drug response that contribute to individual and population differences in disease distributions.
NHLBI	Promote and maintain support for the following ongoing major research studies: • *Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN):* Documents cardiovascular disease (CVD) risk factors and measures of subclinical disease in approximately 40 extended Alaska Native families. Identifies and characterizes genes that contribute to CVD. • *Jackson Heart Study:* Identifies environmental and genetic factors influencing evolution and progression of CVD in blacks. • *Genetic Epidemiology of COPD (COPD-Gene)* creates a large cohort of well phenotyped subjects with or at risk for COPD and will identify susceptibility genes by genome-wide association analyses. • Support basic and fundamental research including animal models to address heart, lung, and blood diseases that affect diverse populations.
NIA	• Support research on the hippocampus, a region of the brain important for acquiring and processing information, capable of generating new nerve cells. NIA research in mice demonstrates that increased physical and mental activity started in “middle age” can increase hippocampal neurogenesis and decrease signs of neuronal aging. • Promote and support the following major research studies: • NIA’s 28 Alzheimer’s Disease Research Centers • Nathan Shock Centers of Excellence in Basic Biology of Aging • Epigenomics of Alzheimer’s Disease • Genome-Wide Association Study of Cognitive Decline Among African Americans • Cellular and Molecular Biology of Aging • A number of studies have found that African Americans have significantly higher prevalence and incidence of non-familial Alzheimer's Disease (AD) than Caucasians. However, because the cognitive tests used in part to diagnose AD have low specificity among African Americans, it is unclear whether

NIA	misdiagnosis contributed to these findings. To address these and other genetic association issues, NIA supports collaborative studies to be conducted at four sites which specialize in assessment of AD and serve large populations of African Americans: Columbia University in New York City, Duke University and North Carolina A&T State University in North Carolina, and Vanderbilt University in Tennessee
NIAAA	• Promote research aimed at defining mechanisms that underlie fetal alcohol spectrum disorders (FASD) pathogenesis, identifying potential therapeutic targets, and developing effective FASD therapeutics. • Support research on biomarkers for alcoholic liver disease among racial/ethnic groups. Funded projects may include human and animal databases/tissue repositories that are difficult to collect. Employing such unique databases, research can compare/contrast the proteomics/metabolomics signatures in specimens from well-characterized ethnically diverse patients. • Conduct a nationally representative survey of 48,000 individuals, the *National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) III* to include Alaska Natives and Native Hawaiians and oversampling of African Americans, Hispanics, Asians, and Pacific Islanders in order to derive more precise estimates of major alcohol-related variables. Collect genetic material from all respondents including ethnic and racial minorities to further understand the underlying biologic vulnerability to alcohol use disorders. • Continue support for funded research projects investigating genetic factors in ethnic and minority populations.
NIAID	• Support fundamental research to delineate the early steps in HIV infection via mucosal surfaces. • Develop *in vitro* and animal models to study aspects of the pharmacokinetics and toxicity of antiretroviral, immunotherapeutic, and other therapeutic drugs related to perinatal transmission of HIV. • Conduct host genetics research that examines the genetic susceptibility of women to HIV infection, HIV disease progression, response to therapy, as well as the risk of developing comorbidities such as cancer. • Evaluate immune reconstitution in women after initiation of antiretroviral therapy (ART), including research on the natural history of immune reconstitution, the quality of the recovered immune function, and the impact of other covariates on immune recovery. Determine the effect of sex/gender on disease progression, treatment, complications of HIV disease and its treatment, and the long-term outcome of ART. • Determine the effect of hormonal, endocrine, and local factors on viral load and sexual transmission of HIV. Study the female genital tract compartment

NIAID	including the microenvironment, HIV virology, and the immunology of the female genital tract as compared to blood. • Improve immunosuppression strategies by optimizing and improving current therapies and developing novel therapies. • Identify donor and recipient factors that predict the risk of graft-versus-host-disease (GVHD), graft rejection, and other post-transplant morbidities. • Identify organ-specific and non-organ-specific mechanisms of chronic allograft dysfunction, as well as recipient mortality in the presence of a functioning transplant. • Develop surrogate markers and diagnostic assays, such as blood and urinary tests, and imaging techniques for early detection of graft rejection and GVHD**.** • Support research to develop alternatives to whole organ transplantation and the need for human organ donors. • Explore the potential of xenotransplantation as an alternative to human donor organ or cell transplantation and advance our understanding of physiological and immunological barriers to xenotransplantation by conducting preclinical research using the swine to nonhuman primate (NHP) large animal model. • Support research to identify and catalog new human leukocyte antigen (HLA) genes in health disparity populations. • Support research to determine the range of diversity of other immune response genes in health disparity populations. • Encourage the development and application of DNA-based technologies to more rapidly and accurately type HLA genes. • Develop multiple animal models to assess the safety and efficacy of tolerance induction regimens prior to their use in clinical trials and to elucidate the mechanisms of graft rejection and acceptance. • Identify the mechanisms of and targets for the induction, maintenance, and loss of immune tolerance. • Determine the impact of immune tolerance on protective immunity to pathogens. • Identify and validate surrogate biomarkers of immune tolerance or its absence. • Support studies to refine relevant animal models of infection and disease that can be used to select the most promising new TB vaccine candidates and vaccination strategies.

NIAID	• Support and conduct studies to refine animal models of infection and disease that can be used to select the most promising new TB drug candidates • Support molecular epidemiology studies to characterize properties of DR TB strains that can be exploited in microbiological diagnostics. • Support molecular epidemiology studies to characterize properties and transmission patterns of drug-sensitive and DR strains of *Mtb* that produce disease in susceptible populations. • Support development of animal models and other research systems for the study of hepatitis C virus (HCV) infection.. • Use basic and preclinical research to devise rational HCV vaccination strategies. • Define mechanisms of protective immunity to HCV and identify neutralizing antibodies to HCV antigens. • Define natural mechanisms and correlates of recovery from infection and persistence of infection with HCV. • Distinguish protective from injury-invoking roles of cell-mediated immune responses. • Define immunological mechanisms associated with and identify alterations in response to repeated HCV infections and co-infections. • Support research focused on host and pathogen genetic contributions to and mechanisms involved in sustained elimination of HCV in response to therapy.
NIAMS	• Develop greater understanding of the genetic underpinnings of lupus nephritis and other forms of lupus-associated damage. • Support genome-wide association studies and linkage analysis techniques to find gene regions that confer risk for lupus in specific ethnic groups and circumscribed populations. • Enhance the use of well-characterized, family-based cohorts, including those in the Lupus Registry and Repository, to explain heritable traits, using combined linkage and association analyses. • Support studies to find gene regions and distinct gene variants that confer risk for scleroderma in specific ethnic groups and circumscribed populations. • Enhance the use of well-characterized, family-based cohorts, including those in the Scleroderma Family Registry and DNA Repository, to explain heritable traits, using combined linkage and association analyses..

NIAMS	• Facilitate the development of tools, such as chip technologies and biomarkers, including inflammation-associated molecules and lupus-specific autoantibodies (antibodies directed against the body's own molecules, rather than foreign pathogens), for disease classification, to predict lupus risk and to guide the management of individual patients' conditions. • Support genetic research including genome-wide association studies (GWAS) to identify the multiple susceptibility genes and unknown environmental triggers involved in vitiligo. • Pursue deep sequencing of susceptibility gene loci, and ultimately, attempt to identify the proteins and protein abnormalities associated with vitiligo. • Continue to perform research into melanocytes (pigment cells) and the biological mechanisms that govern pigmentation and autoimmunity to help inform the understanding and treatment of vitiligo. • Conduct research to determine how genetic factors affect vitiligo. • Continue to support GWAS in keloids that are looking to identify aberrant disease mechanisms, possibly leading to the development of treatments. • Perform research into the fundamental biology of wound healing as it relates to keloid development. • Determine how associated genetic factors affect keloid development. • Support research in the pharmacogenomics (how the individual patient's genetic makeup influences responses to drugs) of responders and non-responders to pharmacologic and biological interventions for rheumatic diseases, with implications for lupus, in order to direct therapies to the appropriate subsets of patients. • Support the Osteoarthritis Initiative with additional data that may help researchers elucidate factors that influence disease severity and progression in the general population, and for members of racial and ethnic groups that disproportionately suffer from osteoarthritis.
NICHD	• Support efforts to design and implement genomic and proteomic research studies in preterm births through multidisciplinary, collaborative research and to provide a public database for use by the research community. • NICHD has established a network of biobanks with a focus on *Dissecting the Genetic Etiology of Preterm Birth in Nulliparous Women* through the Genome-Wide Association Studies (GWAS) that aims to identify a set of genetic variants (DNA polymorphisms) and biomarkers associated with preterm birth. The research results from this network of biobanks have the potential to improve providers' ability to prevent, diagnose, and address pre-term birth and other complications of pregnancy.

NICHD	• Support basic research, including the genetic basis of conditions that disproportionately affect women of color. Specific examples of studies include: The study *Regulation of Uterine Fibroids by CCN5* will determine if CCN5 has potential therapeutic value in the treatment of fibroids. The project *Pathogen Trapping by Genital Mucus* will clarify how abnormal mucus secretions caused by bacterial vaginosis (BV) will increase susceptibility to the penetration of a broad range of viral, bacterial, and protozoal pathogens. The knowledge gained from the study *Genetic Determinants of Uterine Fibroids in African-American and Caucasian Women* could lead to the development of the first genetic counseling protocol for fibroids and ultimately to a more appropriate therapy. The study *Racial Disparity for MiRNAs in Uterine Leiomyomas* will determine whether the microRNAs found in the fibroid tissue of African American women contribute to the disproportionate share of morbidity. The study *Micro-RNA Regulatory Function in Leiomyoma Growth* could help identify novel targets and lead to therapeutic strategies to manage fibroids. *Molecular Mechanism of Leiomyoma Growth and Regression* uses genomic and proteomic analyses which aid in the development of a novel therapeutic approach to prevent the growth and specifically treat leiomyomas. • Support rigorous basic studies focused on the potential, early origins of adult disease that can contribute to health disparities. These include such studies as: The pilot and feasibility study *Preeclampsia and Fetal Origins of Childhood Insulin Resistance Risk for Type 2 Diabetes* investigates the relation of intrauterine growth retardation (IUGR) in preeclampsia and non-preeclampsia pregnancies to childhood metabolic markers as antecedents of adult disease. The study *Prenatal Stress Biology, Infant Body Composition* will examine the influence of adverse intrauterine conditions or prenatal stress on newborn and infant body composition and obesity risk. • Support genetic epidemiology research that elucidates individual and group responses to pharmaceuticals and helps to optimize therapeutic interventions that could be used to address health disparities. Some examples of studies include: The *Beta2 Adrenoceptor (B2AR) Genotype and Preterm Labor* study will compare B2AR distribution in women with preterm labor and those delivering at term within three ethnic groups—Caucasian, African-American, and

NICHD	Hispanic—to determine the effect of the B2AR genotype on the incidence of preterm labor. • *Pharmacologic Determinants for Optimized Therapy in HIV-Infected Children* will provide novel, critical pharmacologic information about antiretrovirals in children and ensure that current guidelines provide optimal dosing for HIV-infected children.
NIDA	• Continue to support behavioral, biological, genetic and epigenetic studies to improve our understanding of genetic risk factors related to drug use and abuse, which may provide targets for developing effective treatment, diagnostic, and prevention approaches in health disparity groups • Continue to support ongoing research that examines the behavioral, biological, cultural and social factors that affect HIV risk, acquisition, and transmission in health disparity groups that will inform the development of interventions and reduce HIV risk • Continue to conduct research examining how developmental, genetic, environmental and psychological factors interact to influence substance use and abuse in AA youth as they transition into early adulthood
NIDCR	• Support research that identifies the full range of factors that contribute to oral health inequality, to include genetic, behavioral, psychosocial, and environmental interactions. A better understanding of these factors may provide avenues for developing effective treatment, diagnostic, and prevention approaches, or improved prediction models, and help realize the potential of personalized medicine. • Conduct dental caries research focusing on genetic, microbial, behavioral, and environmental factors in a rural Appalachian population; to include a study of maternal and early life factors affecting development of early childhood caries (ECC). ECC, also known as baby bottle caries, is a form of severe tooth decay highly prevalent among socially disadvantaged infants or young children (racial/ethnic minority, poor, rural, immigrants). Consequently, caries sequelae such as dental pain, need for dental treatment under general anesthesia, and future orthodontic treatment, are also concentrated among the most socially disadvantaged children. • Conduct research to identify factors that contribute to oral health inequality in oral and pharyngeal cancer. Data from the U.S. Surgeon General's Report on Oral Health documented large disparities in oral and pharyngeal cancer incidence and mortality, with Black/African American males having the lowest 5-year survival rate of any group. • Identify the presence and level of specific microbes in initially periodontally healthy subjects who develop Localized Aggressive Periodontitis (LAP), a condition that affects approximately 70,000 U.S. adolescents, largely

NIDCR	from underserved groups, to identify factors predictive of the disease. If untreated, LAP can lead to rapid bone destruction and localized tooth loss.
NIDDK	• Support the Multiethnic Study of Type 2 Diabetes Genes consortium to plan sequencing and genotyping experiments in individuals from several populations, including Hispanic, East Asian, South Asian and African origin populations. • Continue evaluations of genomic studies to identify genes associated with the development of obesity in the Pima Indian population, conducted by the Phoenix Epidemiology and Clinical Research Branch of NIDDK. • Support the research goals of the Family Investigations of Diabetes and Nephropathy (FIND) study, to acquire sets of families as well as case-control sets with well-characterized diabetic nephropathy, establish a secure master database, and to localize and identify genes that influence susceptibility to diabetic nephropathy and end stage renal disease. • Support an ancillary study in the *Treatment Option for type 2 Diabetes in Adolescents and Youth (TODAY)* study for investigators to collect 2000-3000 genetic samples that could be used to better understand why some youth develop type 2 diabetes at such a young age. • Identify and characterize genetic determinants of autoimmune-mediated renal diseases, evaluate inciting antigens triggering the immune response leading to renal injury and disease, and assess the biologic role of mediators in amplifying the renal autoimmune response. In addition, the link of these events to kidney fibrinogenesis or to mechanisms of repair and resolution are critical to delineating pathways that might abrogate disease progression. • Support research investigations aimed at understanding the regulation of fetal globin gene transcription in a stage-specific manner, and the identification of molecules that may be used as drugs to enhance the levels of fetal hemoglobin (HbF) in the circulating red blood cells of children and adults with hemoglobin disorders. • Assess the best methods to assess iron overload in patients with hemoglobinopathies that require multiple transfusions for therapy and develop improved iron chelating drugs for removal of excess body iron. • Determine the role of nitric oxide in preventing the microvascular disease of sickle cell anemia.
NIEHS	• Continue to support the trans-NIH Genes, Environment, and Health Initiative with the goal of determining the etiology of common diseases by focusing on genetic and environmental factors that increase the risk of these diseases and the interaction among these factors.

NIGMS	• Continue ongoing support for the Human Genetic Cell Repository, which contains cell and DNA samples that allow investigators to study the causes of a large variety of genetic disorders, some of which disproportionately affect minority populations. Among these are samples for the study of adult-onset diabetes, sickle cell anemia, and glucose-6-phosphate dehydrogenase (G6DP) deficiency. The Repository has been acquiring and distributing DNA samples and cell cultures donated by ethnically and geographically diverse communities to create panels of cell lines representing the genetic variation seen in apparently healthy African American, Mexican American, and Asian American populations in the U.S.
NIMH	• Continue to support genomics research in underrepresented populations • Encourage research projects that address the health disparities aspects of the "early life programming" field • Support a small conference to review and synthesize what is known about the impact of cultural diversity on the developmental trajectories of mental illness • Host a workshop to bring together researchers from the neuroscience, developmental, and clinical fields to identify knowledge gaps in the biological mechanisms underlying the association between early adverse experiences and later mental health consequences in children and adolescents.
NIMHD	• Continue to support and promote genetics and biological research in health disparity populations through collaborations with other NIH ICs, other federal agencies, and NIMHD initiatives, such as through the investigator-initiated research grant awards (R01) mechanism. • Continue to participate in the Phenotype and eXposure (PhenX) activities, recommend toolkit measures for Genome-wide Association Studies (GWAS), and contribute to the integration of genetics and epidemiology in health disparities research.
NINDS	• Encourage and continue to support research to identify and understand neurological disease biomarkers for populations at risk. • Within ongoing stroke surveillance studies to define the parameters and prevalence of stroke disparities, continue to support collection and use of DNA for genetic studies. • Continue to support and encourage new research to identify the genetic and biological causes of health disparities for different stroke subtypes and in different racial and ethnic minority populations. • Conduct research to investigate the potential impact of genetic risk factor variation on treatment strategies for secondary stroke prevention.

OAR	• Study the biological (including genetic), physiological, and environmental factors that affect HIV acquisition, transmission, and disease progression among racial and ethnic individuals. • Continue to support ongoing research that examines the behavioral, biological, cultural, and social factors that affect HIV risk, acquisition, and transmission in racial and ethnic older women. • Explore the effects of hormonal replacement and its biological impact upon racial and ethnic minority transgendered individuals and risk of HIV acquisition and transmission. • Evaluate the effect of race/ethnicity and gender upon immune dysfunction and the development of opportunistic infection. • Determine the effect of race/ethnicity and gender upon p-glycoproteins and their role in the individual response to HIV therapy and the development of HIV drug resistance. • Explore the role of preexisting health conditions disproportionately found in racial and ethnic minorities, such as cardiovascular disease, diabetes, and hepatitis, upon HIV disease course and progression. • Examine the impact of alcohol, drug use, and chronic medical and neuropsychiatric co-morbidities on the success or failure of HIV clinical interventions and HIV disease progression in racial and ethnic minorities. • Determine the impact of race-related factors on HIV risk in understudied indigenous populations, including Native Americans, Alaska Natives, Pacific Islanders, and Native Hawaiians.
OBSSR	• Fund the development of the Social Environment Domain of the PhenX toolkit (Consensus Measures for **Phen**otypes and e**X**posures) and thereby contribute to the prioritization and use of measures of social determinants of health within Genome-wide Association Studies (GWAS) and studies of gene-environment interplay. This toolkit domain will enhance the relevance of genome-wide association studies and other genomics studies to disparities populations, including those that are studying genetic and environmental components of diseases with a health disparity element.

B. BEHAVIORAL AND SOCIAL SCIENCES

In addition to its substantial commitment to basic genomic and biological research, NIH conducts and supports an extensive, wide-ranging portfolio of research aimed at improving outcomes among health disparity populations. This is where the ICs take action to ameliorate the complex and often intransigent problems associated with health disparities, whether to prevent or treat specific diseases and conditions, or to intervene to affect positive changes in the conditions leading or contributing to health disparities, including behavioral factors influenced by social, cultural, environmental, or socioeconomic forces.

Evidence supports the facts that many acute and chronic diseases can be prevented, detected early through screening, or at least have their disease burden decreased by the adoption and maintenance of specific health behavior and lifestyle changes. Understanding the multiple variables that influence the adoption of healthy behaviors, and the individual, interpersonal, social, and cultural factors that can inhibit or promote change can provide a guide for developing successful interventions in both inpatient and outpatient settings. NIH research has yielded significant advances in treatment modalities for the entire spectrum of diseases and conditions affecting health disparities populations, helping to improve outcomes and relieve disease and disability burdens.

Objectives:

1. To identify modifiable risk and protective factors for diseases and conditions that affect health disparity populations.
2. To develop population-appropriate methods using behavioral and social science for screening and identification of markers for those at risk for onset or progression of diseases/disorders, or at risk for adverse high-risk behaviors.
3. To develop and evaluate individual or group-level interventions to promote health of individuals or populations.

IC	Activities
CC	• Explore the physiologic and psychosocial correlates of pain and symptom management in chronic diseases within diverse, vulnerable, and underserved populations. • Develop and test integrative, multi-modality, self-care interventions that optimize health in the context of the whole person (e.g., physical, psychosocial, and spiritual).
NCCAM	• Support investigations into understanding and reducing health disparities through *Behavioral and Social Science Research on Understanding and Reducing Health Disparities (R01) and (R21)* funding opportunity.
NCI	• *Improving Effectiveness of Smoking Cessation Interventions in Low-Income Adult Populations Initiative* promotes research that develops and tests interventions to improve smoking cessation in low-income populations. The intent is to stimulate intervention research to develop an evidence base on which to dramatically increase quit rates among low-income adults. Results may help to answer how individual, quit-line, and/or health care system-based treatments of tobacco dependence be personalized for low-income smokers;

NCI	how modifications to existing treatments contribute to overcoming barriers to participation in treatments; and how to address social (e.g., social networks, social ties, discrimination, historical factors) and other contextual (e.g., culture, tobacco control policies) factors known to affect smoking in low-income adults in order to enhance smoking cessation. • The *State and Community Tobacco Control Policy and Media Res*earch *Initiative* will fund research to assess effectiveness of State and community tobacco control policy and media interventions. This project will address numerous issues related to cancer disparities, including examination of unintended consequences of tobacco product price increases; impact of tobacco industry offers (e.g., coupons, discounts, and price promotions), and determining whether response to price changes varies by age, race/ethnicity, socioeconomic status, and other variables; how regulation of tobacco products, their promotion, and distribution affects tobacco consumption; the degree to which price increases affect emerging tobacco markets (e.g., cross-border sales, sale of "little cigars," street-corner/in-store sales of single cigarettes, smuggled/counterfeit tobacco); and, in turn, how these practices impact tobacco use across diverse communities.
NHGRI	• Continue to foster basic and applied research on the ethical, legal, and social implications of participating in genetic and genomic research by individuals, families, and communities who are affected by health disparities. NHGRI will support studies that explore how different individuals, cultures, and religious traditions view the use of genomics and willingness to participate in genomic research (e.g., privacy, institutional barriers, costs, stigmatization, trustworthiness of researchers, and diversity of research workforce). • Conduct and support research to understand behavioral or social processes that predict or influence translations of genomic discoveries to health promotion and disease prevention. NHGRI will also support research on the communication of genetic risk to family and communities with a focus on health disparity populations. • Support research assessing the role of health literacy in responses to genetics-informed interventions aimed at promoting healthy lifestyles.
NHLBI	• Support research to understand and develop behavioral interventions to address dietary behavior, obesity, weight loss, blood pressure and asthma control.
NIA	• Enhance research that would impact the health of minority populations by effectively using data from the *Health and Retirement Study (HRS),* a multidisciplinary, longitudinal study which has become known as the Nation's leading resource for data on the combined health and economic conditions of older Americans. • Support the R*esource Centers for Minority Aging Research (RCMAR)* established to: decrease health disparities by increasing the number of

NIA	researchers who focus on the health of aging minority populations, enhance the diversity in the professional workforce by mentoring minority academic researchers for careers in minority elders health research, improve recruitment and retention methods used to enlist minority elders in research studies, create culturally sensitive health measures that assess the health status of minority elders with greater precision, and increase the effectiveness of interventions designed to improve their health and well-being. http://www.nia.nih.gov/ResearchInformation/ExtramuralPrograms/BehavioralAndSocialResearch/RCMAR.htm • Continue to support the NIH-*Study of Women's Health Across the Nation (SWAN)* which has an overall goal to describe the chronology of the biological and psychosocial characteristics that occur during midlife and the menopausal transition. SWANs clinical study sites have potential to positively impact the health of older women and is greatly enhanced due to its diverse cohort consisting of African American, Caucasian, Chinese American, Hispanic, and Japanese American women. http://www.nia.nih.gov/ResearchInformation/ScientificResources/SWANdescription.htm • Support the research goals of the *Genetic Epidemiology of Alzheimer's Disease in Hispanics* study to identify genetic variants that increase the risk of Alzheimer's disease (AD) and further characterize and define the genetic defect in the predisposing receptor utilizing a unique minority cohort of Caribbean Hispanic ancestry affected by AD.
NIAAA	• Identify which behavioral therapies work in diverse health disparity populations and understand how these interventions are best adapted, where necessary, to address their specific needs. Support research to evaluate the efficacy and effectiveness of established behavioral/psychosocial and pharmacological treatments for alcohol abuse and alcoholism in minority populations and to develop and test new approaches hypothesized to enhance treatment outcomes in these populations. • Encourage researchers to submit applications on *Behavioral and Social Science Research on Understanding and Reducing Health Disparities*. • Encourage and support the secondary analysis of data obtained under NIH-supported research pertinent to understanding the epidemiology and etiology of alcohol use and abuse in racial/ethnic, rural and low socioeconomic populations, included analysis by gender and age.
NIAID	• Work with other programs within NIH to foster research on the behavioral and social aspects of vaccine interventions in preventing HIV infection. • Examine the prevalence of high-risk behavior (including commercial sex work and exchange of sex for drugs) and barriers to medical care among adolescents and women in order to design effective HIV risk reduction interventions.

NIAID	• Develop studies to examine strategies for diagnosing and preventing sexually transmitted infections (STIs). Evaluate the acceptability of products such as topical microbicides as approaches to STI prevention and control. • Collaborate with CDC and/or other agencies to identify factors and strategies for implementation of vaccines or other interventional studies as strategies against STIs in minority populations and adolescents.
NIBIB	• Support the *Basic Behavioral and Social Science Opportunity Network (OppNet)*, a trans-NIH initiative to expand funding of basic behavioral and social sciences research. Funding includes research aimed at reducing and eliminating health disparities related to HIV/AIDS.
NICHD	Support rigorous epidemiological and clinical research to clarify the biologic and social etiologies of health disparities in preterm births through multidisciplinary, collaborative research. An example of this research follows: *Vitamin D: A Link to Racial Disparities in Birth Outcomes* is a reproductive epidemiologic study designed to examine the association between maternal vitamin D status, inflammation, and polymorphisms in genes involved in vitamin D metabolism. The risk of spontaneous preterm birth and preeclampsia will also be examined. • Support research efforts to understand the antecedents, etiology, and outcomes of violent behavior in youth, with the goal of identifying different pathways from exposure to outcomes. An example of this research follows: *Identifying Protective Factors that Reduce Violence among Maltreated Youth* identifies factors that prevent and/or buffer youth perpetration of aggression, delinquency, and violent behaviors. • Continue to perform research which explains the association between environmental and geographical factors and genetic, behavioral, and social forces that contribute to the rates of Sudden Infant Death Syndrome (SIDS) which remain disturbingly high among American Indians (AIs), Alaskan Natives (ANs), and African Americans. These include such studies as: The *Prenatal Alcohol in Sudden Infant Death Syndrome and Stillbirth (PASS) Network* aims to decrease fetal and infant mortality and improve child health in communities at high risk for prenatal maternal alcohol consumption. The *Perinatal Assessment of At-Risk Populations* investigates the role of physiological, behavioral, genetic, and environmental factors in SIDS in order to develop age-appropriate, non-invasive tests that will identify infants who are at greatest risk for SIDS. • Support studies to examine the behavioral, cultural, and environmental factors related to disparities in SIDS, with the goal of using the "Back to Sleep" campaign to improve the success of this and other SIDS interventions in health

NICHD	disparity communities. An example of this research follows: *Study of Attitudes and Factors Affecting Infant Care* uses a national representative sample to examine trends in infant sleep practices with a goal of understanding non-adherence to infant sleep recommendations, particularly among populations with high rates of SIDS. • Conduct studies inside and outside of the Maternal Fetal Medicine Units (MFMU) Network to examine the multiple causes of post-neonatal mortality. These include such studies as: *NICHD Maternal Fetal Medicine Units Network* at Northwestern University Medical School conducts clinical trials on preterm delivery and other conditions leading to neonatal mortality and morbidity. *Adverse Outcomes in Nulliparous Pregnancies: The Ohio Collaborative* seeks to understand clinical, biological, and demographic predictors of pregnancy complications among nulliparous women as a means of identifying women at-risk for perinatal morbidities and mortality. Understand the association between the etiology, pathophysiology, and related social and behavioral factors leading to preterm births and low birth weights, with the ultimate goal of developing strategies for preventing preterm birth in minority populations. These include such studies as: The study *Physiological Reactivity to Acute Stress during Pregnancy* seeks to identify women at a greater risk of negative perinatal outcomes; examine the role of physiological reactivity to acute stress with preterm birth; and design interventions to reduce the effects of stress and promote healthy pregnancy and fetal development. The *Impact of Social Factors on the Effectiveness of a Preconceptional Program* seeks to identify specific social exposure that influences participation in preconceptionally delivered preterm birth prevention interventions. • Support the addition of biological and contextual measures to existing social science studies, (including community based participatory projects) and explore mechanisms for stimulating interdisciplinary partnerships. An example of this type of study includes: The *Community Child Health Network (CCHN) Phase II* which *investigates* biomedical, social, behavioral, and environmental influences on the course of prenatal development, pregnancy outcome, early child development, respiratory function, and language development regarding the etiology and impact of health disparities related to pregnancy and early childhood outcomes. • Support studies that focus on the interplay of biological, behavioral, and social factors on the health and well-being of racial and ethnic minority populations,

NICHD	with a special focus on women and children. These include such studies as: *Gene Polymorphism, Infection/Inflammation, Preterm Birth* investigates the role of infection/inflammation, genetic susceptibility, and gene-environment interactions in determining preterm disparities among multiple racial groups (i.e., Black, White, and Hispanic) in the United States. *Impact of Racism on Risk of Preterm Birth in Black Women* examines the role of perceived racism and neighborhood characteristics (e.g. segregation) in preterm birth among Black women. *Literacy and Maternal Health: Defining Obstacles to Care* examines the association between maternal literacy and barriers to utilizing pediatric care among low income, inner-city women.
NIDA	• Encourage and support the secondary analysis of data obtained under NIH-supported research pertinent to understanding the epidemiology and etiology of drug abuse and addiction in racial/ethnic minority populations, including analyses by gender, socioeconomic status, and age. • Encourage research to develop and test behavioral treatments that are culturally and gender sensitive and relevant for racial/ethnic minorities. • Encourage research to develop validated, reliable clinical screening and assessment instruments in languages other than English for use in clinical research with non-English speaking subjects. • Develop culturally appropriate prevention interventions and guidance on how to adapt "generic" prevention models for specific minority and health disparity populations.
NIDCD	• Support research to identify behavioral markers of normal and atypical development from two different minority populations, in order to better identify children at risk of developing autism.
NIDCR	• Support behavioral and social science research that identifies the mechanisms by which behavioral and social factors contribute to oral health, especially where this research can address the needs of special populations in whom disparities in health have been identified. • Assess African refugees' functional health literacy in English and its impact as an independent mediator of oral health outcomes in order to determine the relationship of basic English language literacy with oral health clinical outcomes, including dental caries and periodontal disease. • Support interventional, dissemination, and implementation research to reduce or eliminate oral health disparities in oral infections and their complications. • Prevent oral disease in Latino children through a grant that proposes pilot work to develop and examine the acceptability and feasibility of a culturally

NIDCR	appropriate educational intervention for parents of Latino children. The intervention will be delivered by community-based Latina lay health workers, who are called *promotoras*. The intervention is aimed at reducing oral health disparities caused by early childhood caries (ECC), a particularly devastating form of dental caries that is highly prevalent among low-income, preschool-aged Latino children. • Develop culturally appropriate educational and health promotional materials to emphasize the value of family oral health from birth, and to demonstrate the effectiveness of this intervention in a randomized trial designed to assess its impact on the prevention of ECC. • Support research to enhance knowledge of oral health disparities through single, *ad hoc* epidemiologic and other sentinel studies. • Address the relationship between birth weight and early childhood caries (ECC) in a cohort of pre-term very low birth weight and full-term normal birth weight infants. • Describe patterns of oral disease and treatment challenges observed in the estimated 7,000 adult, developmentally disabled patients who receive dental care from a unique comprehensive dental care system. • Support the oral health component of the NHLBI-sponsored *Hispanic Community Health Study/Study of Latinos (HCHS/SOL)*. • Co-sponsor with other NIH components and AHRQ program announcements regarding health literacy, with the goal of encouraging trans-disciplinary teams of scientists and practice stakeholders to work together to develop and/or test conceptual models of dissemination and implementation that may be applicable across diverse community and practice settings, and to design studies that will accurately assess the outcomes of dissemination and implementation efforts. • Support research grants to increase scientific understanding of the nature of health literacy and its relationship to healthy behaviors, illness prevention and treatment, chronic disease management, health disparities, risk assessment of environmental factors, and health outcomes including mental and oral health. • Conduct and support health communications research to better understand the oral health information needs and preferences of minorities, the underserved, and special needs populations. • Develop and test oral health messages and materials including: 1) Spanish-language oral health information for caregivers of people with developmental disabilities; 2) oral complications of HIV/AIDS; and 3) prevention of early childhood caries for American Indians and Alaska Natives.

NIDDK	• Support the research efforts of the *Longitudinal Assessment of Bariatric Surgery (LABS)* and *Teen-LABS* consortia, using standardized data collection procedures on patients undergoing bariatric surgery at the participating clinical centers. • Support the research efforts of the *Chronic Renal Insufficiency Cohort Study (CRIC)* to recruit and follow a large sample of individuals with impaired renal function in order to: 1) establish the prognostic implications of proteinuria and elevated serum creatinine; 2) determine the risk factors for rapid progression of renal disease, and 3) determine the risk factors among patients with renal disease for development of cardiovascular disease. • Support the research efforts of the *African American Study of Kidney Disease and Hypertension (AASK) Cohort Study*, which seeks to determine prospectively the long-term course of kidney function and risk factors for kidney disease progression in African-Americans with hypertension-related kidney disease that receive recommended antihypertensive therapy. A secondary objective is to determine the occurrence of cardiovascular disease and assess its risk factors in the setting of hypertension-related kidney disease. • *The Chronic Kidney Disease Translation to Community* project includes the initiative: "Planning Grants for Translating Chronic Kidney Disease (CKD) Research into Improved Clinical Outcomes (R34)". The funding opportunity announcement encourages Clinical Trial Planning Grant (R34) applications from institutions/organizations to test the effectiveness of interventions for the prevention, treatment and management of chronic kidney disease (CKD) that have a high likelihood of being widely adopted, and sustained in a wide range of health care settings and in individuals and communities at highest risk.
NIMH	• Continue to support the *Study to Assess Risk and Resilience of Service Members (Army STARRS)* which is the largest study of mental health and suicide in military personnel designed to inform ongoing health promotion, risk reduction, and suicide prevention efforts. • Support research that provides empirical and theoretical bases for tailoring and adapting mental health interventions to ethnic and racial minority communities, as well as rural communities.
NIMHD	• Support behavioral and social sciences research targeting health disparity populations through the *Health Disparities Research* and the *Social Determinants of Health* research programs. • Promote health literacy research to ensure effective communication of health information to health disparity populations. • Foster behavioral and social sciences research through cooperative agreements with academic institutions and private/non-profit community-based organizations.

NINDS	• Continue to support ongoing stroke surveillance studies and other clinical research projects to define the parameters of stroke disparities, including prevalence, incidence and treatment, or to establish long-term stroke outcomes in different minority populations and underserved communities. Also, determine the contributions of stroke risk factors and lifestyle influences on stroke health disparities. • Conduct research to understand behaviors and influences that may serve as intervention targets to decrease stroke, improve outcomes, or promote vascular health. • Develop and test educational interventions for adults and children regarding stroke signs and treatment with the goal of behavior change that leads to improved health. • Understand the racial, ethnic, and socioeconomic factors that underlie the markedly increased stroke mortality in the Southeastern US region known as the Stroke Belt.
NINR	• Develop and test new, or refine existing interventions focused on promoting health and/or preventing disease in health disparities populations across the continuum of chronic disease and other illnesses. • Support research efforts to better characterize and understand preferences regarding palliative care at the end-of-life or at times of life-threatening illness, including such preferences in health disparity populations.
NLM	• Support research efforts relating to the ways computers can be used to assist health disparity populations make informed decisions about their health. Research topics of interest include computerized health literacy tools for information organization, visualization and decision-making. • Conduct health literacy studies with physicians and patients in health care clinical settings. • Conduct health literacy studies with home visitation workers and patients or their caregivers in home visitation settings.
OAR	• Conduct projects that identify practical and cost-effective HIV prevention interventions for racial and ethnic communities, including for those in a sexual minority within these communities. • Support ongoing research to examine the influence of race, ethnicity, language fluency, and gender, independently and collectively, upon the social and cultural contexts of HIV acquisition, transmission, and risk. • Incorporate implementation science in the development of HIV prevention interventions for racial and ethnic populations to facilitate prompt scale-up and delivery of effective interventions.

OAR	- Support efforts that identify the factors that reliably predict the level of community readiness to engage with HIV prevention or other research interventions. Explore the impact of the intersection of residential segregation, poverty, and community isolation upon HIV acquisition and transmission in racial and ethnic populations. - Examine the impact of intergenerational trauma upon HIV-risk behavior and HIV resiliency in indigenous domestic populations, including Native Americans, Alaska Natives, Native Hawaiians, and Pacific Islanders. - Assess the impact of acculturative stress and historical trauma upon HIV-risk behavior and HIV-health-seeking behavior among individuals in communities disproportionately affected by the HIV epidemic, including racial and ethnic populations. - Develop, pilot, and test new models of HIV behavioral interventions that incorporate common stressors and experiences in racial and ethnic communities, including acculturation, racism, and stigma. - Study the impact of social and sexual networks upon HIV resiliency and risk in racial and ethnic populations. - Conduct basic behavioral research on the determinants of HIV risk, including substance abuse and underlying health disparities, in racial and ethnic minority transgendered individuals and their social networks. - Identify factors that increase HIV risk among racial and ethnic minority transgendered individuals, and develop, pilot, and test models of HIV prevention that reduce or eliminate those factors. - Support the identification of the behavioral, biological, cultural, and social factors that affect HIV risk, acquisition, and transmission in racial and ethnic older women. - Evaluate interventions that incorporate traditional and indigenous medicines and/or medical practices that encourage adherence to prevention and/or treatment protocols. - Identify successful interventions to increase access to and quality of care in racial and ethnic communities, and assess the impact of increased care upon HIV transmission in these communities. - Evaluate models for HIV prevention, care, and treatment that utilize comprehensive, culturally and contextually appropriate interventions for HIV-infected individuals in disproportionately affected communities.

OBSSR	• Support high quality research projects on health literacy. • Support scientific meetings on the research agenda for health literacy. • Contribute to Phase II of the NICHD-led Work, Family, Health and Well-Being Initiative to evaluate the health benefits of workplace policies and practices.

C. CLINICAL AND TRANSLATIONAL RESEARCH

The tremendous advances seen in recent years in genetics, the "-omics," and the other biomedical sciences have created vast new knowledge and exciting new approaches to improving health and well being, but until they reach the affected populations, they have not fulfilled their promise. Therefore, NIH supports substantial and wide-ranging research and application efforts to ensure effective translation of biomedical and other relevant discoveries into the communities where they will be effective.

Translational research transforms scientific discoveries arising from laboratory, clinical, or population studies into clinical applications to reduce the incidence, morbidity, and mortality of diseases and health conditions.

It is well known that some diseases react to treatment differently in minorities than in whites, but the reasons for these differences are typically unknown. In addition, diagnosis of disease often occurs at a later stage in individuals who are members of minority groups, live in rural areas, or are of low socioeconomic status. Moreover, standard clinical practice guidelines are often inadequately used, especially in the treatment of minorities, women, and the elderly. By supporting clinical trials, clinical studies, and networks of clinical research centers, and by striving for high levels of minority participation in its clinical studies, the NIH focuses on diagnostic and treatment issues that contribute to health disparities.

Emphasis is placed on understanding differences in disease presentation in subpopulations; achieving accurate and timely diagnosis; predicting the likely clinical course in individuals; establishing the safety and efficacy of treatments; and improving use of clinical practice guidelines.

To illustrate the translation of NIH research results to clinical use in a health disparity population, consider the Inner-City Asthma Consortium (ICAC), a nationwide clinical trials network designed to evaluate the safety and efficacy of promising immune-based asthma treatments with the goal of reducing asthma severity and preventing disease onset in inner-city children. The ICAC continues to conduct research on novel immune-based therapies to prevent and treat asthma; develop and validate biomarkers to measure disease stage, progression, and therapeutic effect; examine the contributions of genetics and environmental exposures to the pathogenesis of asthma in the inner city; conduct research to understand the ontogeny of asthma in inner-city children; and conduct clinical trials to improve asthma control and reduce asthma morbidity in inner-city children. The current ICAC network is comprised of eight clinical research and two basic research sites. It is truly a "bench to bedside" endeavor, as are so many NIH initiatives. Epidemiological research is another important element in the NIH health disparities research enterprise, providing crucial data to characterize the existence, extent, and progression of health disparities, and vital information about their prevalence in specific subpopulations or geographic areas. These investigations help to bridge the gap between basic and translational research and the effective application of interventions.

Objectives:

1. To advance the health disparities research agenda through translational and transdisciplinary research approaches, including community and population health intervention studies that integrate disease prevention with modifiable determinants of health.
2. To support and/or conduct research on the health outcomes over the life span that is impacted over the life course, including early programming and cumulative pathways through adulthood.
3. To support and conduct research to address the conceptual, definitional, and methodological limitations of health disparities research through improved measurement models, quantitative and qualitative data collection, analysis, tracking, and evaluation.
4. To support research investigating and understanding the use of complementary and alternative modalities and its role in seeking and adhering to conventional medicine.
5. To increase the understanding of effective strategies for communicating information about genetic risks.
6. To examine social and behavioral processes of health disparities in the translation of genetics and genomics in clinical practice.
7. To translate research findings into specific clinical guidelines and associated implementation materials in order to reduce health disparities for specific diseases and conditions.

IC	Activities
NCCAM	• Support research projects addressing health disparities through the *Outcomes, Cost-Effectiveness, and the Decision Making Process to Use Complementary and Alternative Medicine (R01)* funding opportunity. • Collaborate with other NIH ICs to provide an opportunity to expand knowledge of traditional and cultural healing practices and complementary and alternative medicine (CAM) use among a multitude of disease areas as well as understanding the use within the medically underserved populations and their subgroups. • Reach out to scientists engaged in health disparities research to encourage research collaborations on studies aimed at understanding the use of CAM and traditional health practices, when they are used, and whether this contributes to adherence to conventional practices or delays seeking conventional medicine

NCCAM	• Participate in several funding opportunities that encourage studies to examine CAM use and its potential role in benefiting or hindering the most effective treatments. • In addition to participating in these funding announcements actively support research on studies of asthma, cardiovascular disease, diabetes, and HIV/AIDS. • Continue to attend scientific meetings that address health disparity conditions, bringing knowledge and tools to appropriately address CAM use and traditional healing practices that are incorporated into the underserved communities' approach to health care.
NCI	• Investigate disparities in use and outcomes of cancer screening by a variety of factors such as age, socioeconomic status (SES), and race-ethnicity. *Population-based Research Optimizing Screening through Personalized Regimens (PROSPR)* will provide data to address these issues and will evaluate performance of cancer screening within clinical practice across diverse populations. • *Minority Based Community Clinical Oncology Program* addresses the access to health care component of cancer health disparities by making the state-of-the-art cancer clinical trials available to rural, racial/ethnic and other underserved populations. The Program also targets cancer health disparities by proactively increasing the participation of minority and underserved patients in cancer clinical trials, where minorities have been historically underrepresented. • The *Mississippi Delta Project* is assessing efficacy and acceptability of cervical cancer screening based on self-collection and HPV DNA testing of cervico-vaginal specimens from women aged 26 years and older residing in the Mississippi Delta. • The *Comprehensive Partnerships to Reduce Cancer Health Disparities (CPRCHD) Program* funds research projects that span the cancer research continuum. Clinical research is an area of research where the Partnerships engage in unique opportunities to access hard-to-reach populations such as medically underserved racial/ethnic and socio-economically disadvantaged populations.
NCRR	• Increase the opportunity for multisite clinical and translational research among minority and other collaborating institutions through the *Research Centers in Minority Institutions Translational Research Network (RTRN)*
NHGRI	• Bring together experts from transdisciplinary backgrounds and community-based organizations whose work is important to understanding the causes of health disparities. Explore the interplay of the environment, social determinants, and genomics in health disparities, with the goal of identifying research needed to illuminate these issues further.

NHGRI	• Advance knowledge of the rare genetic disorder Hermansky-Pudlak syndrome-1, which largely affects Puerto Rican native populations. • Support clinical research of medical sequencing in health disparity populations to examine the relative contributions of rare versus common variants to the architecture of common disease and health conditions, and pilot procedures for translation of medical sequencing to address generating data, interpreting these data, and develop approaches for the medical and counseling challenges of utilizing the relevant data for clinical research • Support research in existing and new, large epidemiological studies, including those with a significant proportion of individuals from health disparity groups, with standardized measures of health, disease risk factors, and potential disease, and many with long-term follow-up for disease occurrence and progression.
NHLBI	• Determine how to translate efficacious smoking cessation interventions into effective programs for implementation in routine clinical care, and to assess their cost effectiveness. • Convene an expert panel to develop sudden cardiac death clinical practice guidelines, which will serve as the foundation of evidence-based treatment and will be used to create and implement practice, patient, and community-based strategies to improve clinical practice and patient adoption of the guidelines, as well as to stimulate outreach and education activities to heighten community/family awareness of the disease. Promote and maintain support for the following ongoing major research studies: • *Translating Basic Behavioral and Social Science Discoveries into Interventions to Reduce Obesity* is aimed at translating findings from basic research on human behavior into more effective clinical, community, and population interventions to reduce obesity and improve obesity-related behaviors. • *Atherosclerosis Risk in Communities (ARIC)* investigates the association of cardiovascular disease (CVD) risk factors with development of atherosclerosis and CVD in an adult population. *Coronary Artery Risk Development in Young Adults (CARDIA)* determines the evolution of congenital heart defect (CHD) risk factors and lifestyle characteristics in young adults that may influence development of risk factors prior to middle age. • *Multi-Ethnic Study of Atherosclerosis (MESA) investigates* the prevalence, correlates, and progression of subclinical cardiovascular disease (i.e., disease detected noninvasively before it has produced clinical signs and symptoms). • *Hispanic Community Health Study (HCHS)* determines the prevalence of and

NHLBI	risk factors for cardiovascular and lung diseases in Hispanic populations and the role of cultural adaptation and disparities in development of these and other chronic diseases. • *National Longitudinal Mortality Study* consists of a database developed for the purpose of studying the effects of demographic and socio-economic characteristics on differentials in U.S. mortality rates. • *Strong Heart Study* compares risk factor levels and morbidity and mortality from CVD among American Indians in three different geographic locations. • Severe Asthma Research Program investigates the mechanistic basis for severe asthma and determines how it differs from mild-to-moderate asthma. • The *Lung HIV Study* is a collaboration of eight clinical centers and a data coordinating center to investigate a broad range of pulmonary topics in HIV-infected patients – including HIV-related chronic obstructive pulmonary disease (COPD), HIV-related pulmonary hypertension, bacterial pneumonias, pneumocystis, and tuberculosis. • The *Lung HIV Microbiome Study* is a collaborative program to investigate the microbiome of the lung and respiratory tract in HIV-infected individuals and HIV-uninfected controls using molecular techniques to identify bacteria, viruses, fungi, and other organisms. • *Reducing Sleep Disparities in Urban, Minority School-Aged Children* evaluates the efficacy of a behavioral intervention designed to increase the knowledge of urban African American parents and children about sleep. Inadequate sleep and untreated sleep disorders in children are associated with sedentary behavior, overweight, decrements in academic performance, and behavior problems. • *Sleep-Health & Knowledge in U.S. Hispanics* investigates the sleep health knowledge of Mexican-American Hispanics. This study will determine whether acculturation to the American lifestyle is detrimental to Hispanics, in terms of adopting positive health behaviors, including healthy sleep behaviors • *Exploratory Studies in the Neurobiology of Pain in Sickle Cell Disease f*osters novel basic and translational research into the neurobiology of pain in sickle cell disease. Particular priority is given to the application of investigational techniques that have been utilized in other pain syndromes in both human and non-human studies. • *Community-Responsive Interventions to Reduce Cardiovascular Risk in American Indians and Alaska Natives* tests the effectiveness of behavioral interventions to promote the adoption of healthy lifestyles and/or improve behaviors related to cardiovascular risk (e.g., interventions that promote weight reduction, regular physical activity, and smoking cessation).

NHLBI	• *Interventions to Improve Hypertension Control Rates in African Americans* evaluates interventions to change the delivery of medical care so as to increase the proportion of treated hypertensive African American patients whose blood pressure is controlled with the goal to prevent complications of hypertension in blacks. • *Partnership Programs to Reduce Cardiovascular Disparities* creates partnerships between research-intensive medical centers and health care systems that serve minority populations to investigate complex biological, behavioral, and societal factors that contribute to cardiovascular disease health disparities; facilitate research within the healthcare system to improve minority cardiovascular health and reduce health disparities; and provide training and development of investigators to study cardiovascular disease in minorities. • The *Pediatric Hydroxyurea Phase III Clinical Trial (BABYHUG)* is a clinical trial examining the prevention of chronic organ damages in infants with sickle cell disease, in particular, the spleen and the kidneys. • *Basic and Translational Research Program (BTRP)* promotes promising initial studies in the basic or translational sciences in sickle cell disease at 12 academic centers. • *Stroke with Transfusions Changing to Hydroxyurea (SWiTCH)* demonstrates that hydroxyurea and phlebotomy can maintain an acceptable stroke recurrence rate and significantly reduce the iron burden in the liver when compared to transfusion (plus iron chelation) in children who have had a prior overt stroke. • *TCD with Transfusions Changing to Hydroxyurea (TWiTCH)* is a Phase III randomized clinical trial to compare standard therapy (red cell transfusions) with alternative therapy (hydroxyurea) for the reduction of risk of primary stroke in pediatric subjects with sickle cell disease and abnormal transcranial Doppler studies (a non-invasive measure of higher risk for stroke). • *Thalassemia (Cooley's Anemia) Clinical Research Network (TCRN)* accelerates research on the management of thalassemia, standardizes existing treatments, and evaluates new ones in a network of clinical centers; minority participation will be approximately 48 percent in the thalassemia registry being developed by the network. The TCRN is currently performing pilot studies on the use of new therapies in the treatment of pulmonary hypertension, and the stimulation of fetal hemoglobin. • *Sickle Cell Disease Clinical Research Network* establishes a network of clinical centers to address critical issues in the care of persons with sickle cell disease by developing a registry and completing phase I-III clinical trials (with emphasis on phase III trials). • *Prevention of Stroke after STOP: A Retrospective Chart Review.* The STOP and STOP II studies provided the first comprehensive stroke prevention

NHLBI	strategy in sickle cell disease supported by Class I evidence (i.e., evidence generated by randomized, controlled clinical trials). The current study will collect additional data on children enrolled in STOP and STOP II, specifically, re-screening with transcranial Doppler (TCD), blood transfusions, and outcomes of stroke and/or conversion to high risk TCD. • *Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL)* evaluates whether medical therapy with stenting of hemodynamically significant (angiographically documented) renal artery stenoses in patients with systolic hypertension reduces the incidence of adverse cardiovascular and renal events compared with medical therapy alone. • *Clinical Research in Peripheral Arterial Disease* develops improved therapeutic and preventive approaches for atherosclerotic arterial diseases of the peripheral vasculature through integrated, multi-disciplinary clinical research projects. The development and progression of peripheral arterial disease (PAD) is affected by age, ethnicity, and the presence of other medical conditions. • *Action to Control Cardiovascular Risk in Diabetes (ACCORD)* evaluates the benefits of different therapies to reduce CVD in Type 2 diabetes. • *Bypass Angioplasty Revascularization Investigation in Type 2 Diabetics (BARI 2D)* evaluates whether urgent revascularization offers an advantage over medical therapy in patients with coronary artery disease and diabetes. In addition, for a given level of glycemic control, determines if insulin-providing drugs offer advantages or risks compared to insulin-sensitizers (drugs that enhance insulin action). • *Reducing Cardiovascular Disease Risk Through Treatment of Obstructive Sleep Apnea* supports two randomized controlled trials in order to acquire preliminary, critical information necessary for designing a Phase III clinical trial to test whether positive airway pressure treatment of obstructive sleep apnea reduces cardiovascular events. • *Childhood Obesity Prevention and Treatment Research Consortium* supports multiple controlled trials to test the efficacy of innovative interventions that address issues germane to the childhood obesity epidemic. The program would have two main foci: (1) prevention of excess weight gain in non-overweight youth and additional weight gain in obese youth, and (2) weight loss in obese youth. • *Examining Effects of Community Programs to Reduce Childhood Obesity* examines outcomes associated with community programs to reduce childhood obesity through policy, environmental, and educational activities addressing energy balance through diet and physical activity. • *Childhood Asthma Management Program (CAMP)* evaluates the long-term

NHLBI	effects of anti-inflammatory therapy compared to bronchodilator therapy on the course of asthma. • *NHLBI Asthma Network (AsthmaNet)* establishes a network of adult and pediatric clinical care centers to determine optimal treatment and management strategies for patients with asthma. Area of emphasis will be to study asthma across the spectrum of ages and disease severity. Protocols and therapy are based on specific asthma phenotypes and genotypes. • *National Asthma Control Initiative (NACI)* is an undertaking of the National Asthma Education and Prevention Program designed specifically to implement evidence-based and best practice approaches to improve asthma care.
NIA	• Address fundamental questions about differences in rates and risk for pathological conditions associated with aging through the research conducted by *Healthy Aging in Neighborhoods of Diversity Across the Life Span (HANDLS)* researchers. The goal of HANDLS is to disentangle the relationship between race, socioeconomic status, and health outcomes. • The NIA Minority Aging Research Study (MARS) is a longitudinal cohort study of more than 350 older African Americans without dementia who agreed to annual clinical evaluations in a study to quantify three common neuropathologic indices including Alzheimer's disease pathology, cerebral infarctions, and Lewy bodies in MARS participants, and examine their associations to cognitive function and clinical risk factors.
NIAAA	• Stimulate research that develops and tests interventions to prevent maternal drinking and fetal alcohol spectrum disorder (FASD) among high-risk minority and low SES populations. In addition, encourage the development and testing of interventions to prevent behavioral problems (including alcohol use/abuse) among affected children. • Solicit opinions from experts in high risk populations on the development of a research initiative to prevent alcohol affected pregnancies in minority populations at high risk for FASD health disparities. • Continue to support existing grants and increase the number of new awards to conduct alcohol-related epidemiologic research focused on specific minority populations and subgroups of these populations. • Continue to encourage and expand emphasis on health disparity focused secondary analysis of existing data sets including whether prevention strategies have differential effects in racial/ethnic communities and the mediators and moderators that produce any varying results. • Support new efforts to adapt existing prevention protocols to health disparity populations based on existing knowledge about such variations.

NIAAA	• Develop a multidisciplinary initiative to establish FASD prevalence (including Fetal Alcohol Syndrome, partial FAS and alcohol-related neuro-developmental disorder) by using integrated, age-appropriate and culturally relevant diagnostic thresholds and case definitions to examine and diagnose children from multi-ethnic/cultural U.S. communities. • Continue research which includes populations with significant numbers of at-risk or HIV-infected minority individuals. • Where possible, expand studies that include large numbers of individuals from racial and ethnic minority groups, such as the *Women's Interagency HIV Study*. • Develop an operations framework to address the planning, testing, and implementation of alcohol-related HIV/AIDS preventive interventions in populations with the greatest need for these interventions, including racial and ethnic minority populations.
NIAID	• Develop initiatives and conduct studies that will identify and foster innovative approaches to answer key basic research and vaccine discovery questions to build a foundation/platform for HIV vaccine development. • Identify a safe and effective HIV vaccine by conducting Phase I-III clinical trials. • Promote the evaluation of a broad range of promising HIV vaccine candidates with different designs in humans. Whenever possible, conduct studies with common protocols, reagents, and assays in order to permit meaningful comparisons of various approaches. • Elucidate mechanisms for the lack of vaccine efficacy and potential increased acquisition of HIV in the STEP Study. • Foster research leading to an understanding of the effect of Ad-5 immunity on immune responses to candidate HIV vaccines containing portions of the Ad-5 virus. • Develop novel strategies to test HIV vaccines in efficacy trials that address the multiple challenges of assessing the impact of HIV vaccines on infection prevention, disease progression, and transmissibility of HIV to uninfected humans. • Continue to refine and implement mechanisms for timely monitoring of safety data from volunteers in HIV vaccine trials. • Advance knowledge of the mechanisms of protective immunity to develop and further improve a range of laboratory assays to evaluate immune responses in blood as well as in mucosal specimens induced by potentially protective vaccines in clinical trials.

NIAID	• Support efforts by the HIV Vaccine Trials Network to improve the capacity to carry out a comprehensive HIV vaccine research agenda, including the conduct of domestic and international clinical trials of the most promising HIV vaccine candidates. • Continue to collaborate with the U.S. Military HIV Research Program and support relevant clinical research and evaluation of candidate HIV vaccines worldwide. • Develop a simple-to-use, rapid HIV point-of-care diagnostic device for use in resource-limited settings that can distinguish HIV-infected from seronegative, vaccinated individuals, as well as identify acutely infected adults and infants. • Foster research on both the natural history and immune response to early HIV infection, in particular those studies leading to the selection of appropriate end points to be considered in vaccine trials. • Expand testing of vaccines in specific populations at increased risk of HIV infection. • Develop a topical microbicide that prevents infection and/or viral replication by both cell-free infectious HIV particles and cell-associated infectious particles, and is safe, non-inflammatory (causing no irritation to the vaginal/cervical/urethral/rectal epithelium), and reduces infectivity of other sexually transmitted infectious agents. • Encourage the development of combination microbicides containing multiple active products that target more than one step in the HIV life cycle relevant to mucosal transmission and/or have activity against other sexually transmitted infections (STIs), in particular those STIs that may potentiate HIV transmission. • Expand efforts to develop rectal microbicides including by the support of research and development of safe and effective formulations and delivery methods. • Support preclinical to clinical translational research and conduct clinical trials to determine the safety, acceptability, effectiveness, and efficacy of the most promising topical microbicide candidates. • Continue to promote NIAID programs for domestic and international researchers to ensure that the best researchers vigorously pursue the most promising approaches against HIV/AIDS worldwide. • Define the mechanisms and risk factors for HIV transmission to children and adolescents as well as risks for disease progression within the framework of clinical studies and trials. • Continue to implement studies to identify safe, practical, and more effective

NIAID	approaches to further reduce mother-to-child transmission (MTCT), especially in resource-poor countries. • Continue to implement studies to define HIV treatment regimens that are safe, limit the development of resistance, and preserve future options for both mother and child. • Continue to provide technical knowledge to ensure prolonged success of MTCT programs for HIV. • Facilitate the development of passive and active immunization to prevent MTCT of HIV. • Support research on the long-term natural and treated history of HIV infection in women, in particular, research that evaluates the impact of antiretroviral therapy (ART) on the clinical course of HIV disease, taking into account long-term exposures to HIV, different combinations of therapies, and various comorbidities. • Conduct research that better defines exposure to therapy in women, including adherence and patterns of ART use in conjunction with pharmacokinetic studies on drug absorption and metabolism. • Investigate the short- and long-term effects of HIV and prolonged exposure to HIV on cardiovascular disease, lipodystrophy, liver disease, neurocognitive function, psychiatric status, substance use, kidney disease, diabetes, and other comorbidities in women. • Characterize concomitant infections (i.e., TB, malaria, Hepatitis B Virus, Hepatitis C Virus, HPV, and Herpes Simplex Virus, etc.) and their impact on HIV disease progression in women. • Assess treatment and prevention strategies for human papilomavirus (HPV) infection in HIV infected women. • Research reproductive issues including the interaction between pregnancy and HIV infection, pregnancy and ART, and changes in reproductive choices related to ART. • Study older populations of HIV-infected women to investigate what pathogenic processes are related to HIV, ART, or the aging process. • Support clinical research on the immunological mechanisms of graft acceptance, acute and chronic graft rejection, and donor-specific tolerance. • Support clinical trials of therapeutic regimens to modify immune and non-immune risk factors that increase the risk of graft dysfunction, graft rejection, graft-versus-host disease (GVHD), and other post-transplant morbidities to improve long-term graft and patient survival.

NIAID	• Support clinical and mechanistic studies to identify differences in immune response genes among health disparity populations, understand differences in their susceptibility to graft rejection as well as to adverse consequences of long-term immunosuppression, and identify differences in the pharmacokinetics of and response to therapeutic interventions. • Reduce the morbidity and mortality of those on waiting lists through research to increase organ availability and develop technologies that improve and prolong the function of failing organs. • Improve the health of live organ donors through increased understanding of the short- and long-term health outcomes. • Conduct clinical trials to evaluate how modified and immunosuppressive regimens affect organ transplant health outcomes in health disparity populations. • Support programs to educate and encourage organ donation by health disparity populations. • Conduct clinical trials in which biomarkers are used to guide withdrawal of immunosuppressive drugs after organ transplantation. • Conduct clinical trials of immune tolerance strategies in adults and children. • Establish and support a collaborative approach to basic research and clinical trials among multiple institutions in various geographic areas, and enhance the exchange of information between basic scientists and clinicians involved in the study and treatment of autoimmune diseases. • Support the design, conduct, and analysis of clinical trials to determine the safety and efficacy of hematopoietic stem cell transplantation as a treatment for multiple autoimmune diseases, including systemic scleroderma. • Support a broad range of investigator-initiated research to elucidate the factors relevant to initiation, maintenance, diagnosis, prevention, and treatment of systemic autoimmune diseases. • Design and conduct clinical trials of immune-based therapies in inner-city children with asthma; continue support of a birth cohort to understand environmental influences on the development of asthma and the immune system; carry out research to study and understand the mechanisms of action of these therapies and their effect on disease; and conduct basic research studies on the immunopathogenesis of asthma in inner-city children. • Support basic and clinical research on the pathobiology of asthma that will lead to a better understanding of the role immune dysfunction plays in the early life origins of asthma in humans.

NIAID	• Support research that will explore the potential benefits of tolerogenic approaches to asthma prevention and treatment. • Continue to support investigator-initiated research projects that address important scientific questions relevant to the pathogenesis, diagnosis, treatment, and prevention of asthma in inner-city children. • Conduct clinical trials and studies in which participants are inner-city children with asthma from racial and ethnic minority populations. • Support and conduct preclinical and clinical research for the discovery of new tuberculosis (TB) vaccine candidates. • Conduct studies to assess the immune responses in animals and humans for promising new TB vaccine candidates to allow development of improved vaccination approaches. • Support studies to understand the human immune response after neonatal vaccination with bacilli Calmette-Guerin (BCG). • Conduct and support clinical trials to evaluate the safety, immunogenicity, and efficacy of new TB vaccines; and to improve vaccination strategies with BCG. • Support and conduct discovery, preclinical, and clinical research for new TB drug targets and drug candidates. • Support and conduct studies to define the critical biochemical pathways in Mtb that may serve as points of intervention against TB with chemotherapeutic strategies using tools that include systems biology, post-genomics, and bioinformatics. • Support and conduct studies to characterize the pharmacological action of existing TB drugs to better understand their individual contributions in a multi-drug regimen during different phases of drug treatment and to develop clinical markers of response to therapy, as well as surrogates of clinical cure. • Support studies in minority and other pediatric populations to optimize TB drug formulation, dosing, and regimen development for this important patient group. • Support and conduct studies for the development of surrogate endpoints for treatment response and clinical cure to simplify TB clinical trials design. • Support trials to define the optimal timing and combination of TB and HIV treatment. • Conduct clinical trials to evaluate safety and efficacy of new TB drugs and improved chemotherapeutic strategies, including existing drugs and combinations of drugs and immunotherapeutic strategies. • Support the development of rapid, reproducible diagnostic strategies for

NIAID	identification of active TB in HIV-infected and non-infected adults and children, as well as for identification of asymptomatic infection. • Continue to support the development of TB biomarkers of infection and disease. • Support the inclusion of diagnostic test evaluation as part of relevant ongoing or planned TB drug and/or vaccine studies • Support studies to develop and/or validate rapid methods to identify drug-resistant (DR) TB. • Expand resources to support preclinical characterization and production of materials and diagnostic prototypes for TB clinical trials. • Support studies to define sensitivity and specificity of promising TB diagnostic strategies in the context of various healthcare settings. • Support and conduct pre-clinical and clinical research, including clinical trials, to develop and test promising hepatitis C virus (HCV) vaccine candidates. This research will include both prophylactic and therapeutic clinical trials of safety, immunogenicity, and efficacy of HCV vaccine candidates. • Support studies to elucidate host and pathogen genetic contributions to HCV infection and disease progression outcomes • Support research on early predictors of both HCV disease progression and sustained response to therapy • Support model system development for HCV infection. • Support the development of new HCV therapeutic modalities. • Support clinical trials of new HCV antivirals, immunomodulators, and therapeutic vaccines. • Assess new, easy-to-administer treatments for syphilis such as single-dose oral therapy that might increase treatment compliance among affected populations • Interact with CDC on research activities related to developing new rapid diagnostics for syphilis. • Interact with WHO on the potential use of new therapies for the treatment of syphilis. • Stimulate vaccine development for STIs caused by bacteria with newly sequenced genomes: Trichomonas vaginalis, Chlamydia trachomatis, Treponema palidum, and Neisseria gonorrheae.

NIAID	• Stimulate the development of vaccines against the organisms that cause STIs. • Identify populations at high risk for HIV acquisition and develop effective interventions for reducing their risk (HPTN 061 and HPTN 064).
NIAMS	• Develop and test mechanism-based treatments (individual or combinations of drugs and biologics), strategies, and/or models of lupus that seek to prevent onset, induce remission (on or off medication), predict and address disease flares, and inform ongoing personalized treatments. • Create a research infrastructure for pediatric rheumatic diseases in children, including the storage of biological specimens and medical data from a wide range of patients, and an informatics framework to facilitate the use of these data in future basic, translational, and clinical research. In addition, establish resources for studying the comparative effectiveness of therapies for pediatric rheumatic diseases, including lupus. • Support basic and translational research on the role of complexes of immune molecules in initiating target organ damage in lupus. • Facilitate research efforts in inflammation of the vasculature, which can be affected in lupus. • Continue the support and coordination of data collection and analysis activities through currently funded projects, such as the Center of Research Translation (CORT) in Scleroderma and the Scleroderma Family Registry and DNA Repository. • Develop therapeutic approaches to scleroderma based on findings from genetics research of differences among subpopulations of disease subtypes and responses to treatment. • Facilitate clinical trials that address control of fibrosis, as the key pathogenic mechanism in scleroderma. • Improve and develop predictive, diagnostic, and treatment approaches for vitiligo. • Design new or improved disease interventions for keloids, particularly for vulnerable populations.
NIBIB	• Solicit projects that will implement and assess systems for the implementation of evidence-informed clinical decision-making, improve the utility of imaging procedures on the basis of evidence and best practices, and maximize benefits of medical imaging while minimizing risks and improving clinical outcome for patients. • Continue to support development and translation of medical technologies that will improve healthcare access and health outcomes of a health disparity

NIBIB	population, including a funding opportunity for small businesses created in partnership with NIMHD, which requires the small business concern to partner with a community clinic to ensure that the specific clinical needs of a health disparity population will be met. • Support projects that will implement and assess systems for informing radiological imaging decisions using evidence-based clinical guidelines. The objectives of this initiative are to accelerate the implementation of evidence-informed clinical decision-making, improve the utility of imaging procedures on the basis of evidence and best practices, and maximize benefits of medical imaging, while minimizing risks and improving clinical outcome for patients.
NICHD	• Support studies to examine the behavioral, cultural, and environmental factors related to disparities in sudden infant death syndrome (SIDS), with the goal of informing the “Back to Sleep” campaign and improving the success of this and other SIDS interventions in health disparity communities. Also, conduct studies inside and outside the Maternal-Fetal Medicine Units (MFMU) Network to examine the multiple causes of post-neonatal mortality, including investigating the reasons for disparities among different racial, ethnic, and socioeconomic groups. These include such studies as: *Perinatal Assessment of At-Risk Populations* aims to understand physiologic mechanisms that underlie SIDS and to develop age-appropriate, non-invasive tests that will identify infants who are at the greatest risk for SIDS. The *Autonomic Reactivity During Sleep Position Thermal Stress* study addresses the interactive relationships among body position during sleep, body temperature, and regulation of cardiovascular function during early development of low birth weight infants. The overall objective is to understand the physiologic mechanisms that underlie SIDS and to develop age-appropriate, non-invasive tests that will identify infants who are at the greatest risk for SIDS. • Develop research that explores the role of prenatal alcohol exposure in the risk for SIDS and adverse pregnancy outcomes, such as stillbirth, and study how they may be inter-related. These include such studies as: • The NICHD supports a multisite Stillbirth Network that studies the *Scope and Causes of Stillbirth*. The *Prenatal Alcohol in Sudden Infant Death Syndrome and Stillbirth (PASS) Network* conducts community-linked studies to investigate the role of prenatal alcohol exposure in the risk for SIDS, stillbirth, and Fetal Alcohol Syndrome in two populations—the American Indians in the Northern Plains and the Cape Colored in Cape Town, South Africa. • Support rigorous basic, pre-clinical, and clinical studies focused on the potential early origins of adult disease. These include such studies as:

NICHD

Biological Imbedding of Early Life tests the hypotheses that stress experienced early in life in low SES environments becomes embedded in the immune system through epigenetic modifications.

The Effects of Docosahexaenoic Acid (DHA) on Fetal Cardiac Outcomes tests the hypothesis that maternal DHA intake (600 mg per day) given during the last two trimesters of pregnancy will increase maternal red blood cell phospholipid DHA and will have a positive influence on fetal cardiac autonomic nervous system regulation.

- Continue to support rigorous epidemiological and clinical research to clarify the biological and social etiologies of health disparity in preterm births through multidisciplinary, collaborative research. These include such studies as:

  The *Maternal-Fetal Medicine Unit Networks* **(**MFMU) aims to increase the understanding of the etiologies of preterm birth, low birth weight, preeclampsia, and other medical complications of pregnancy. The goal of this research is to develop prevention and treatment strategies.

  Pre-Term Birth in Nulliparous Women: An Understudied Population at Great Risk is a study undertaken by a consortium of sites and evaluates genetic and environmental risk factors for preterm birth in nulliparous women.

  The *Genomic and Proteomic Network for Premature Birth Research* is designed to increase the understanding of the pathophysiology of preterm birth.

  Progesterone to Prevent Preterm Birth examines the impact of 17-alphahydroxyprogesterone (17-P) on preterm births.

- Support research studies to better understand the causal relationships between HIV pathogenesis and factors unique to women, including the impact of demographic and social trends on sexual behaviors related to HIV risk in different racial and ethnic populations. The NICHD will design, implement, and evaluate interventions based on the science of social/sexual networks to help prevent the sexual transmission of HIV, especially in high-risk communities, including minorities and teens. These include such studies as: T*The Role of Mucosal Immunity in the Risk of HIV-1 Acquisition during Pregnancy* will determine if the risk of HIV infectivity among uninfected pregnant women will decrease compared to non-pregnant women.

  New data suggest that exclusive breastfeeding (EBF)—no other foods—compared with mixed breast feeding (MBF) may significantly decrease the rates of breast milk HIV transmission while retaining the protective effects of breast milk against pneumonia, diarrhea, and death. Accordingly the study, *Mucosal Determinants of HIV Infection of Infants by Breast Milk,* will identify the biological consequences of feeding practices (EBF vs. MBF).

- Emphasize support for basic, clinical, and translational research addressing the

NICHD	etiology of uterine leiomyoma. These include such studies as: The study, *MRI-Guided High Intensity Focused Ultrasound Ablation of Uterine Fibroids*, will test the novel use of magnetic resonance imaging (MRI). *Comparing Focused Ultrasound and Uterine Artery Embolization* will track changes in pelvic pain and other symptomatic outcomes following treatment with two minimally-invasive FDA-approved techniques for fibroid treatment—uterine artery embolization (UAE) and MRI-guided focused ultrasound surgery (MRgFUS). • Conduct research to identify, develop, and rigorously test multidisciplinary interventions for reducing disparities in academic achievement for racial/ethnic minority populations during the critical developmental period of adolescence and for school-age children with intellectual and developmental disabilities. These include such studies as: *Testing Chicago's School Readiness Project's Impact on Low-Income Children's Outcomes in 3rd – 5th Grade: A 5-Year Follow-Up* uses standardized tests, school records, and reports from parents and teachers to test whether the academic and socio-emotional gains that resulted from a classroom-based intervention, targeting Head Start children with behavioral difficulty, are sustained through early, elementary school. *Race/Ethnicity, Poverty, and Connection Between Child Health and Early Education* will examine how demographic inequalities are transmitted across generations in ways that affect population rates of morbidity and mortality and then to identify potential policy-amenable remedies to this process. Based on the premise that the parent-child relationship serves as the context in which children learn to synthesize the affect, cognition, and behavior needed for positive school adaptation, the study *Parent-Derived Measures of Parenting Competence for Low-Income African Americans* aims to develop two culturally grounded measures of parenting competence that can be used in studies which probe the link between parenting and child outcomes. *Early Development with Williams or Down Syndrome* uses two longitudinal studies to investigate early language and cognitive development in late infancy and in school-age children and a cross-sectional study to investigate socio-communicative development. *Family and School Contexts as Predictors of Early Childhood Latino Development* will examine the ways in which contextual factors interact to influence early development, particularly in relation to behavioral problems and school readiness when children enter school.
NIDA	• Assess, within and across racial/ethnic groups, the magnitude, incidence, and

NIDA	prevalence of drug abuse, analyzing by gender, socioeconomic status, and age. • Identify and assess individual and community/environmental vulnerability, risk and protective factors for drug use and abuse and related consequences in various racial/ethnic populations, analyzing by gender, socioeconomic status, and age. • Develop better sampling methods for hard-to-reach minority populations, more effective ways to reduce survey non-response, and increase the validity of self-reported drug use and associated behaviors, as these may differentially affect racial/ethnic minority populations. • Increase scientific knowledge of health consequences of drug abuse among women and men in racial/ethnic minority groups, including assessment of the magnitude, incidence, and prevalence of HIV/AIDS and other STDs, among other health conditions, and their impact on racial/minority populations; identification of the associated risks and protective factors; and identification of subgroups within racial/minority groups (e.g., homeless, homosexuals, prison inmates) at greatest risk. • Develop appropriate intervention strategies for reducing risk factors among women and men in these groups. • Identify new, simplified, and innovative strategies/approaches and mechanisms to complement and improve traditional approaches for individuals in this population. • Identify and assess issues of co-morbid substance abuse and mental illness across the age span among health disparity populations across and within groups, including analyses by gender. • Determine the drug abuse and HIV/AIDS prevention needs of racial/ethnic minority populations across the life span with specific attention to very early- and late-onset initiation of use and diversity in vulnerability to use across the life cycle. • Examine the effectiveness of mass media prevention/education messages that target specific racial/ethnic minority populations. • Explore how cultural norms and protective and risk factors affect gender differences in responsiveness to prevention strategies. • Encourage studies that focus on co-morbidities. • Review plans for studies to make certain that concerns of racial/ethnic minority, rural and low income populations are adequately addressed.

NIDCD	• Continue to support the Hearing Component of the *Hispanic Community Health Study (HCHS)*, which is a unique opportunity in epidemiology and population-based research in hearing loss. • Support the *CMV and Hearing Multicenter Screening (CHIMES) Study*, on the role of congenital cytomegalovirus (CMV) in the development of hearing loss in children. Identifying asymptomatic children and following their progress to determine if hearing loss develops is a major focus of this research. The CHIMES study will also examine the multicultural aspects of CMV infection and hearing loss in terms of language and cultural differences. • Support the incorporation of standard measures of taste and smell into the *National Health and Nutrition Examination Survey (NHANES)*, a nationally-representative, population-based survey, which will help determine the prevalence of smell and taste disorders in different populations. • Supports research to address the important issue of aphasia treatment for bilingual individuals. • Support research examining the clinical markers of specific language impairment (SLI) in bilingual individuals and dialect speakers, to improve diagnosis and treatment of SLI in bilingual individuals and dialect speakers.
NIDCR	• Identify the primary socio-demographic, clinical, biological, psychological, and genetic risk factors for Temporomandibular disorders (TMD) in a longitudinal study designed to examine risk factors for onset and persistence of TMD. • Support interventions to prevent early childhood caries (ECC) that are appropriate for delivery by public housing and lay health workers, through the Boston University Center for Research to Evaluate and Eliminate Dental Disparities. • Continue follow-up and evaluation of a randomly selected tri-ethnic cohort in Northern Manhattan to determine and quantify the independent contribution of periodontal infections to vascular events and atherosclerosis. • Provide support to the ongoing Diabetes and Periodontics Trial (DPT), a multi-center, randomized, controlled single-masked Phase III clinical trial designed to test whether scaling and root planning is effective in reducing HbA1c of patients with type 2 diabetes and untreated chronic periodontitis. • Test a community-based intervention trial using brief motivational interviewing provided to low-income women during the prenatal and/or postpartum periods to increase utilization of dental care during pregnancy or the postpartum period and to increase utilization of preventive dental care by their young children.
NIDDK	• Maintain American Indian enrollment and participation in the Diabetes Prevention Program Outcomes Study (DPPOS)

NIDDK	• Maintain coordination and collaboration between Diabetes Mellitus Interagency Coordinating Committee (DMICC) member agencies including the Indian Health Service and NIH ICs to facilitate ongoing Special Diabetes Program for Indians (SDPI) success in improving the treatment and outcomes of American Indians and Alaska Natives who have type 2 diabetes. Continue nationwide dissemination activities to make the Diabetes Education in Tribal Schools (DETS) program available to all K-12 schools serving American Indian and Alaskan Native children, and to provide professional training for teachers to implement the K-12 curriculum • Maintain participant enrollment in the DPPOS with focused efforts to retain participants from ethnic and racial minority groups • Continue to evaluate the fidelity and cost-effectiveness of the PLAN4WARD model for group-based delivery of the Diabetes Prevention Program (DPP) lifestyle intervention as it is linked to the routine identification of adults with prediabetes in primary health care settings and when scaled to a national level via the YMCA organization. • Support the *Treatment Option for type 2 Diabetes in Adolescents and Youth (TODAY)* study, to identify the best treatment for type 2 diabetes in children and teens, with a focus on minority youth. • Translate evidence-based approaches to real world settings and populations through the NIDDK Diabetes Research and Training Centers (DRTC) program. with an emphasis on prevention and control strategies, • Hold a translation research investigator meeting in 2011 in conjunction with a translational research design and methodology workshop. These efforts will facilitate stronger investigator partnerships, highlight research advances and outline research approaches that maximize applicability to non-research environments while retaining scientific rigor. • Establish an ongoing program to foster research into health disparities in diabetes mellitus and obesity (as well as other diseases of NIDDK interest) through *Health Disparities in NIDDK Diseases* and *Identifying and Reducing Diabetes and Obesity Related Health Disparities within Healthcare Systems*. • Study surrogate measures of insulin resistance, along with determination of ethnic-specific thresholds, in African Americans, black Africans living in the U.S., and black Africans living in Nigeria, Ghana and South Africa, to develop effective new indexes to screen for type 2 diabetes and CVD in blacks, while simultaneously achieving a better understanding of the metabolic determinants of these diseases • Assess the long-term health impact of interventions designed to achieve and sustain weight loss over the long term through Look AHEAD (*Action for Health in Diabetes*).

NIDDK	• Support clinical studies in lupus nephritis, including a program project evaluating the genetic determinants of lupus nephritis in humans, a pilot project evaluating new potential urinary markers of renal disease in patients with lupus, and a research supplement facilitating the establishment of a collaborative network of investigators that can study effective treatment options for lupus nephritis and other glomerular diseases. • Assess results of a just-completed multi-center, prospective, randomized, double-blind clinical trial in children and young adults with focal segmental glomerulosclerosis (FSGS) to help determine the most effective way to prevent progression of the disease. • Improve the potential of hematopoietic stem cell transplantation for correction of sickle cell anemia • Improve our understanding of Hepatitis B progression through the Hepatitis B Research Network, which will conceive, develop, and implement protocols to study the various types of chronic hepatitis B virus (HBV) infection and consequent liver disease.
NIMH	• Continue supporting nationally representative epidemiologic studies of mental disorders, substance abuse, disability, and service utilization to compare patterns of prevalence and service utilization. • Continue developing Longitudinal Mental Health Tracking System. • Establish protocols for ongoing data analysis and publication of reports on population mental health status that includes the mental health status of health disparity populations • Conduct a "deep review" of the mental health disparities literature, including a systematic review of the *National Health Care Disparities Reports*, and examine the methods-focused publications of the lead investigators in this field • Convene a meeting of lead investigators to reach consensus on the best approach for rigorous, unbiased mental health disparities measurement, including the development of the disparities index and provide funding to support research on developing a disparities index. • Conduct an annual review of the Institute's grant portfolio, particularly in the areas of developmental research, childhood and adult trauma, HIV/AIDS, and adult psychopathology, to ensure that new FOAs continue to encourage research in these areas with these vulnerable populations. • Explore, via continued support for the *Recovery After an Initial Schizophrenia Episode (RAISE)* project, whether using early and aggressive individually-targeted treatment and integrating a variety of different therapeutic approaches can reduce the symptoms and prevent the gradual deterioration of functioning

NIMH	that is characteristic of chronic schizophrenia. • Identify targets for interventions aimed at reducing disparities in the prevalence of mental disorders, using schizophrenia as a case study. • Develop new strategies for expanding the Division of AIDS Research (DAR) research portfolio through the NIH Office of AIDS Research Strategic Plan as well as a targeted set of DAR-specific priorities to address risk factors in African-American and Latino gay men. • Continue to employ standardized measures for assessing the outcome of these new strategies and goals as well as HIV mental health indicators. • Develop new approaches to HIV prevention in minority men who have sex with men (MSM) that supports collaborations between researchers and other relevant partners, including community agencies and consumers, to strengthen research that address disparities. • Continue to seek regular input from DAR stakeholders concerning research initiatives to target disparities. • Continue support for research on mechanisms to explain differences in racial disparities in HIV infection. • Identify priority approaches to pursue more effective HIV prevention. • Continue support for grants awarded in collaboration with CDC.
NIMHD	• Expand on collaborations and develop new partnerships to support population and epidemiologic large population studies that investigate the complex mechanisms underlying cardiovascular and other disparity conditions such as the ongoing *Jackson Heart Study* and *Hispanic Health Study* with NHLBI and the *Sister Study* with NIEHS. • Co-lead the Federal Collaboration on Health Disparities Research (FCHDR) to develop and coordinate a unified health disparities research agenda across Federal agencies. • Develop collaborations with NIH Institutes/Centers to explore research gaps and develop interventions to address the life course approach to health disparities • Support epidemiological research studies addressing modifiable determinants of health disparities • Lead and coordinate a working group and/or consensus panel to develop an operational definition of health disparities and develop guidelines for assessing, evaluating and measuring progress in this research area.

NIMHD	• Support and/or conduct research aimed at addressing and developing methodology and measurement models for health disparity research and clinical trials for diverse populations • Develop research collaborations with NIH ICs on data collection techniques and methods to improve and standardize data collection, research designs, measurement methods, analysis and evaluation to address gaps in research. This includes conduct of research based on age-specific measurements among children and adolescents. • Support and/or conduct research aimed at addressing primary care and prevention research to inform healthcare reform, improve healthcare quality, reduce costs and ultimately improve health outcomes for health disparity populations • Convene a workshop to inform the current state of health disparities in rural areas, and identify gaps and opportunities for intervention • Support existing rural health disparities research in NIMHD grant programs, especially telehealth, telemedicine, healthcare informatics, workforce research, and mobile technologies
NINDS	• Encourage the use of data collected through stroke surveillance studies to identify factors that might influence or cause the disparity, and to develop studies that test tailored interventions for minority communities and underserved populations. • Promote studies that define causes and risk factors to inform development of targeted interventions suitable for testing in clinical settings. • Continue to support ongoing projects and encourage new studies tailoring stroke prevention and intervention strategies to minority and underserved communities.
NINR	• Continue to support efforts to develop and test strategies to improve symptom management in health disparity populations. • Continue to support efforts to develop and test self-management strategies to improve the ability of individuals in health disparity populations to manage their own chronic conditions.

OAR	• Evaluate interventions that incorporate traditional and indigenous medicines and/or medical practices that encourage adherence to prevention and/or treatment protocols. • Develop, pilot, and test effective models for increasing the awareness of the benefits of early HIV treatment and treatment adherence in racial and ethnic minority communities.
OAR	• Determine the impact of treatment interventions upon progression of HIV disease and HIV-associated co-infections and co-morbidities, including hepatitis B and C infection, tuberculosis, and HIV-associated malignancies, in racial and ethnic individuals. • Determine the impact of provider and institutional bias in the treatment, or lack of treatment, in chronic co-morbid conditions in racial and ethnic minority individuals living with HIV infection. • Examine the impact of alcohol, drug use, and chronic medical and neuropsychiatric co-morbidities on the success or failure of HIV clinical interventions and HIV disease progression in racial and ethnic minorities. • Develop novel clinical research methodologies for prospective studies of the effect of racial, ethnic, gender, and sexual orientation differences on HIV transmission, disease pathophysiology, and treatment outcomes. • Develop novel sampling methods to enhance the proportion of underrepresented populations that are disproportionately affected by HIV infection in clinical and prevention research. • Develop, pilot, and test effective models for increasing the awareness of the benefits of HIV testing in racial and ethnic minority individuals. • Determine the impact of increased education levels on health literacy, HIV awareness, and risk behavior in racial and ethnic minorities. • Explore the relationship between employment type (e.g., day labor versus part-time) and HIV-risk behavior in communities heavily affected by HIV, including racial and ethnic communities • Develop measures to assess the impact of evidence-based quality-of-care and best practices upon HIV disease outcome in racial and ethnic individuals. • Evaluate interventions that incorporate traditional and indigenous medicines and/or medical practices that encourage adherence to prevention and/or treatment protocols.
ORWH	• Encourage and increase the quality and quantity of research that provides information on the extent and magnitude of health disparities faced by special populations of women and approaches to reduce or eliminate these disparities.

D. COMPARATIVE EFFECTIVENESS RESEARCH

Once new treatments or intervention modalities have been discovered, developed, and proliferated, there is often still a need for important information on which treatment or intervention works best, for whom, and under what circumstances. Comparative Effectiveness Research (CER) is the direct comparison of existing health care interventions to determine which work best for which patients and which pose the greatest benefits and harms.

In its 2009 report, *Initial National Priorities for Comparative Effectiveness Research*, an Institute of Medicine committee defined CER as "the generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat, and monitor a clinical condition or to improve the delivery of care. The purpose of CER is to assist consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels." Many NIH ICs are engaged in CER or research to establish methodologies and/or infrastructure for CER.

For example, the NEI is engaged in CER clinical trials to compare the effectiveness and outcomes of ocular care via telemedicine versus traditional care. The development of telemedicine as a safe, reliable, and feasible alternative to traditional face-to-face eye care is one of the strategies being employed by the NEI to reduce disparities in eye care. This is particularly important in rural or low socioeconomic areas lacking full-time or sufficiently trained eye care specialists in terms of accessibility of care. A recent pilot clinical study found that diagnoses of retinopathy of prematurity, the leading cause of blindness in children, were significantly faster through telemedicine than standard indirect ophthalmoscopy, without sacrificing quality. CER is designed to measure the benefits and harms of an intervention in ordinary settings and broader populations (without exclusion criteria), and therefore can be relevant to policy evaluation and healthcare decisions for providers and patients, especially for subgroups and patients with co-morbidities who are often excluded from clinical studies.

Thanks to reduced uncertainties in clinical practice, CER can elicit more effective health care interventions and better health choices for health disparity populations, along with reduced variability in health services delivery and improved quality of care.

Objectives:

1. To broaden and enhance Comparative Effectiveness Research (CER) studies in health disparities studies to inform evidence-based interventions.
2. To examine the comparative effectiveness of telemedicine for the diagnosis and monitoring of health conditions, by evaluating the associated requirements, feasibility, costs, safety, and outcomes.

IC	Activities
NCI	• Investigate comparative effectiveness of cancer screening in different populations by a variety of factors such as age, socioeconomic status (SES), and race-ethnicity through the Population-based Research Optimizing Screening through Personalized Regimens (PROSPR) that will provide data to address these issues and will evaluate performance of cancer screening within clinical practice across diverse populations. • Expand research activities of the Partnerships to Reduce Cancer Health Disparities (PRCHD): The multi-disciplinary nature of the PRCHD Program allows CC and institutions in medically underserved communities and populations to focus and expand clinical research on cancers that affect underserved populations. Expansion of clinical research in these Partnerships will provide opportunities for CCs and institutions in medically underserved communities and populations to collaborate and develop new studies to determine differential effectiveness of treatment and prevention options to reduce unequal burdens of cancers. In addition, the required training activities conducted among the funded projects, will have an impact on increasing the number of investigators in an area of research with access to populations normally difficult to reach and study. • Develop multi-site, transdisciplinary research that will evaluate performance of clinical practice cervical, breast, and colorectal cancer screening in different populations. Objectives include studying comparative effectiveness of existing and emerging screening processes in community practice; studying the balance of benefits, harms, and prognosis of cancer screening across recognized cancer risk profiles; and sharing data with the scientific community to support research that will optimize screening processes and outcomes. • HMO CRN proposes continued support for collaborative cancer research among healthcare provider organizations that are oriented to community care, have access to large, stable and diverse patient populations, and are able to take advantage of existing integrated databases, developing electronic medical record systems, patient web portals and biospecimen resources that can provide research resource support for studies on cancer control and cancer-related population studies, including studies that utilize longitudinal cohorts with linked clinical, risk factor data and biospecimen material, and studies that require rapid identification and accrual of participants into retrospective and prospective observational cohorts as well as prospective intervention studies and trials.
NEI	• Establish the safety, reliability, and feasibility of telemedicine procedures through pilot studies for ocular conditions particularly conducive to telemedicine while still preserving the accuracy, sensitivity and specificity achieved with in-person examinations. • Compare the effectiveness and outcomes of telemedicine versus traditional care

NEI	through multi-center clinical trials, to evaluate the validity, reliability, feasibility, and cost-effectiveness of a retinopathy of prematurity telemedicine evaluation system for diagnosing at-risk infants. As other opportunities for using telemedicine for vision health arise, the NEI will explore their effectiveness compared to standard practices with the goal of providing feasible alternatives that might reduce health disparities in rural and underserved communities. • Evaluate the comparative effectiveness of therapies for diabetic retinopathy in the real world setting through the Diabetic Retinopathy Clinical Research Network (DRCR.net), a collaborative network that supports the identification, design, and implementation of multicenter clinical research on diabetic retinopathy. • Develop methodology for decision-making tools for clinicians, patients and policy makers. Support research on developing methodology called mixed-treatment comparison meta-analysis that synthesizes existing data on interventions to reduce the need for, and setting the priorities of new comparative effectiveness trials with available resources. These methodologies will first be explored in glaucoma, a blinding disease that disproportionately affects minorities.
NHLBI	• Support cardiovascular, lung, and blood diseases outcomes and comparative effectiveness research – natural experiments, quasi-experimental research, and practice-based trials – that focuses on patient and clinician-relevant outcomes of healthcare and the determinants of these outcomes.
NIBIB	• Develop the infrastructure and tools to accelerate the dissemination and adoption of the findings of CER in practice, in particular community hospitals. NIBIB supports two projects for translating evidence-based knowledge systems from research hospital environments to other healthcare systems with lower levels of health IT support. These clinical decision support systems inform physicians and patients on the appropriate use of imaging and potentially reduce variability and disparity in care. In addition, these projects will study the effectiveness of decision support from both the provider and patient perspectives. • Compare the effectiveness of non-invasive imaging procedures and image-guided interventions through the support of investigator-initiated research projects funded through the American Recovery and Reinvestment Act (ARRA).
NIDA	• Conduct CER research in the criminal justice setting examining how socio-demographic factors as well as disparities in and differential access to substance abuse treatment pre-and post-incarceration influence treatment engagement and retention and recidivism to prison in African American (AA) and Latino males with a history of incarceration and drug abuse. Findings from these studies will help facilitate the development of systems interventions to

NIDA	improve access to care and promote better health and outcomes for these populations. • Support CER evaluating the efficacy of HIV prevention and intervention programs on sexual risk behavior and drug use outcomes in substance abusing AA and Latino males in order to design more effective health promotion, prevention and risk reduction interventions and enhance treatment outcomes in these populations.
NIDCR	• Compare the efficacy of fluoride varnish plus glass ionomer sealant vs. fluoride varnish alone in reducing Early Childhood Caries among 3-6-year-old children from low-income families through the Glass Ionomer Sealant and Fluoride Varnish Trial (GIFVT) • Collaborate with American Indian community service providers to develop culturally appropriate educational and health promotional materials to emphasize the value of family oral health from birth, and to demonstrate the effectiveness of this intervention in a randomized trial to assess its impact on preventing ECC. • Improve our understanding of Quality of Life and related issues among youth with cleft lip. Individuals with clefts have multiple special needs, to include language problems, facial differences, learning differences, malocclusion, and associated psychosocial sequelae. Compared with Caucasians, the prevalence of cleft, with or without cleft palate is higher among Asians (particularly Japanese), and lower in individuals of African descent.
NIMH	• Develop and test infrastructure for conducting mental health services and effectiveness research across large integrated health care systems, leading to the creation of a Mental Health Research Network (MHRN) across integrated health care delivery systems. The MHRN would be capable of identifying thousands of suitable case and control subjects for basic and applied investigations of mental illness in practice settings. This initiative will allow for the initial development of a collaborative mental health effectiveness research platform among health care provider organizations that link primary, specialty, ambulatory, and other care settings; who have access to large, stable, and diverse patient populations; who are able to take advantage of existing integrated databases; and who can conduct efficient large-scale effectiveness studies testing treatment, preventive and services interventions to improve the mental health of large patient populations. This initiative will also facilitate increased research collaboration between health care provider organizations and researchers affiliated with other academic institutions, as well as federal and state agencies. In addition, NIMH is working collaboratively with other existing healthcare networks funded by other NIH ICs to increase capacity to conduct mental health effectiveness research.
NIMHD	• Support ongoing and new Comparative Effectiveness Research (CER). • Develop a Health Disparities CER Initiative through competitive supplements

NIMHD	to the NIMHD Centers for Excellence program. The aim of this initiative is to promote the four critical components of CER: research, human capital, data infrastructure, and information dissemination. • Support CER in existing grant programs such as the NIMHD Exploratory (P20) and Comprehensive (P60) Centers of Excellence for Health Disparities Research, NIMHD Community-Based Participatory Research Initiative, and NIMHD Health Disparities Research program.
NINDS	• Determine rates of cryptogenic stroke in African Americans that are caused by undiagnosed atrial fibrillation, and compare detection and risk stratification strategies for prevention of secondary stroke in this population. • Compare carotid artery stenting with aggressive medical management for preventing stroke in patients with intracranial stenosis, a condition that affects African Americans, Asians and Hispanics at a higher rate.

E. SOCIAL DETERMINANTS OF HEALTH

Along with the biological and physiological etiologies contributing to health disparities, there has been increasing recognition in recent years that social determinants such as racism and discrimination, poverty and low socioeconomic status, and neighborhood conditions can be highly influential in the complex array of factors that lead to health disparities in disadvantaged or underserved populations. NIH is at the forefront of research to elucidate the role of these non-biological factors and how they contribute to disease and reduced quality of life.

NIH, particularly NIMHD in its leadership role in health disparities research, actively supports integrated transdisciplinary research studies that examine the multi-level effects of biological determinants, health status, and social determinants to determine links between exposures, and the types of interventions needed to quantify and reduce the size and magnitude of the effects. For example, an RO1 Funding Opportunity Announcement (FOA) running between 2010 and 2013 entitled *NIMHD Advances in Health Disparities Research on Social Determinants of Health* encourages studies designed to address multiple determinants within the social context of the community or population. These determinants include:

- Income level and socioeconomic status
- Early life/early childhood development
- Maternal education as an index of socioeconomic status in early life
- Health literacy
- Employment and working conditions
- Healthy housing and neighborhood conditions
- Social environments and social networks

- Physical environments, including the natural environment (clean air, water and soil), the built environment (land use patterns, zoning, and neighborhood or community design) and living conditions such as the availability of safe and affordable housing, transportation and healthy foods
- Environmental determinants – includes outdoor and indoor air pollutants, climate change and health
- Social determinants of rural health disparities
- Life course perspectives
- Access to health services
- Healthcare cultural competency
- Behavioral, cultural and psychosocial factors
- Chronic stress
- Immigrant health

As an example of social determinants research related to health disparities, the NIA sponsors research seeking to elucidate how population aging and changes in social, economic, and demographic characteristics of cohorts, including health disparity populations, will affect health and wellbeing in the U.S. and other countries. Changes the Nation is experiencing at the population level may have profound effects on health and wellbeing at the individual level. Among many social determinants related to both healthy aging and health disparities among older people, investigations will explore the impact of education, the presence of home- and community-based services, migration trends among older people, social and insurance systems (e.g., Social Security and Medicare), the economic value of good health, and retirement and long-term care decision-making processes.

Objective:

1. To support and conduct studies that pattern and/or map social, economic, and environmental determinants that establish comprehensive information on these modifiable determinants of health disparities, and that elucidate the underlying mechanisms.

IC	Activities
NHGRI	• Support research on the social processes of health outcomes, to understand social and behavioral factors that facilitate or are barriers to the translation of genomic discoveries for health promotion, disease prevention, and health care improvements in health disparity populations.
NHLBI	• Support research on the biopsychosocial determinants of obesity and cardiovascular risk factors.
NIA	• A growing number of studies indicate that religion exerts a beneficial effect on health and well-being in late life. NIA-supported research will compare and contrast race differences in religiousness as well as race differences in the

NIA	relationship between religion and health among older Whites, older Blacks, and older Mexican Americans. • Continue to support this NIA-funded qualitative, anthropological research to examine the process of disruption and life reorganization after a disaster, namely Hurricane Katrina, for people ages 50-80. Aims are to examine how age, race/ethnicity, socioeconomic status, health, and family relationships affect life reorganization after displacement, and how people adjust to unwanted, catastrophic change over time.
NIAAA	• Fund research to enhance the reliability and validity of culturally relevant constructs and measures (e.g., demographic, economic, and socio-cultural), and encourage the development of new indices where appropriate. • Continue and expand emphasis on the interrelationship of alcohol and the social and environmental factors that contribute to HIV infection, behaviors after infection, and co-occurring conditions (e.g., substance use, mental illness, homelessness, hepatitis, STDs, tuberculosis), including the causes and implications of stigma. • Support studies to examine the social, cultural, and structural determinants; social structures; social environments; and health care systems that sustain, perpetuate, resist, or counter health disparities among racial and ethnic minorities who are HIV+ and continue to drink. • Encourage research on interventions to overcome impediments and promote facilitators of equitable treatment for racial and ethnic minority populations with co-occurring HIV/AIDS and problem drinkers. Such HIV treatment research should also emphasize the importance of examining the influence of stigma and cultural stereotyping related to drinking, both within these communities and among health care providers and health care systems, on HIV testing and counseling behaviors in racial and ethnic minority communities. • Write a program announcement to stimulate treatment research in health disparities. Participate in NIH and NIAAA-wide requests for applications wherever possible to achieve these objectives. Conduct a literature review to identify the nature and scope of what is currently known about the influence on alcoholism treatment outcomes of race/ethnicity and associated socio-cultural variables. Evaluate new alcohol medications in the health disparity populations using individual biological, psychological, behavioral, environmental factors for personalized interventions.
NICHD	• Support the use of quasi-experimental studies, including ethnographic action research and observational studies, which are important to elucidating how culture and local context affect health. Specific examples of studies include: • Based on the premise that culture is a determinant of adolescent risk behavior within social groups, the study Culture-Based Prediction of Adolescent HIV

NICHD	Risk will develop cultural measures that can be used to explain HIV risk behavior and design HIV risk reduction interventions suited to specific populations. • Social Inequality and Children's Mental Health uses three levels of analysis—the neighborhood, family, and the individual—to increase the understanding of how social inequalities influence a child's development. • The study Impact of Social Factors on the Effectiveness of a Pre-Conceptional Pre-Term Birth Program is designed to identify specific social exposures that have a persistent and negative influence on health care participation and outcomes, even when all systemic barriers to care are removed.
NIDA	• Evaluate the role of stress (e.g., cultural adaptation) in initiating and escalating drug abuse and its impact on various male and female health disparity populations. Explore the contextual relationships between drug use, violence, employability, school performance, family structure, and economic well being of the community. • Support research focused on better understanding the disproportionate criminal justice involvement related to drug use in health disparity populations, especially African-Americans. • Encourage studies that focus on environmental (structural) prevention strategies that specifically target the role of stress, poverty, racism and oppression on drug use. • Assess the impact of program adaptation and cultural sensitivity on substance abuse services provided to racial/ethnic minorities, especially minority women.
NIDCR	• Support periodic surveillance studies to monitor the oral health status of the nation. • Continue support of the Health and Nutrition Examination Survey (NHANES), an important source of information on oral health and dental care in the U.S. that has revealed and quantified disparities in oral health. • Explore ways to enhance the ability of national oral health surveillance data systems to assess the magnitude and severity of oral, dental and craniofacial diseases and conditions, and to identify changing disease patterns, trends, and oral health needs in the United States, including assessing the oral health status of minority and underserved populations. • Convene an expert panel to identify and prioritize gaps in current surveillance efforts, consider ways to enhance methodology for surveillance, and suggest ways to enhance future national oral health data collection efforts. • Develop and test a social determinants conceptual model for oral health.

NIDCR	Examine the relationship between health behaviors and oral health on the one hand and psychosocial, community and environmental factors on the other and study the relationship between the clustered behaviors with oral health, and psychosocial, community, and environmental factors.
NIMHD	• Support transdisciplinary research studies that examine the multi-level effects of biological determinants (e.g., genetics) and social determinants (e.g., financial resources, educational status, housing, transportation, environmental quality, social stress) on health status. • Assemble a cross-disciplinary expert panel of scientists, policy researchers and practitioners to further elucidate the complex interplay of the social determinants of health and health disparities. • Support research that adopts a life-course perspective for health disparity populations and directs attention to how social determinants of health operate at every stage of development (childhood, adolescence, and adulthood) to influence health. • Support and/or conduct research assessing and evaluating impact of neighborhood, local, state, and national policy measures on social determinants on health and health outcomes. • Encourage and/or stimulate innovative models for urban re-development in target communities, through research on education reform and/or social movements that revitalizes neighborhoods, and its impact on reducing and eliminating health disparities.
NINDS	• Support research to identify community-specific socio-cultural and systems/environment barriers, and to develop and test tailored stroke prevention and intervention strategies in underserved communities.
NINR	• Continue to support research, including basic behavioral and social science research that seeks to reduce health disparities through improved knowledge of the cultural and social factors that influence health behaviors related to promoting health and preventing disease.

F. HEALTH SERVICES RESEARCH

One of the most significant social determinants impacting health disparities in the U.S. is inequalities in access to and/or quality of health care services. Too often, inherent characteristics of the U.S. health care system present barriers to optimal care, particularly in various health disparity populations. Access to and quality of service can vary widely depending on an individual's circumstances, such as SES, geography, racial/ethnic heritage, and even age or gender. Several NIH ICs have invested in seeking to eliminate disparities in these modifiable areas.

The development, testing, and validation of innovative new treatments and other interventions are only valuable if those new modalities are used to maximum effect to improve the lives and health of their target populations. That is why NIH supports health services research—to ensure that treatments get to the patients who need them. Implementation science is the study of principles and methods to promote the systematic adoption and implementation of scientific advances into real-world practice. These studies examine both individual behaviors and organizational systems of care and aim to reduce haphazard uptake of research findings across healthcare practice.

Also, unfortunately, racial/ethnic minorities may experience more difficulties in obtaining the most appropriate health care services. Research suggests that they may be more vulnerable to gaps and lack of coordination in systems of care, that they may encounter bias in treatment assignments, and their need for services may differ by race/ethnicity. Moreover, rural populations appear to have fewer healthcare services available to them.

For example, NIAAA supports research to learn how to improve access to and utilization of alcohol treatment services (including access to health coverage) in targeted economically disadvantaged rural and racial/ethnic minority subgroups. One element of the portfolio is to examine the impact of health delivery system practices that may adversely impact the health care provider workforce, thus creating disparities in access and services, such as the closure, relocation, or establishment of public hospitals, community health centers, and rural health centers; Medicare reimbursements; and policies relating to nursing and long-term care.

Fruitful research in this area may lead to improved access to and utilization of important healthcare services and treatment modalities.

Objectives:

1. To improve the quality of treatment and prevention services including accessibility, utilization, effectiveness, appropriateness, and/or costs of treatment and prevention services.
2. To enhance the standards of care for individuals through the implementation of innovations in access to and utilization of treatment services.

IC	**Activities**
NHGRI	• Support research in understanding disparities in the provision of genetic services.
NIAAA	• Support research to learn how to improve access to and utilization of alcohol treatment services (including access to health coverage) in targeted economically disadvantaged, rural and racial/ethnic minority subgroup.

NIAMS	• Support extramural investigators who are committed to extending the benefits of total joint replacements to segments of the population that may be helped, but appear to have limited utilization. Potential research directions include studies to assess the willingness of members of racial and ethnic sub-populations of the U.S. to undergo total joint replacement.
NIDA	• Expand the treatment and prevention services research portfolio to better understand the organization, management, financing, and delivery of services. • Develop research to understand the role and impact of the criminal justice system, including drug courts, on drug abuse treatment in health disparity populations.
NIDCR	• Examine how dental health prevention information is interpreted in a low dental literacy population, assess how this population navigates the dental health system, and determine if participation in Women, Infants, Children (WIC) can be effective in improving the use of oral health services.
NIDDK	• Determine effective strategies for improving chronic kidney disease (CKD) care in Community Health Centers by providing their health care providers with tools and resources to better detect and treat CKD.
NIMH	• Convene a meeting of mental health researchers and consult with Tribal Elders in order to identify areas of opportunity for research on interventions to eliminate barriers to mental health care experienced by residents of Tribal lands. • Support research on reducing barriers to mental health care and improving access based on the results of the meeting including an annual review of research to reduce barriers published in scientific journals and proceedings from relevant scientific meetings. • Ensure attainment of research aims through communications with researchers and other constituents. • Fund one Mental Health Research Network (MHRN) as a cooperative agreement with NIMH in response to the request for application (RFA). • Work directly with the MHRN over the three-year funding period to ensure that the aims of the RFA are met. • Maintain and update regularly a collection of existing measures from myriad sources that can help guide Institute planning and dissemination activities. • In partnership with other Federal agencies, establish a forum to foster collaboration and coordinate efforts when collecting and reporting Federal data on mental health. • Challenge the research field to devise new and innovative approaches to

NIMH	tracking mental health indicators so that data collection and analyses can happen in a more immediate timeframe through the issuance of Funding Opportunity Announcement (FOAs).
NIMHD	• Improve healthcare delivery services among health disparity populations through collaboration with Federal partners.
NINDS	• Support research to investigate whether a significant proportion of cryptogenic stroke in African Americans is due to undetected atrial fibrillation and test strategies to prevent secondary strokes in this high risk population. • Support the development and use of patient-linked data resources to conduct comprehensive national evaluations of stroke and its outcomes, including analyses to describe rates and trends of stroke hospitalizations and mortality, and health service utilization patterns among stroke patients by age, geographic, socio-economic, and racial/ethnic subgroups.

G. INNOVATIVE HEALTH TECHNOLOGIES

From amazing new sensors to remarkable new non-invasive imaging technologies to incredibly “smart “ new medical devices, innovations in health and medical technologies are forging a path toward improved health and quality of life for millions of Americans, particularly those suffering from chronic diseases, which represent a particular burden to racial and ethnic minorities and other health disparity populations. NIH research focuses not only on development and validation of new technologies, but also on ensuring effective incorporation of technological advances into the healthcare system for the benefit of all.

For example, NIBIB supports research to develop a point-of-care device to detect tumor cells circulating in the bloodstream. Malignant, circulating cancer cells, which often metastasize into secondary tumors, are responsible for the majority of cancer deaths. Detecting those cells would allow effective screening and a capability to more readily monitor effectiveness of treatments. Such point-of-care devices are relatively low-cost and are readily accessible, addressing important factors that contribute to cancer health disparities.

Objectives:

1. To develop tools to contribute to commonly used measures and the integration of genetic, epidemiological, social, and physical environmental data for genetics and epidemiologic research
2. To develop appropriate medical technologies for the prevention, detection, diagnosis, and treatment of diseases and disabilities that contribute to health disparities

IC	**Activities**
NCI	• Development of a rapid, low-cost molecular HPV assay for accurate detection of women with cervical pre-cancer or early cervical cancer. Current screening strategies, including Pap smears, often require multiple screens to achieve effectiveness. In addition, there are multiple follow-up visits of screen-positive cases to diagnosis and treat. A rapid, low-cost HPV test is needed to permit same-day screen-and-treat programs to increase the participation and completion rates and thereby reduce the burden of cervical cancer in these underserved populations.
NEI	• Develop technological capacity to diagnose and monitor ophthalmic diseases and conditions through telemedicine. Telemedicine can involve automated screening procedures, diagnostic testing, and photographic or streaming video images. • Encourage the development of portable and inexpensive ophthalmic technology, primarily through NEI small business research partnerships to facilitate ocular screening for diabetic retinopathy to be used by trained personnel who are not eye care specialists in target communities (public locales and retail stores). • Explore a novel detection method for early-stage keratoconus, a progressive thinning of the cornea forming a cone shape that severely distorts vision.
NHGRI	• Fund the development of the PhenX toolkit and other resources for researchers to develop better quality measures for their studies, including demographics, physical and social environment, and psychosocial measures, so that they might be better positioned to identify whether gene-environment interactions are contributing to health disparities. These tools will enhance the relevance of genome-wide association studies and other genomics studies to disparities populations, including those that are studying genetic and environmental components of diseases with a health disparity element.
NHLBI	• Support the *Early Adult Reduction of weight through Lifestyle intervention (EARLY) Trials*, a program designed to conduct clinical research studies to refine and test innovative behavioral approaches for weight control in young adults 18-35 years of age at high risk for weight gain (including pregnant and postpartum women, community college or university students, and young adults trying to quit smoking). Most of the interventions are technology-driven, using novel methods such as mobile phones, social networks, and web-based curricula.

NIAAA	• Support and encourage ongoing and new research projects aimed at (1) refining our understanding of neurobehavioral, cognitive, and other deficits that accompany FASD, (2) developing and demonstrating the utility of new approaches that improve the sensitivity and specificity FASD diagnosis, (3) developing new tools capable of extending FASD diagnostic potential to younger children and perhaps also the developing fetus, and (4) defining biomarkers capable of substantiating FASD diagnoses.
NIBIB	• Continue support focused on ultrasound and X-ray imaging techniques for the detection and diagnosis of cardiovascular disease including novel ultrasound methods, such as elastography imaging for determining arterial elasticity and carotid artery strain that may be useful as lower-cost detection platforms. • Support the development of High-Intensity Focused Ultrasound (HIFU) for the non-invasive treatment of various conditions, including atrial fibrillation, dissolution of blood clots in coronary arteries, and cerebral stroke • Contribute to the *Jackson Heart Study*, a longitudinal study of heart disease and cardiovascular disease in African-Americans in the Jackson, Mississippi area through support of new imaging techniques including dynamic MR imaging of the heart to assess cardiac function and CT imaging to assess visceral abdominal fat and calcification of the aorta and coronary vessels. • Through the *Quantum Grant* program, achieve an advance over present-day approaches in the prevention, diagnosis, or treatment of major diseases such as the development of relatively low cost and are readily accessible point-of-care devices (e.g., a means to detect tumor cells circulating in the bloodstream). • Support the development of new ultrasound imaging and therapy techniques in the area of cancer management such as a mechanism for the molecular detection of metastases and enhanced breast imaging, as well as the use of HIFU for the non-invasive treatment of tumors. • Through the *Quantum Grant* program, support research into transplantation of human islet cells to treat, and perhaps cure, Type I diabetes, a disease that disproportionately affects portions of the population. • Support the development and translation of high-impact technologies for home-based health monitoring and health care such as sensors and other technologies that can provide a means of early detection and intervention thereby minimizing morbidity and cost. Potential innovative technologies for sensors are for monitoring of physiological state (e.g. glucose level) and gross position and motion (e.g. fall detection); informatics systems to integrate and process the data from such sensors and systems; point-of-care tests and therapies; and communication technologies to allow contact between individuals and their healthcare providers. • Encourage collaborations between technology developers and health care

NIBIB	practitioners to link expertise in the development of tools for rapid testing with knowledge of clinical needs and healthcare delivery processes in remote settings, through creation of the *Point of Care Technologies Research Network*. Currently, the Network is emphasizing diagnosis of infectious disease and multi-disease (syndromic) detection in the field, with particular focus on the diagnosis of HIV infection and AIDS, an area in which racial and ethnic minorities experience disparate health access and outcomes. • In concert with other NIH ICs, participate in several grant programs aimed at understanding and promoting health literacy and health disparities through potentially the development of new telehealth technologies, or new tools to enhance patient, doctor, or administrator decision-making regarding health literacy.
NICHD	• Explore the novel use of existing technologies and tools and encourage the development of new technologies for the prevention, detection, diagnosis, and treatment of disease and disability. These include such studies as: *An Interactive Video Game for HIV Prevention in At-Risk Adolescents* develops, tests, and evaluates a video game designed to teach minority adolescents how to avoid risky behaviors that can lead to HIV infection. *EMA Assessment of Biobehavioral Processes in Human Pregnancy* proposes to use ecological momentary assessment (EMA) sampling methods to develop and evaluate comprehensive intervention strategies to prevent or manage stress in pregnancy and reduce its adverse health consequences in the mother and her unborn child.
NIDA	• Encourage studies on the role of the Internet in high-risk sexual partnering and as a potential vehicle for delivering drug abuse and STI risk reduction and educational information, prevention interventions, and resources for referral and clinical care.
NIDCR	• Develop and test materials appropriate for "telehealth" approaches, the delivery of health-related services and information via telecommunications technologies, for the delivery of oral health information to special needs populations, as well as to rural and underserved populations. • Examine both the short- and long-term (sustained) effects of an oral home telecare program on improving oral health among people with tetraplegia, with the ultimate goal of enhancing the quality of oral health care and reducing oral health disparities among this at-risk population.
NIMHD	• Encourage the use of innovative technologies in health disparities research. • Support the use of mHealth (e.g., telehealth, telemedicine, healthcare informatics, and mobile technologies) within health disparities research including rural and hard-to-reach populations. • Develop an RFA/PA targeting mHealth related research in health disparity populations.

NIMHD	• Continue collaboration with the National Institute of Biomedical Imaging and Bioengineering through the SBIR/STTR Program to develop innovative technologies to address health disparities.

H. GLOBAL HEALTH

Certain populations abroad share similarities with U.S. groups by virtue of their genetic makeup, health practices, lifestyles and/or other features. Ongoing population mobility to and from the U.S. can present unique issues related to global health that need to be addressed. For this reason, advances made through international research studies stand to benefit both U. S. and other populations of the world. Such research could lead to effective and culturally relevant education or counseling strategies; development of novel diagnostics, drugs or other intervention technologies; or could contribute to identification of new avenues of research that would ultimately lead to health care interventions. As it has become more evident that many of the issues related to health disparities in the U.S. are intrinsically related to issues extant in other countries, it has become increasingly clear that there is much to learn in both directions, and much to share for the benefit of all. Many NIH ICs participate in a wide range of programs and partnerships dedicated to global health.

For example, the Fogarty International (FIC) supports a wide range of international research collaborations in comparative disease epidemiology, genetics, gene-environment interactions, interventions and implementation science which address diseases or disabilities that contribute to health disparities in both U.S. and foreign populations. In addition, part of the FIC mission is to train the next generation of U.S. global health scientists, including those from racial/ethnic minority groups. One program designed to help accomplish that goal is the *Fogarty Clinical Research Training Scholars and Fellows Program (FICRS-F)* which supports one-year clinical research training experiences for graduate-level U.S. students, as well as residents and post-doctoral fellows in the health sciences. Participants receive mentored clinical and public health research training at NIH-funded research centers in Africa, Asia, the Americas, and the Caribbean.

Objectives:

1. To conduct and/or support research on global disaster preparedness and culturally-aware responsiveness
2. To support international collaborative research addressing diseases or disabilities that contribute to health disparities in both the U.S. and LMIC populations which may include global travelers
3. To develop appropriate medical technologies to address global health needs

IC	Activities
FIC	• Identify and support grants in ongoing international collaborative research grant programs which address diseases or disabilities that contribute to health disparities in both the U.S. and LMIC populations. • Continue to support the Fogarty Scholars and Clinical Fellows programs.
NCI	• Continue to support the *Global Cancer Health Disparities Training and Research Initiative,* to accelerate progress in reducing cancer health disparities in regions where disparities continue to persist and grow beyond current levels and to expand the NCI's efforts throughout the global community in regions experiencing an excess burden of cancer.
NHGRI	• Support the Center for Research on Genomics and Global Health (CRGGH), which aims to facilitate a global understanding of the relationship between human genetic variation and population differences in disease distribution with the ultimate goal of informing health inequalities. • Promote collaborative efforts in various countries in Africa as well as China and with a number of different ethnic populations in the United States. The CRGGH promotes a global effort in using genomic science and biotechnology tools to improve human conditions and reduce the equity gap experienced by many low-to middle-income countries (LMICs). • Provide support, expertise and consultation on the Human Heredity and Health in Africa (H3Africa) project, which is a multi-national collaboration between African researchers and researchers in the US and Europe aimed at creating new research capabilities in Africa toward understanding the interaction of genes and the environment in health and disease on that continent.
NIA	• The Mexican Longitudinal Survey of Older Adults and their Families, an ongoing nationally-representative longitudinal survey, will yield detailed information on health status and health care, work and earnings, pensions, public transfers, kin networks and transfers among network members including non co-resident kin; wealth, migration and living arrangements along with new measures of expectations, attitudes and preferences designed for this project. To complement this information, an innovative set of biomarkers will measure risk factors associated with the metabolic syndrome, which is a key concern in Mexico and the U.S. • The overall goal of this research is to examine patterns, transitions, and determinants of health in a comparative framework within countries of the Latin American and Caribbean region. The goal is to exploit the available cross-country data to identify conditions that promote (inhibit) the emergence of relations between health status and disability and well-specified determinants, and to assess how recurrent and generalizable are relations found in any one country.

NIAID	• Develop the necessary strategies, infrastructure, and collaborations with governments, communities, and nonprofit organizations to conduct HIV vaccine trials according to the highest scientific and ethical standards. • Foster studies on the impact of genetic variability of HIV and the host on vaccine safety at international sites that conduct or will conduct HIV vaccine clinical trials.
NIBIB	• Develop a program to stimulate collaborative research and technology development between scientists and engineers in the U.S. and India to explore opportunities for improving the effectiveness of medical technologies to reduce global health disparities, and develop setting-appropriate, low-cost, diagnostic and therapeutic technologies. • Promote data sharing by supporting the *U.S. - China Roundtable on Scientific Data Cooperation*. The objective of this activity is to provide a bilateral forum for government, academic, and private-sector stakeholders in the United States and China to discuss and address scientific data practices and policies, pursuant to a mutually agreed agenda. The outcomes will serve as a catalyst and coordinating effort for bilateral cooperation on scientific data practices and policies at the academic and national level in each country.
NICHD	• Support partnerships and networks to address global health. Specific examples of these studies include: *Community-Based Interventions to Reduce Mortality from Neonatal Infection* conducts randomized clinical trials of antibiotic treatment for infants with suspected serious bacterial infections in low and middle income countries to reduce neonatal and infant mortality. *Evidence-Based Global Health Interventions for Mothers and Children in Argentina* incorporates randomized, controlled trials to test an intervention to increase the use of antenatal corticosteroids in developing countries to prevent neonatal deaths. *Aku Global Network Research Unit* seeks to improve developing country maternal-infant health with a specific emphasis on reducing perinatal morbidity and mortality.
NIMH	• Support the development of innovative, collaborative research and research training projects, between high income country and low- to middle-income country (LMIC) scientists, on brain and other nervous system function and disorders throughout life relevant to LMICs through the funding opportunity *Brain Disorders in the Developing World: Research Across the Lifespan (R21)*. • Continue to support the Fogarty Scholars and Clinical Fellows programs.

NIMH	• Conduct a scientific roundtable to identify the global mental health research issues that require immediate attention and action by the NIMH Office for Research on Disparities and Global Mental Health.
NIMHD	• Build and expand upon existing global health programs such as the NIMHD Minority Health and Health Disparities International Training Program (MHIRT) to conduct research and promote information exchange of ideas on social determinants • Develop a global health initiative to address health disparities in populations located in the Pacific, Caribbean Islands and Latin America. • Facilitate and support research and partnerships among academic institutions in low-income and middle-income countries and the US to promote global health initiatives and social determinants of health. • Develop partnerships with the private and non-profit sectors in the US to promote global health initiatives. • Promote and support research dedicated to global health disaster preparedness efforts and emergency responsiveness including the development of networks and partnerships.
NINDS	• Support international research on combination therapies for the control of seizures caused by taenia solium neurocysticercosis, which is the single major cause of acquired epileptic seizures in the world and a common diagnosis in immigrant populations in the US and other industrialized countries.

NIH Health Disparities Budget - Research

Institute/Center	FY 2010 Budget	FY 2011 Estimate
CF	$22,847,307	$22,847,307
FIC	$40,000	$40,000
NCCAM	$15,455,357	$15,455,357
NCI	$103,908,266	$103,908,266
NCRR	$65,759	$0
NEI	$34,278,686	$34,278,686
NHGRI	$15,495,801	$15,495,801
NHLBI	$291,347,134	$291,347,134
NIA	$72,093,335	$72,093,335
NIAAA	$64,005,537	$64,005,537
NIAID	$256,871,638	$256,871,638
NIAMS	$24,783,884	$24,783,884
NIBIB	$14,373,133	$14,373,133
NICHD	$92,020,852	$92,020,852
NIDA	$151,849,646	$151,849,646
NIDCD	$35,041,943	$34,981,943
NIDCR	$38,134,962	$38,134,962
NIDDK	$204,006,113	$204,006,113
NIEHS	$25,926,210	$25,926,210
NIGMS	$73,690,641	$73,690,641
NIMH	$131,364,284	$131,364,284
NIMHD	$18,252,631	$18,252,631
NINDS	$105,875,428	$105,875,428
NINR	$53,196,315	$53,196,315
NLM	$850,000	$850,000
OAR	$8,596,118	$8,575,118
OBSSR	$8,069,108	$8,069,108
OIR	$0	$0
ORWH	$2,574,702	$2,574,702

II. RESEARCH CAPACITY

As an intrinsic element of its broad agenda to support biomedical and social sciences research, NIH will devote considerable resources to building research infrastructure throughout the scientific community, and to enhancing capacity to improve minority health and eliminate health disparities. Therefore, the second overarching goal of the Health Disparities Strategic Plan, Research Capacity Building, encompasses the full range of efforts to increase attention to health disparities scientific issues, to expand the capacity of the scientific community to conduct health disparities research, and to increase participation in the field by racial and ethnic minorities and members of other underrepresented populations, both within the professional ranks and within the subject populations of clinical trials and other research projects.

It is imperative that there exist the requisite number of institutions and researchers who are committed and equipped to tackle the complex research questions raised by health disparities. Unfortunately, many of the institutions and researchers devoted to reducing health disparities lack the resources and infrastructure to effectively do so. To positively impact that situation, NIH supports initiatives and programs geared toward enhancing the research infrastructure and capacity of non-research-intensive institutions to conduct health disparities research. NIH also recognizes the need to build and develop a cadre of individuals with expertise in minority health who are poised to conduct high-quality health disparities research and will support such initiatives to do so.

A. RESEARCH INFRASTRUCTURE ENHANCEMENT

To meet the increasing demand for medical therapies in the future, the biomedical research enterprise must continue to build and maintain state-of-the-art research environments at institutions participating in biomedical research.

As part of their efforts to expand the reach, scope, and ultimately the impact of health disparities research, several NIH ICs support programs designed to increase research and educational capacity at a wide variety of academic institutions. Strategies include providing needed laboratory equipment and funding additional faculty positions.

Research resources and physical infrastructure provide the foundation for a full spectrum of exploration and discovery. With sustained support for state-of-the-art technologies, access to animal models, and continued funding for the infrastructure needed to support basic, clinical, translational, and epidemiological research, NIH continues its commitment to enable and facilitate cutting-edge research capabilities at institutions reflecting the diversity of the United States population.

For example, the NIDCR has taken the lead to develop the trans-NIH FOA for the new P30 Core Center Grant program, *Supporting New Faculty Recruitment to Enhance Research Resources through Biomedical Research Core Centers.* NIDCR leveraged this new announcement to encourage U.S. dental training institutions to enhance research capacity by developing Core Centers and hiring new faculty to conduct research in social, behavioral, biomedical, and biological science fields. It intends to use this mechanism to expand research capacity by supporting new faculty focused on issues relating to oral health disparities.

Historically Black Colleges and Universities, Hispanic-Serving Institutions, Tribal Colleges and Universities, Alaska Native and Native Hawaiian-Serving Institutions, as defined in the Higher Education Act, represent valuable resources to the NIH biomedical research enterprise, as do research activities being conducted at other non-research-intensive academic institutions. These institutions have a history and tradition of educating and training diverse scientists and have the potential to empower minority communities to improve their health status through participation in health research. NIH will continue to promote a diverse scientific and technology workforce and will provide programmatic assistance to research institutions in a position to contribute to understanding and amelioration of health disparities.

Objectives:

1. To support the renovation and alteration of research and science education facilities at academic institutions with modest research infrastructure
2. To support efforts that will encourage increased quality and efficiency in the conduct of basic, clinical, and translational research, including health disparities research

IC	Activities
NCRR	• Provide support for the *Research Centers in Minority Institutions (RCMI)* program which facilitates biomedical research through the enhancement of the research capacity and infrastructure at colleges and universities with a record of training minorities that offer doctorates in health sciences. • Coordinate clinical and translational research activities by reorganizing the various RCMI clinical and translational research infrastructure-related activities into one integrated program called the *RCMI Infrastructure for Clinical and Translational Research (RCTR).* • Provide investigators in institutions that train minorities with integrated career development activities, core resources, and tools to improve the clinical and translational research process. • Use intra- and inter-institutional collaborations and partnerships to develop and share best practices for prevention, diagnosis, and/or treatment of diseases to reduce health disparities.

NCRR	• Ensure that states without medical schools have an opportunity to develop research capacity to conduct basic biomedical research and that special populations within these states are included in clinical research, through the IDeA Program. • Provide opportunities to address health disparities in medically underserved groups residing in IDeA states and have members of these groups included in research conducted in non-IDeA states and nationally. • Foster opportunities for communities and tribal health centers, especially in IDeA-eligible states, to have access to health research opportunities and be included in clinical and translational research. • Provide opportunities to address health disparities in medically underserved groups residing in IDeA states.
NHGRI	• Support NIH Intramural programs such as the Center for Research on Genomics and Global Health, to develop strategic research resources that will facilitate the study of genetic factors in disease susceptibilities and variable drug response in the United States and globally.
NIAID	• Develop the necessary strategies, infrastructure, and collaborations with governments, communities, and nonprofit organizations to conduct HIV vaccine trials according to the highest scientific and ethical standards. • Enable and facilitate cutting-edge organ transplantation research by providing access to state-of-the-art technologies for cellular, genetic, and molecular research; identification of alloreactive MHC-peptide complexes important to regulating immune response; and bioinformatics platforms for data analysis. • Enable and facilitate cutting-edge organ transplantation research by providing access to unique rodent strains and large animal models, and resources such as cells, tissues, and reagents, for transplantation research. • Enable and facilitate cutting edge organ transplantation research by enhancing the pace, productivity, and quality of NIAID-sponsored clinical trials though access to various clinical trial support services. • Develop and share research and product development resources hepatitis C virus (HCV) research. • Increase the availability of laboratory equipment for HCV research. • Continue to support research infrastructure capacity-building to expand health sciences research and to increase the diversity of faculty and students at institutions that conduct biomedical and behavioral research.

NIAID	• Target advertising to researchers from minority and other health disparity populations to encourage more participation of scientists in NIAID's research programs.
NICHD	• Support the *Extramural Associates Research Development Award* that supports the development of administrative research support infrastructure at emerging research institutions that will foster and facilitate ongoing research activities. The program provides training in NIH policies and procedures through a distance learning and an NIH residency program, as well as funding to establish or enhance existing administrative research support infrastructures, e.g., Office of Sponsored Projects (OSP), Office of Research and Sponsored Projects (ORSP), etc.
NIDA	• Continue to support research infrastructure through the *Diversity-promoting Institutions Drug Abuse Research Program (DIDARP)* program and HBCU outreach. • Develop partnerships between institutions with well-established drug abuse research programs and other institutions interested in developing capacity in this area. • Encourage and engage promising undergraduate students to pursue careers in drug abuse and addiction research.
NIDCR	• The NIDCR Health Disparities Research Program supports a full spectrum of research to help understand and reduce disparities in oral health. To facilitate the study of ECC, a dental condition prevalent in minority and rural populations, NIDCR brought together the Early Childhood Caries Collaborating Centers (EC4) with the disparities program under a single Data Coordinating Center with enhanced capacity for clinical trials management. The collaborative also established common outcome measures and consortium-wide training and calibration of examiners. Trend analyses and cross-study comparisons are fostered through this infrastructure model. The enhanced communication, efficiency, and comparability of research results resulting from this collaborative effort have made it a model for coordinating health-based research groups.
NIGMS	• Support for institutional development through the *Research Initiative for Scientific Enhancement (RISE)* program which includes limited funds for the renovation or remodeling of existing facilities to provide space for an investigator to carry out developmental activities, limited equipment purchases, and the development of research courses.
NIMHD	• Support the renovation and alteration of research and science education facilities through the Building Research Infrastructure and Capacity (BRIC) program at academic institutions with modest research infrastructure.

NIMHD	• Maintain support for the Research Endowment Program for NIMHD Centers of Excellence and HRSA designated Section 736 Centers of Excellence. • Encourage partnerships between institutions of higher education with a history of health disparities research. • Foster collaboration, including joint applications, between research-intensive universities and those with limited resources
NINDS	• Support the establishment of research infrastructure and administrative activities required in low research infrastructure settings serving minority communities. • Build human capacity for health disparities research by supporting training mechanisms such as the R25.

B. DEVELOPMENT OF A DIVERSE WORKFORCE

Increasing the pool of researchers from diverse backgrounds who are available to participate in NIH-funded research is an important aspect of research capacity building. The NIH expects efforts to diversify the workforce to lead to the recruitment of the most talented researchers from all groups, to improve the quality of the educational and training environment, to balance and broaden the perspective in setting research priorities, to improve the ability to recruit subjects from diverse backgrounds into clinical research protocols, and to improve the Nation's capacity to address and eliminate health disparities. Diversity among health professionals can contribute to unique dialogues that can improve our understanding of the causes of and solutions to health disparities. Health providers and researchers with an interest in health disparities research can rely upon their shared experiences to help ensure culturally and linguistically competent care that will yield better health outcomes for diverse populations. Health professionals with these competencies can also draw upon their experiences to help create research protocols and methods that are effective in overcoming issues of mistrust among health disparity communities to increase minority enrollment in clinical trials.

The NIH has long recognized the need for greater diversity in the ranks of scientific researchers and supports programs designed to recruit, train, and retain scientists from diverse backgrounds underrepresented in the fields of biomedical and behavioral science research on a national level, including underrepresented racial and ethnic minorities, persons with disabilities, and persons from disadvantaged backgrounds. NIH seeks to continually improve the methods and means of cultivating this essential talent pool for the future. For example, the Research Supplements to Promote Diversity in Health-Related Research Program, also known as the Diversity Supplement Program, is an administrative supplement that supports undergraduate and post-doctoral students and eligible investigators from groups that are underrepresented in biomedical research. Supplement recipients work with independent researchers supported by NIH-funded research project grants, thus gaining valuable experience to enhance the likelihood of future career success.

Another important initiative contributing to diversity in the NIH-funded biomedical workforce is the NIMHD Loan Repayment Program (LRP). The LRP program helps to alleviate the financial barriers that often discourage many students from pursuing a research career. It focuses specifically on increasing the number of highly qualified health professionals who will study health disparities. The Extramural Clinical Research Loan Repayment Program supports health professionals from disadvantaged backgrounds who are engaged in clinical research. Approximately 70 percent of LRP participants are from health disparity populations.

Along with these and other NIH programs devoted to enhancing biomedical workforce diversity, many ICs have their own programs to recruit, train, and retain diverse scientists within their fields of specialization.

Objectives:

1. To increase and strengthen the career pipeline and professional pool through the development of a cadre of individuals with expertise in minority health and health disparities research
2. To encourage and support research by underrepresented scientists and training programs at institutions that serve minority and other health disparity populations
3. To build research capacity to support and stimulate the development of a pipeline for the next generation of biomedical researchers and health professionals at all levels
4. To provide investments in information technology to facilitate greater collaboration and participation in translational research by research institutions that provide unique access to minority and other health disparity populations, including medically underserved communities, and to facilitate information sharing among biomedical researchers
5. To promote the recruitment, training, advancement, and retention of new investigators in health disparities-related clinical and translational research careers

IC	**Activities**
CC	• Develop Native American nurse scientists and interdisciplinary health professionals engaged in biomedical, clinical, behavioral and health services research through structured mentoring and pre-doctoral training programs.
FIC	• Support one-year clinical research training experiences for graduate level U.S. students, as well as residents and post-doctoral fellows in the health professions, including minority students, through the *NIH/Fogarty Clinical Research Training Scholars and Fellows Program (FICRS-F)* FICRS-F

FIC	trainees receive mentored clinical and public health research training at NIH-funded research centers in Africa, Asia, the Americas and the Caribbean. • Provide support for the *NIMHD Minority Health and Health Disparities International Research Trai*ning programs at universities across the U.S. MHIRT programs provide opportunities for U.S. undergraduate, graduate and medical students who are members of health disparity populations to gain research experience abroad each year. • Conduct outreach to recruit minority and disadvantaged health professional and graduate students and postdoctoral fellows from universities across the U.S. including Historically Black Colleges and Universities (HBCU) and Hispanic-Serving Institutions (HSI).
NCCAM	• Target scientifically-underrepresented students and faculty programs and support their endeavors in complementary and alternative medicine (CAM) research by the inclusion of presentations on CAM research at national conferences by underrepresented researchers and care providers will aid recruitment efforts. • Continue to participate in health disparity meetings and NIH training sessions for institutions with a record of training minorities. • Foster the retention of CAM-trained researchers within scientifically underrepresented communities by utilizing various training and career development funding mechanisms available through NCCAM. • Support the further development of underrepresented scientists by providing grant writing training (via workshops, online, etc.) and providing the opportunity to participate on peer-review panels.
NCI	• As a part of the NCI *National Outreach Network*, the *Partnerships to Reduce Cancer Health Disparities* develops a stronger national cancer program aimed at understanding factors that may contribute to significant cancer health disparities and have an impact on racial and ethnic minority and socio-economically disadvantaged populations. A key component of the Partnership is to train and mentor students to ultimately increase the diversity of scientists engaged in research and other cancer-related activities. • *Research Supplements to Promote Diversity in Health-Related Research* aims to increase the number of under-represented individuals, individuals with disabilities, and socio-economically disadvantaged scientists conducting competitive cancer research. The supplement program is the foundation for the NCI initiative to build a pipeline for attracting and keeping motivated and talented under-represented individuals in the cancer research enterprise in order to diversify the research workforce. The diversity supplement involves individuals at different career levels, including high school students. The program provides high school students with an opportunity for meaningful

NCI	experience in various aspects of health-related research to stimulate their interest in biomedical, behavioral, clinical, or social sciences careers. • *NCI Cancer Center Supplements for High School and Undergraduate Student Research Experiences* engage the scientific curiosity and promote potential cancer research careers of promising young high school and undergraduate students and to take full advantage of the community outreach and research capabilities of NCI-supported Cancer Centers. Goals of this initiative are to expose promising high school and undergraduate students from under-represented populations to the excitement of state-of-the-art biomedical research in basic, clinical, and population sciences and to actively promote careers of such individuals in cancer research. • *Cancer Research and Education for Under-Represented K–12 Students* is designed to attract students in elementary through high school grades from populations under-represented in biomedical sciences into science and mathematics programs. The program would enhance students' interest in science by providing exciting curricula, effective study tools, scientific demonstrations, and access to cutting-edge scientific technologies. This effort would build a pipeline of students with interest in science and mathematics, increasing the chance of including science and cancer research in their career choices. • *Emerging Technology Continuing Umbrella of Research Experiences (ET CURE)* initiative is to expose promising high school and undergraduate students from under-represented populations to state-of-the-art biomedical research that utilizes emerging technologies. • *Training for a New Transdisciplinary Cancer Research Workforce* is a new initiative that would encourage and enable development of a transdisciplinary and diverse workforce by ensuring that under-represented undergraduate students receive the didactic and research experiences necessary to lead and/or engage in integrative and team approaches to solve complex biomedical and health problems in cancer research. • NCI provides support for the *Network for Cancer Control Research among AI/AN Populations* and other native-organized groups that mentor native cancer researchers. The network is designed to build capacity of AI/AN cancer researchers who will work with native populations. This program trains young investigators to carry out well-designed cancer prevention and control studies and establishes a network of mentors. • *Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships (F31) to Promote Diversity in Health-Related Research* provides support for research training leading to the Ph.D. or equivalent research degree, M.D./Ph.D. degree, or another formally combined professional and research doctoral degree in biomedical, behavioral, health

NCI	services, or clinical sciences. The overall goal of this program is to increase the number of scientists from diverse population groups who are prepared to pursue careers in biomedical, behavioral, clinical, or health services research. • *Diversity Supplement to the NCI-Supported National Research Service Award Institutional Research Training Grants (T32)* provides funding to increase the number of highly motivated pre-doctoral trainees from underserved populations who are interested and motivated in pursuing a long-term career in cancer research. • *Comprehensive Partnerships to Reduce Cancer Health Disparities (CPRCHD) Program* is one of the major areas for research training of doctoral students. The Partnership provides a unique opportunity for students pursuing doctoral degrees by providing access to facilities at institutions in medically underserved communities and populations. • *Center for Cancer Research (CCR) Cancer Research Interns (CRI) Program* provides support for students from disadvantaged backgrounds or groups that are under-represented in biomedical science. Students work and train in CCR laboratories using the newest biomedical technologies, thus enabling them to begin their careers as cancer researchers. • *Education and Training of Biomedical Researchers and Health Care Professionals at NCI-designated Cancer Centers* provides training of biomedical researchers including M.D.s, and Ph.D.s in laboratory, clinical, and public health research, including cancer prevention and/or cancer control research. This initiative also sponsors continuing education programs for practicing health care professionals (e.g., technicians, nurses, physicians) in the community or region served by the cancer center. These activities cover a spectrum of topics, including early detection, diagnosis, treatment, rehabilitation, and quality-of-life. • *Train New and Emerging Cancer Health Disparities Researchers in AIDS-Related Malignancy Research* is an initiative conducted within the AIDS Malignancy Clinical Trials Consortium, AIDS Malignancy Consortium, and NCI designated Cancer Centers. • The *NIH Research Career Development Award (K01, K08, K22, and K23)* program is designed to prepare qualified individuals for careers that have a significant impact on health-related research needs of the Nation especially the development of racially and ethnically diverse individuals who are under-represented in health-related science. • *Exploratory Grant Award to Promote Workforce Diversity in Basic Cancer Research (R21)* provides bridge funding to investigators who have completed their training and are developing initial proposals to apply for competitive, investigator-initiated research funding from NCI.

NCI	• *Independent Physician-Scientist Career Development Award to Promote Diversity in Translational Cancer Research* initiative is to provide up to 5 years of salary support and protected time for recently independent physician-scientists from under-represented backgrounds who demonstrate the need for a period of intensive research focus in order to foster their career development as competitive research scientists. • *Small Grant Program for Career Development Recipients* initiative is to provide career development grant recipients the opportunity to apply for support to enable them to either expand their current research objectives or to conduct pilot studies in their area of research, thus demonstrating their independence as investigators. • The *NCI Behavioral and Population Sciences Research Training to Promote Diversity Career Development Award* provides support for salary and research costs for individuals from under-represented backgrounds with health professional or science doctoral degrees who are not fully established investigators and who want to pursue research careers in behavioral and population sciences research. • *Comprehensive Partnerships to Reduce Cancer Health Disparities (CPRCHD) Program (U54)* provides cancer health disparities research training for students and investigators. The Partnerships have established summer training programs for qualified students, many of which have continued onto graduate or medical schools. Doctoral students also have opportunities to be engaged in research projects with their mentors at Partnership institutions. • *Feasibility Studies for Collaborative Interaction for Minority Institution/ Cancer Center Partnership (P20)* provides training opportunities for students and investigators across the cancer research continuum, develops new curriculum, and offers a pipeline of students going into medical school or graduate programs. • *Exploratory/Developmental Grants Program for Basic Cancer Research in Cancer Health Disparities (R21)* is designed to aid and facilitate growth of a nationwide cohort of scientists who have a high level of basic research expertise in the cancer health disparities research arena. The program also provides resources for those investigators who may need additional support on their path to successful competition for investigator-initiated research funding in basic research in cancer health disparities. • *Recruit Minority Investigators Focused on Studying Cancer Health Disparities in NCI-Designated Cancer Centers* to increase the applicant pool of candidates for junior- to mid-level tenure track investigators who are focused on investigations relevant to cancer health disparities. • *Research Supplements to Promote Re-Entry into Biomedical and Behavioral Research Careers* is an initiative that would support individuals with high potential to re-enter an active research career after taking time off to care for

NCI	children or parents or attend to other family responsibilities. The targeted pool of applicants for this funding opportunity would be individuals who were in a post-doctoral or faculty position at the time they left active research and/or have doctoral degrees, such as MD., Ph.D., OD, DVM, or equivalent. • *Diversity Trainee Tracking System* is a centralized tracking system to be added to the Cancer Health Disparities Management Tool. This system would enable NCI to collect and maintain data and information that will afford a better understanding of numbers and career progression of racial and ethnic trainees/investigators.
NCRR	• Ensure that rural and remote communities and tribal health centers have access to health research and training opportunities. • Continue to work with other ICs to support and continue the *RCMI Clinical Research Education and Career Development (CRECD)* activity to train and increase a diverse pool of clinical and translational researchers in institutions that have a record of training minorities. • Continue to support comprehensive mentoring programs within the IDeA program initiatives to train a diverse pool of investigators across the scientific spectrum, from basic to clinical to community-based clinical and translational research.
NEI	• Continue to attract strong scientists from underrepresented groups, including underrepresented racial and ethnic minorities, into vision research using NIH-wide programs, Research Supplements to Promote Diversity in Health-Related Research.
NHGRI	• Continue to support training opportunities to increase the number of individuals from minority and other underrepresented populations, disadvantaged groups and health disparity groups through programs for: (a) graduate students and postdoctoral fellows individually or on institutional training grants; (b) students and faculty at all career levels at the undergraduate level and above under the *Minority Action Plan (MAP)* and *Research Supplements to Promote Diversity in Health-Related Research*; (c) opportunities for faculty and students from underrepresented institutions (e.g. HBCUs and TCUs) to gain unique access to the expertise at the NIH. • Continue recruitment and outreach strategies used by the NHGRI Intramural Program to encourage participation in all of its training programs including attendance at and participation in research conferences with significant minority and other underrepresented populations. The NHGRI Intramural Program is also actively working with community college students and faculty to encourage student participation in NIH training programs. • Continue to support the *Intramural Health Disparities Postdoctoral Fellowship* to provide promising recent doctoral graduates the opportunity to use genetic

NHGRI	and genomic approaches to advance the growing area of health disparities research. • Create, market, and appropriately disseminate tools and materials that can reach diverse audiences. Work with educational institutions (e.g., high schools and community colleges) to expose students to the resources and develop innovative resources to excite students about genomics and related careers.
NHLBI	• Provide an opportunity for HBCUs offering masters, Ph.D., or professional degrees to recruit established scientists to help expand their research base and to train students in and expose them to the latest scientific advances through the *Historically Black Colleges and Universities (HBCU) Research Scientist Award*. • Provide support through the *NHLBI Mentored Career Development Award to Promote Faculty Diversity/Re-Entry in Biomedical Research* to underrepresented junior faculty at academic institutions in health-related research, such as individuals from racial and ethnic minority groups, individuals with disabilities, or individuals who have experienced an interruption in their research careers, to prepare them for research careers in cardiovascular, pulmonary, hematologic, and sleep disorders. • Provide undergraduate, graduate, and health professional students from underrepresented groups including underrepresented racial and ethnic minorities majoring in the life sciences an opportunity to receive training in the NHLBI intramural laboratories through the *NHLBI Biomedical Research Training Program for Individuals from Underrepresented Groups.* • Provide research support to faculty members at institutions that train minorities who have the interest and potential to conduct high-quality research in the areas of cardiovascular, pulmonary, hematologic, and sleep disorders through the *Mentored Career Award for Faculty at Minority Serving Institutions*, which enhances the institution's science infrastructure and research capacity. • Support training of graduate and health professional students and individuals in postdoctoral training at schools who have the potential to develop meritorious training programs in cardiovascular, pulmonary, hematologic, and sleep disorders through the *Minority Institutional Research Training Program.* • Provide short-term research support for undergraduate and students in health professional schools from underrepresented groups including underrepresented racial and ethnic minorities to expose them to career opportunities in cardiovascular, pulmonary, hematologic, and sleep disorders research through the *NHLBI Short-Term Training Program to Increase Diversity in Health-Related Research.* • Provide support for research experiences for individuals from underrepresented groups including underrepresented racial and ethnic minorities throughout the

NHLBI	continuum from high school to the faculty level to increase the number of scientists from these groups participating in biomedical research and the health-related sciences and to establish a diversified workforce through the NIH-wide *Research Supplements to Promote Diversity in Health-Related Research* • Offer opportunities for undergraduate and graduate students from underrepresented groups including underrepresented racial and ethnic minorities to receive training in fundamental biomedical sciences and clinical research disciplines in order to enhance career opportunities in biomedical research, including clinical and laboratory medicine, epidemiology, and biostatistics as applied to the etiology and treatment of heart, blood vessel, lung, and blood health and diseases, and sleep disorders through the NIH-wide *Minority Biomedical Research Support Program*. • Renew the successful Summer Institute program, *Programs to Increase Diversity Among Individuals Engaged in Health-Related Research and the Coordination Core (PRIDE)* that enables junior faculty and scientists from diverse backgrounds to further develop their research skills and knowledge. • Support the development of pilot programs that will encourage institutions that train minorities to recruit and retain talented undergraduate students into the biomedical and behavioral sciences. • Support individuals from underrepresented racial/ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds enrolled in programs leading to a Ph.D., M.D./Ph.D., or other combined degrees in the biomedical or behavioral sciences through *Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research*. • Support academic institutions to develop core curricula and other educational materials that will increase the overall knowledge and skills of medical students, house staff, practicing physicians, and other professionals related to ethnic, cultural, religious, socioeconomic, linguistic and other factors that contribute to health disparities and to culturally competent approaches to mitigating these disparities, through the *Cultural Competence and Health Disparities Academic Award.* • Strengthen, expand, and increase access to the best ongoing education and training opportunities in TB for medical, nursing, and allied health schools, especially those that provide primary care to communities where TB is endemic and the population is at high risk of developing TB, through the *Tuberculosis (TB) Curriculum Coordinating Center.* • Enhance sickle cell disease education and awareness among young students to help cultivate a pool of future scientists with the *NHLBI Summer for Sickle Cell Science Program through the* NHLBI and the NHLBI-supported Comprehensive Sickle Cell Centers. • Fund a Sickle Cell Scholar at each of the *Basic and Translational Research*

NHLBI	*Program (BTRP)* institutions. Scholars receive additional didactics and mentored research experiences in sickle cell disease, and are expected to pursue research careers in this disorder. • *Clinical Research Career Development Programs in Emergency Medicine* develops multidisciplinary clinical research training programs to prepare clinician-scientists for academic leadership roles and independent research careers in the study of innovative approaches to diagnose and treat patients with acute manifestations of cardiovascular, pulmonary, and hematologic diseases, and severe trauma in emergency settings.
NIA	• Track participation in NIA special population and health disparity population activities, including Youth Initiatives, Professional Organizations Internship Programs, NIA Regional Meetings, Grants Technical Assistance Workshops, and outreach to minority and community organizations. • Continue support for *Promoting Careers In Aging and Health Disparities Research (K01)* to provide support and protected time to address built environment, lifespan experiences, life-long disability, societal role in health to include discrimination, end-of-life health expenditures, elder mistreatment, social gradient, inferior quality and early life education, and other policy and economic disparities.
NIAAA	• Support research symposia at annual meetings with large minority participation such as the annual meetings of the National Hispanic Science Network, Association of American Indian Physicians, Hispanic Serving Institutions (HSIs), and Historically Black Colleges and Universities (HBCUs). Expose students and investigators to research and training opportunities in alcohol research. • Expand research capacity among Native American/Alaska Native alcohol and substance abuse researchers by organizing an expert working group to evaluate the current research, develop a strategic plan for future research in this population, and provide grantsmanship technical assistance. • Monitor performance of T32 training programs and Alcohol Research Centers programs in their compliance with efforts to promote diversity. Offer mentoring workshops at the T32 and Alcohol Research Center Directors meetings to promote more effective mentor/mentee relationships and networking to better recruit and retain investigators from minority and other underrepresented populations. • Recruit junior and/or experienced investigators to develop new research programs in health disparity populations that emphasize studies investigating heritable phenotypes of risk for alcohol abuse and dependence and their association with behavioral and neurological factors in these unique populations.

NIAAA	• Encourage racial/ethnic minority student involvement in research studies through the *Research Supplements to Promote Diversity in Health-Related Research*. • Expand the number of years a candidate may be supported on a *Diversity Supplement* from two years to three or more years, depending on the training needs and plans as indicated in the application. • Continue (and expand if possible) the NIAAA cadre of partnerships with programs that identify and encourage high school students to remain in the academic pipeline and consider careers in health sciences including the *Jeter's Leaders*; *National Hispanic, Native American, and African American Youth Initiatives*; *Minority Medical Students' Association* and *American Psychological Association* summer research program for young investigators.
NIAID	• Continue advertising the *Research Supplements to Promote Diversity in Health-Related Research* mechanism through the NIAID Web site and at scientific conferences attended by students and professionals from underrepresented and health disparity populations. • Establish a database to record and track the success of NIAID *Diversity Supplement* awardees in receiving the NIH Independent Researchers Award and other NIH funding. • Expand outreach to underserved colleges and universities with limited institutional resources for partnership and collaborate with NIAID *Centers of Excellence.* • Actively encourage young investigators from health disparity populations receiving NIAID support to attend the *Bridging the Career Gap* workshop, including providing travel funds to workshop participants. Track participants involved in the *Bridging the Career Gap* program for evaluation and future recruitment efforts. • Advertise requests for grant proposals and contracts through various media and conferences to ensure circulation to a broad audience of researchers from underrepresented and health disparity populations • Utilize new and innovative mechanisms to support research in health disparities, such as the *Research Scholar Development Award (K22)* which supports postdoctoral trainees as they make the transition to assistant professor positions in an academic institution. This mechanism's eligibility criteria have been expanded to include postdoctoral trainees from underrepresented populations supported on *Diversity Supplements*. • Foster broader participation in biomedical research from predoctoral trainees supported by NIAID *Ruth L. Kirschstein National Research Service Awards (NRSA) for Individual Predoctoral Fellowships (F31)* to promote diversity in

NIAID	health-related research. Engage these early trainees in the NIAID research agenda and health disparities areas of emphasis as they near their doctoral degree. • Continue funding NIAID *Science Education (R25)* applications that employ innovative materials to teach a diverse pool of school children about infectious diseases and the microbes that cause them. Selected applicants will disseminate instructional materials that meet National Science Education Content Standards for public use via various media tools, established web sites, and teacher curriculum for broad access. • Advertise the *SciLife* event at high schools in the vicinity of the NIH Bethesda campus through advertising campaigns, web sites, public service announcements on local radio and social media sites used by students, such as Facebook and MySpace. Selected participants will have an opportunity to use a wet laboratory to conduct experiments related to NIAID research areas. • Expand Office of Technology Development infrastructure to support outreach, recruitment, and program management. • Enrich NIAID training experiences for researchers from underrepresented and health disparity populations. • Increase the number of post-baccalaureates and post-doctorates from underrepresented and health disparity populations who are receiving *Intramural Research Training Awards (IRTA).* • Track graduates of training programs for trainees from underrepresented and other health disparity populations for program evaluation, networking, and recruitment contact. Inform scientists about NIAID diversity issues and progress. • Develop resources for assisting mentors in meeting the mentoring needs of underrepresented and health disparity populations in biomedical research. • Expand outreach efforts through the NIAID annual Intramural NIAID Research Opportunities program, webinars, and electronic outreach strategies using the Marketing Database.
NIAMS	• Participate in, and encourage principal investigators who have eligible research personnel to apply for, the *Research Supplements to Promote Diversity in Health-Related Research.* • Participate in, and encourage eligible students to apply for, the *NRSA for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research (F31).* • Continue to contribute to the NCRR *Clinical Research Education and Career Development* program which supports institutions that train minorities as they

NIAMS	develop and implement curricula for doctoral candidates and postdoctoral fellows who are interested in clinical research. • Continue the *Rheumatology Fellowship Training Program* to provide intramural rheumatology fellows the opportunity to pursue research and provide care for patients at the NIAMS Community Health Center (a clinic that offers access to specialized rheumatology care to minority patients). • Offer a *Summer Internship Program* to allow talented students from underserved backgrounds or areas who are contemplating a career in biomedical research or academic medicine to come to NIAMS for mentoring and training in the field of biomedical research, and particularly in the disease areas of NIAMS. • Attend national meetings and local events that focus on underserved populations to provide science education materials to students and teachers and to share information about research career opportunities.
NIBIB	• Solicit applications from institutions that propose to establish new or enhance existing team-based design courses in undergraduate Biomedical Engineering departments or programs through the new NIBIB initiative, *Team-based Design in Biomedical Engineering Education.* • Support the *Meyerhoff Scholars Program* which is devoted to promoting the diversity of students in science, technology, engineering, and mathematics (STEM) education at the University of Maryland, Baltimore County. • Support the *Hispanic Association of Colleges and Universities Summer Internship Program* to encourage their commitment to bioengineering or imaging careers. Trans-NIH Initiatives: • Co-fund *Framework Programs for Global Health* and ARRA-supported *Framework Programs for Global Health Signature Innovations* activities. These global health initiatives support multi- disciplinary predoctoral and postdoctoral training programs that support technological solutions to problems in health care access, health disparities, and health care delivery to poor and/or rural environments. • Encourage and prepare undergraduate students from diverse backgrounds to enter PhD degree programs in the neurosciences through the *Blueprint Program for Enhancing Neuroscience Diversity Through Undergraduate Research Education Experiences (R25).* • Participate in the NIH-wide program, *Research Supplements to Promote Diversity in Health-Related Research* to provide supplemental funds to existing NIH research grants to recruit and support eligible students, postdocs, and investigators interested in pursuing a biomedical research career. Eligible individuals include: individuals from underrepresented racial and ethnic

NIBIB	groups; individuals with disabilities; and individuals from socially, culturally, economically, or educationally disadvantaged backgrounds that have inhibited their ability to pursue a career in health-related research. • Participate in the NIH-wide program, *The Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research,* to increase the number of scientists from diverse population groups who are prepared to pursue careers in interdisciplinary research. Eligible candidates include individuals from under-represented racial and ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds. • Participate in the *NIH NRSA Institutional Research Training Programs*, which provide stipends, tuition, and training support for institutional predoctoral and postdoctoral training programs. • Support the research training of undergraduate students, graduate students, and science teachers in NIBIB-funded laboratories by significantly expanding trans-NIH support for *Administrative and Summer Supplements for Research Training.* • Continue to work with other Federal agencies, the NIH Office of Science Education, the NIH Office of Women's Health, and the NCRR *Science Education Partnership Award* program to attract students to biomedical imaging and bioengineering, link STEM education and research training, and improve the research mentoring of high school, undergraduate, and graduate students.
NICHD	• Provide support for infrastructure development and research activities at institutions offering undergraduate, graduate, or health professional degrees, with a traditionally high enrollment of minority and other underrepresented populations through the *Extramural Associates (EA) Program.* • Encourage academic institutions to diversify their student and faculty population which in turn may increase the participation of individuals currently underrepresented in the biomedical, clinical, behavioral, and social sciences. • Provide support through the *Research Supplements to Promote Diversity in Health-Related Research* program, whereby principal investigators who hold research grants can apply for additional funds to support and recruit students, postdoctoral students and fellows, and eligible investigators from these groups (such as individuals from underrepresented racial/ethnic groups, individuals with disabilities, and individuals from socially, culturally, economically, or educationally disadvantaged backgrounds). • Support individual *Predoctoral Fellowships to Promote Diversity in Health-Related Research Award (F31)* , a program that encourages students from underrepresented racial/ethnic groups, individuals with disabilities, and

NICHD	individuals from disadvantaged backgrounds to seek graduate degrees in the biomedical and behavioral sciences.
NIDA	• Continue to support the *Recruitment and Training Program* sponsored by the intramural research program and the *Research Supplements to Promote Diversity in Health-Related Research* program which includes the *Summer Research with NIDA* program for high school and undergraduate students. • Explore the feasibility of establishing short-term diversity training grants (e.g., T35) for drug abuse and addiction programs, particularly those involved in the *National Drug Abuse Treatment Clinical Trials Network (CTN)*, to offer summer research training experiences for promising undergraduate and graduate students. • Support or examine the possibility of establishing Training Centers (T32) in the basic neurosciences and behavioral sciences, and clinical neurosciences at HBCUs and other diversity-serving colleges and universities. • Encourage diversity supplements through the *Research Supplements to Promote Diversity in Health-Related Research* and other training opportunities for individuals from diverse groups, including racial/ethnic minority populations in basic and clinical neuroscience. • Continue to support the *Research Development Technical Assistance* program • Explore the possibility of developing a *Visiting Scholar Program* to recruit and train drug abuse researchers with a special outreach emphasis on scholars from diverse programs and institutions such as HBCUs, HSIs, and tribal colleges and universities to spend time in selected research programs learning state-of-the-art methodology. • Examine the potential for developing a *Career Development Award (KO1)* for diverse faculty interested in all areas of drug abuse and addiction research. This program would be aimed at faculty seeking a period of protected time to devote to developing drug abuse research projects at their institutions. Special efforts will be undertaken to increase the number of researchers in prevention and clinical research. • Explore the feasibility of establishing a *Research Scholars Diversity Program* in the NIDA Intramural Research Program • Establish a *Clinical Research Scholars Diversity Fellowship* as part of the NIDA CTN program.
NIDCD	• Attract and encourage minority students at or approaching the dissertation/doctoral candidacy stage or post-dissertation stage to pursue research careers in communication sciences.

NIDCR	• Continue to explore ways to enhance Oral Health Research Capacity. • As a part of the Faculty Recruitment Core Center Program, NIDCR supported the *New Faculty Recruitment for Research to Reduce Oral Health Disparities* in an effort to expand research capacity to ultimately understand issues relating to oral health disparities. • Provide summer research opportunities for dental students from diverse backgrounds. • Expand training and career development opportunities for scientists in underrepresented groups through the support of NIDCR *Centers for Research to Reduce Oral Health Disparities.* • Improve the diversity of the research workforce participating in biomedical, behavioral, and clinical research by continuing support of research training of individuals from underrepresented racial and ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds through the *Research Supplements to Promote Diversity in Health-Related Research.* • Join the NIH-wide solicitation to support pre-doctoral Ph.D. trainees on the *NRSA for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research (F31)* and continue efforts to recruit and retain new and early-career investigators in oral health disparities research to ensure future research capacity. • Shift resources to provide a greater emphasis on individual fellowships and career awards, which an evaluation showed to be more effective in developing independent researchers, shifting research training away from institutional awards. • Expand the pre-doctoral research training pool by reissuing the institutional training grant program as a T90/R90 mechanism. This mechanism will allow support of foreign-trained, non-U.S. citizen dentists for Ph.D. degree and postdoctoral training.
NIDDK	• Under the Diversity Supplement Program to Institutional National Research Service Award (T32) program, award an extra position, designated specifically for a selected trainee from an underrepresented group, including underrepresented racial or ethnic minorities (either predoctoral or postdoctoral), to an existing T32 award. • Through the Short Term Education Program for Underrepresented Persons (STEP UP) – High School Program, provide 10 weeks of summer research training in basic biomedical, clinical and health services disciplines to high school students from under represented racial and ethnic minority groups, students with disabilities, and students from disadvantaged backgrounds using nationally and internationally renowned mentors.

NIDDK	• Through the STEP UP – Undergraduate program, increase participation of undergraduate students from underrepresented racial and ethnic minority groups, students with disabilities, and students from disadvantaged backgrounds in the biomedical research enterprise for 10 weeks in the summer with funded investigators in the NIDDK mission areas. • Provide short-term (3-month summer) and year-off (9-12 month period while on leave from medical school) research training experience for underrepresented, disabled, and disadvantaged medical students via a supplement to any existing NIDDK training grant under the Research Supplements to Promote Diversity in Health-Related Research. • Summer Internship Program (SIP) - Undergraduate Summer Research Training Program for Underrepresented Groups is a residential program designed to provide research education and training to undergraduate students underrepresented in biomedical and behavioral research, including African American, Hispanic American, Native American, Alaska Native, Native Hawaiians, and other Pacific Islanders. The goal of this program is to increase the number of students traditionally underrepresented in the biomedical research enterprise and encourage them to pursue careers in biomedical, behavioral, and clinical or social science research in the NIDDK mission area. The SIP scholars join NIDDK's research laboratories in Bethesda, Maryland and in Phoenix, Arizona for ten weeks in the summer. The students also participate in meetings in their respective laboratories and attend NIH Summer Seminar Series. At the end of the summer, the SIP scholars participate in the NIH Summer Research Program Poster Day. This provides an opportunity for them to present their work before the NIH scientific community. • Pacific Island/Alaska Native Summer Internship Program (PI/AN SIP) was established with the intent to reduce and eliminate health disparities, expand research education and training opportunities for underrepresented scientists from racial/ethnic minority and social and economically disadvantaged communities, and to provide information to racial and ethnic minority and underserved communities about treatment, prevention, and self-management of disease. The PI/AN SIP program provides research education and training for high school students at the junior and senior level in the Pacific Islands of Guam, the Commonwealth of the Northern Mariana Islands and American Samoa, and undergraduate students in Alaska. This program provides 8-10 consecutive weeks of basic and clinical research education and training during the summer under the mentorship of experienced faculty currently active in research related to the mission of NIDDK. • Seek experienced and interested investigators to apply for grants that provide two to three consecutive months of research training and expose talented students to experiences that will help them pursue a biomedical or behavioral research career. In addition to the research experience, institutions provide enrichment activities such as research forums, guest lectures, student presentations, special courses, and social activities.

NIDDK	• Encourage and facilitate participation of members of underrepresented population groups and others in the conduct of biomedical research in the fields of diabetes, endocrinology, metabolism, digestive diseases, nutrition, kidney, urologic, and hematology diseases through the Network of Minority Health Research Investigators (NMRI), a communication network of current and potential biomedical research investigators and technical personnel interested in minority health research, including individuals from traditionally underserved communities: African American, Hispanic American, American Indian, Alaska Native, Native Hawaiian, and other Pacific Islanders. • Through the NMRI, increase participation of racial and ethnic minorities and others in research in NIDDK areas and establish frequent communication between network members and the NIDDK program staff about available opportunities. • Through the NMRI, identify, through discussions with network members, (new) programs and other mechanisms that will increase participation of under-represented groups, including racial and ethnic minorities, in biomedical research; define barriers for participation of underserved populations in biomedical research, and formulate initiatives that will help overcome the barriers; and identify projects at the community level that will help reduce/eliminate health disparities in the respective populations. • Provide fellowship awards to individuals from a pool of applicants to attend the annual convention of the National Medical Association (NMA). By participating in the scientific symposium, the residents or fellows have the opportunity to interact with preeminent scientists in basic, behavioral, and clinical research. Further, the clinical trainees are exposed to research opportunities through the NIDDK-sponsored workshop at the NMA Annual Convention and Scientific Assembly. • Provide Scholarship Awards to attend the Association of American Indian Physicians (AAIP) Annual Meeting. The AAIP Annual Meeting and Health Conference offers experts and leaders in American Indian/Alaska Native healthcare and policy making issues. Presentations include information on current trends, policy, research, and practice issues concerning American Indians/Alaska Natives. In addition, scholarship awardees are given an opportunity to hear about NIH and NIDDK research training opportunities through an NIDDK sponsored workshop. • Provide Scholarship Awards to attend the National Hispanic Medical Association (NHMA) Annual Health Conference. NHMA provides policymakers and health care providers with expert information and support in strengthening health service delivery to Hispanic communities across the nation. Presentations include information on expanding access to quality health care, increasing opportunities in medical education, cultural competence, and research for Latinos. Another focus is policy development and education efforts focused on eliminating health disparities faced by Latinos. Scholarship

NIDDK	award recipients are given an opportunity to hear about NIH and NIDDK research training opportunities through an NIDDK-sponsored workshop.
NIEHS	• Fund training programs specifically for underrepresented pre-doctoral students, including underrepresented racial and ethnic minority and disabled students, and the summer program for underrepresented undergraduates through the *Research Supplements to Promote Diversity in Health-Related Research*. • Maintain a close working relationship with *The Meyerhoff Program*, which takes a leadership role in the training of African-American scientists as an outstanding recruitment resource for the *Summers of Discovery* internship program. It provides hands-on training in laboratory research, one-on-one mentoring by senior staff, a seminar series tailored to participants, an end-of-summer professional scientific poster session well-attended by scientific staff, and occasionally co-authorship for interns on scientific articles appearing in peer-reviewed journals. • Provide support for Short Term Educational Experience for Research (STEER) and worker training grants. • Continue to operate the NIEHS Worker Education and Training Program (WETP), which works with EPA and other federal, state and local partners to address health and safety issues related to cleanup and training in support of rebuilding communities harmed by contaminated sites, disinvestment, and lack of adequate job training. • Continue to develop WETP training approaches such as life skills that are culturally sensitive and address the needs of the minority workforce. The program includes life skills training tailored to individual needs, covering a range of subjects such as remedial mathematics, tutoring, budget counseling, and cash management, life situational counseling and job readiness skills. These modules help prepare students to take apprenticeship and employment exams, as well as to pass the environmental examinations leading to certifications in lead abatement, asbestos abatement, and hazardous waste operations. • Continue WETP outreach to Spanish-speaking workers through its programmatic approach, which includes translation, inclusion of cultural competencies, on-going trainer development and support, and program and class evaluation Continue development of educational programs and materials, through the NIEHS Center grants program and through staff work, to reach a growing number of students and teachers K-12, with increasingly tested and sophisticated materials to compete with the many media exposures, computer games and other commercial and education experiences that are presented to students.
NIGMS	Provide support for training and career development through several ongoing programs:

NIGMS	• *Research Initiative for Scientific Enhancement* (RISE) provides support for faculty and student development activities, which can include on- or off-campus workshops, specialty courses, travel to scientific meetings, and research experiences at on-campus or off-campus laboratories. • *The Initiative for Maximizing Student Diversity (IMSD)* encourages domestic private and public educational institutions with fully developed and funded research programs to initiate and/or expand innovative programs to improve the academic and research capabilities of students from underrepresented groups and to facilitate their progress toward careers in biomedical research. The application may be directed toward the development of scientists from underrepresented groups who are in any phase of their career development, from the undergraduate level through the Ph.D. • *Minority Access to Research Careers Training and Fellowships* (MARC) supports special research training opportunities for students and faculty at educational institutions with diverse student enrollment. MARC programs also enable grantee institutions to develop and strengthen their biomedical research training capabilities. As a result, these schools are able to interest students in, and prepare them for, pursuing doctoral study and biomedical research careers. MARC training grants and fellowships include U*STAR institutional grants, predoctoral fellowships, faculty predoctoral and senior fellowships, and a visiting scientist program. • *The Post-Baccalaureate Research Education Program (PREP) Awards* encourage students from underrepresented groups who hold a recent baccalaureate degree in a biomedically relevant science to pursue a research doctorate. PREP scholars work as apprentice scientists in a preceptor's laboratory and participate in student development and education activities. • *MARC Ancillary Training Activities.* MARC has formed relationships with professional scientific societies to develop innovative programs aimed at increasing the number of scientist from population groups that are underrepresented in the field of biomedical sciences, including racial and ethnic minorities.. With MARC support, the societies have sponsored activities that engage students from groups underrepresented in the field, including visiting scientist programs and summer research opportunities, and have provided scholarships enabling attendance at national scientific meetings and conferences. • The *National Research Service Award for Predoctoral Fellowships to Promote Diversity in Health-Related Research* is an NIH-wide program providing predoctoral fellowship support up to five years for research training leading to the Ph.D. or equivalent research degree, the combined M.D./Ph.D. degree, or other combined professional degree and research doctoral degree in the biomedical or behavioral sciences or in health services research. These fellowships are designed to enhance the diversity of the biomedical, behavioral, and health services research labor force in the United States by supporting the

NIGMS	training of predoctoral students from groups that have been shown to be underrepresented. • *The Institutional Research and Academic Career Development Award (IRACDA)* combines a traditional, mentored postdoctoral research experience with an opportunity to develop teaching skills through mentored assignments atinstitutions with a record of training minorities. The goals of the program are to provide a resource to motivate the next generation of scientists at institutions with a record of training minorities and to promote linkages between research-intensive institutions and institutions with a record of training minorities that can lead to further collaborations in research and teaching. • *Bridges to the Future* is a special initiative co-sponsored by NIGMS designed to make available to the biomedical science research enterprise and to the Nation the intellectual talents of an increasing number of individuals from underrepresented groups by facilitating the transition of students from associate- to baccalaureate-degree granting institutions and from master's to doctoral degree-granting institutions. Members of underrepresented groups include individuals from underrepresented racial and ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds. The program promotes effective inter-institutional partnerships that lead to improvement in the quality and quantity of underrepresented students being trained as the next generation of scientists. • As part of an NIH-wide program, *Research Supplements to Promote Diversity in Health-Related Research*, principal investigators holding NIGMS research grants may request supplemental funds to support scientists and students from underrepresented groups. The aim of these supplements is to attract and encourage individuals from underrepresented groups to pursue biomedical research careers. • Provide training support through traditional NIGMS NRSA training programs. All Institute-supported training programs are required to establish acceptable diversity recruitment plans to encourage the participation of underrepresented students, including individuals from racial and ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds underrepresented in health-related sciences, in traditional research training grants. • *Native American Research Centers for Health (NARCH)* is a collaborative program with the Indian Health Service to improve and expand health research involving American Indian and Alaska Native tribes and people. This collaboration is designed to enhance and expand the capacity and skills of tribal organizations and Native American researchers to conduct high-quality biomedical and behavioral health research and to apply successfully for competitive research grants.
NIMH	• Continue the implementation of the *Research Supplements to Promote Diversity in Health-Related Research.* • Actively solicit participation from all institutions and organizations that provide

NIMH	the relevant research education and training. • Continue to implement capacity development initiatives through the solicitation of *Resource-Related Research Projects-Cooperative Agreements (U24)* applications from institutions and organizations that propose to conceptualize, plan, pilot, and evaluate an innovative prototype of a national infrastructure to mentor individuals from diverse backgrounds who are conducting research. • Develop new funding opportunities that support collaborations between researchers and other relevant partners, including other agencies and consumers, to strengthen research that addresses disparities.
NIMHD	• Support faculty development activities such as the development of faculty expertise in science and mathematics and the academic development/enrichment of students in institutions funded through the *NIMHD Building Research Infrastructure and Capacity* program. • Support faculty career development and enhancement activities of health disparities researchers under the Research Training Core in institutions funded under the *NIMHD Centers of Excellence* program. • Support faculty training activities and academic development/enrichment of students in institutions funded under the *NIMHD Research Endowment* program. • Increase the number of participants in the *NIMHD Health Disparities Research Loan Repayment Program* and *NIMHD Extramural Clinical Research Loan Repayment Program for Individuals from Disadvantaged Backgrounds.* • Support research training of underrepresented populations participating in biomedical, behavioral, or clinical research through the *Research Supplements to Promote Diversity in Health-Related Research* program. • Promote a diversity honors program to stimulate high-achieving, under-represented students in the sciences, arts and math to explore their fullest potential through mentoring, scholarships and career development. • Develop listservs aimed at middle-, high-school and undergraduate college students informing them of health disparities-related research and internship opportunities.
NINDS	• Support the *NINDS Diversity Research Education Grants in Neuroscience (R25)* which foster the development of neuroscience researchers through creative and innovative educational programs by providing research and research-related experiences to undergraduate, graduate, medical students, postdoctoral fellows and junior faculty from underrepresented groups to broaden their skills and enhance their career development opportunities. • Support the *Blueprint Program for Enhancing Neuroscience Diversity through*

NINDS	*Undergraduate Research Education Experiences (R25)* to prepare undergraduate students from diverse backgrounds to enter Ph.D. degree programs in the neurosciences. • Partner with scientific societies such as the Society for Neuroscience to develop innovative programs to attract and retain the most talented individuals from all groups for future training and leadership positions in our extramural research community. • Address the need for a diversified workforce by increasing the number of individuals from underrepresented racial/ethnic groups, individuals with disabilities, and individuals from disadvantaged backgrounds actively participating in biomedical research through support for the *Research Supplements to Promote Diversity in Health-Related Research.* • Ensure that diverse pools of highly trained scientists will be available in appropriate research areas to carry out the Nation's biomedical, behavioral and clinical research agenda through the *Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships (F31) to Promote Diversity in Health-Related Research.* • Promote diversity among faculty-level neuroscience investigators through the *Career Development Award to Promote Diversity in Neuroscience Research (K01)* which supports an intensive, supervised research career development experience for career neuroscientists and encourages transition to independent award during the support period.
NINR	• Continue to support applications for *Research Supplements to Promote Diversity in Health-Related Research.* • Continue to support applications for the *NINR Mentored Research Scientist Development Award for Underrepresented or Disadvantaged Investigators (K01).*
NLM	• Support short-term trainee positions (STTP), for which any of NLM's university-based programs can request funds, as a tool for recruiting racial/ethnic minority or other individuals from disadvantaged backgrounds into informatics as a career. • Continue to participate in the *Research Supplements to Promote Diversity in Health-Related Research* program. • Ensure the university-based and intramural *Informatics Training Program* is advertised in recruitment fairs and professional schools likely to reach a diverse audience. • Identify and collaborate with partners in the effort to recruit and train health sciences librarians and increase diversity in the profession.

NLM	• Provide support to the Student National Medical Association for its *Physician-Researcher Initiative* to encourage entrance into academic medicine. The program features educating the membership about having a career as a physician-researcher, providing opportunities for research experiences, and developing mentorship relationships. • Support initiatives with *Mentoring in Medicine* (MIM), an organization with a mission to ignite an interest in health careers among underrepresented minority African-American and Hispanic students located at schools in New York City's Harlem and South Bronx. MIM pairs more than 500 health care professionals with students from 3rd grade through health professional school in socioeconomically disadvantaged communities. • Support the new MIM Program, *Science and Health Career Exploration* that is designed to reach six public and charter schools with an after-school program to enrich the high school biology curriculum and encourage enrollment in higher education programs leading to degrees in medicine, allied health professions, and medical librarianship. • Conduct training sessions and activities for teachers and students in schools with minority and other underrepresented populations including biomedical and health-related career events. • Promote K-12 resources in educational and professional publications.
OIR	• Continue support for the NIH Academy, a one-to-two-year post-baccalaureate program for recent college graduates who have an interest in research leading to the elimination of domestic health disparities. The program is intended to contribute to the elimination of domestic health disparities through the development of a diverse cadre of biomedical researchers and other health professionals. While in the program, trainees work side-by-side with some of the world's leading scientists in the Intramural Research Program (IRP) and participate in a series of seminars, journal clubs and workshops on topics related to health disparities. Upon completion of the program, it is anticipated that Academy graduates will resume their education and ultimately pursue careers in research and health care that will allow them to contribute to the elimination of domestic health disparities. • Continue support for the NIH Undergraduate Scholarship Program (UGSP) for students from a disadvantaged background. UGSP participants receive up to $20,000 in scholarship support to defray educational expenses. Scholarship recipients are required to be employees at the NIH IRP for ten weeks during the summer for each year of scholarship support, and one year of research employment for each year of scholarship support after their graduation. The aim of the program is to provide students from disadvantaged backgrounds the opportunity to be trained and hired as employees in the NIH Intramural Research Program.

OIR	- Continue support for the Intramural Clinical Research Loan Repayment Program (CR-LRP). The program's mission is to recruit highly qualified health professionals from disadvantaged backgrounds to serve as clinical researchers in the Intramural Research Program, using loan repayment as an economic incentive.
ORWH	- In collaboration with the NIH institutes and centers, identify successful models of women and minority scientists across the extramural funding portfolios. - Continue support for the *Building Interdisciplinary Research Careers in Women's Health (BIRCWH)* program which is a mentored career-development program for junior faculty to establish independent biomedical research careers in areas relevant to women's health.

C. HEALTH DISPARITIES INFORMATICS CAPACITY

Technology underpins all biomedical research - from basic discovery to clinical application. Biomedical researchers need advanced instruments, methods, and computing tools. In addition, investigators require new informatics knowledge and the tools that will allow them to collect, manage, and analyze the large amounts of data that are increasingly needed to address their questions. This urgent need applies to all contemporary biomedical research, and is particularly applicable to research related to health disparities.

The demand to evolve health disparities research from qualitative to quantitative will require the creation, refinement, and maintenance of sophisticated new computational tools, as well as the expansion and increased interconnectedness of cyber-infrastructure in communities across the Nation. NIH is responding to that demand.

Coordinated investment in information technology infrastructure is also critical to enabling and advancing the activities of partnerships and consortia, particularly in underserved communities. Information technology resources need to be maximized for collaboration within and across an institution's functional units, as well as to enable greater exposure to other clinical and translational research opportunities.

Objectives:

1. To develop and maintain health informatics platforms by which health disparity information can be obtained and disseminated among researchers and health disparity stakeholders.
2. To improve research data collection systems, enhance data quality regarding health disparities, and develop uniform data systems that facilitate strategies for the elimination of health disparities.

IC	Activities
NCI	- NCI proposes to continue *Infrastructure Building in the Pacific Rim and U.S. Territories* by supporting data collection through the SEER Program on Native Hawaiians and other Pacific Islander populations.

NCI	• *Comprehensive Partnerships to Reduce Cancer Health Disparities (CPRCHD) Program Bio-specimen Acquisition and Storage* initiative serves to foster creation of core facilities to collect, process, and store cancer biospecimens from under-represented populations. • Develop new information technologies that are compatible and compliant with the Cancer Biomedical Informatics Grid, which are critical to ensure that racial/ethnic data is adequately represented in research resources. Development of such databases would allow investigators to advance research pertaining to cancer health disparities and cancer biology as it pertains to racial/ethnic populations. • *CTWG Operational Efficiency Initiative* is designed to: (1) develop a standard case report form (CRF) for systematically collecting socio-economic status (SES) data on all patients enrolled in NCI-sponsored clinical trials, and (2) pilot collection of SES data to access feasibility and utility of the CRF. • The NCI funds an infrastructure to collect data on the entire cancer continuum, including prevention, cancer control health behaviors, screening, treatment, survivorship care, and patient-reported outcomes. These surveillance systems include the Cancer Surveillance, Epidemiology, and End Results (SEER) program; Cancer Care Outcomes Research and Surveillance Consortium (CanCORS); National Health Interview Survey Cancer Control Supplement (NHIS-CSS); California Health Interview Survey (CHIS) Cancer Control Supplement; Tobacco Use Supplement to the Current Population Survey (TUS-CPS); National Health and Nutrition Examination Survey (NHANES); Health Information National Trends Survey (HINTS), and other related work.
NCRR	Support provided to the *Research Centers in Minority Institutions Translational Research Network (RTRN)* will: • Provide infrastructure to facilitate secure data entry, management, and sharing across multiple sites in support of collaborative clinical and translational research, including attention to national standards; • Expand RTRN in order to enhance the clinical informatics resources available to additional RCMI sites that are engaged in clinical and translational research; • Modernize the data-sharing infrastructure and attempt to facilitate the use of that infrastructure in a variety of research communities.
NICHD	• Support the development and/or use of advanced instruments, methods, and computing tools to address health disparities within the NICHD mission areas. An example of this research includes: *Health Literacy, Technology Acceptance, On-Line Self-Care: Understanding Teens* will assess health literacy in adolescents and explore how health literacy

NICHD	along with computer self-efficiency, health self-efficacy, and health-related quality of life, technology experiences, computer access, and sociodemographic factors impact the willingness to use online disease management systems. Online disease self-management systems may be of great value in the teen population since these systems provide adolescents with a user-friendly mechanism for tracking symptoms, medications, and health behaviors.
NIDCR	• With the Centers for Disease Control and Prevention, support a Data Resource Center (DRC) to increase the ability to assess and be more responsive to changing oral health needs and disease trends of the nation.
NIMHD	• Support the implementation of technologies for information dissemination to health disparity populations. • Support research focusing on establishing comprehensive datasets that will advance understanding of social determinants and epidemiological studies of health disparities and underlying mechanisms. • Support technology initiatives (e.g., telemedicine, mobile technology, social networking, health IT) that enable effective communication of health information to diverse and “hard-to-reach” populations, such as rural populations, low-income urban populations, adolescents, etc. • Support the compilation and maintenance of a national health disparities research database showcasing peer-reviewed and pertinent research, health disparities information and statistics accessible via the NIMHD website as a central portal for health disparities information.
OBSSR	• Survey the literature on local population health data collection methods and techniques and the application of new technologies and informatics. • Identify a subset of the experts in population health data, survey research methods, informatics, cyber-infrastructure, community-partnered research, and other relevant subject matters. • Convene a workshop to discuss and help identify optimal ways of collecting population-level data and developing integrated data infrastructures. • Support in collaboration with NIH Institutes/Centers formative research and development projects to establish community health labs.

NIH Health Disparities Budget - Research Capacity-Building

Institute/Center	FY 2010 Budget	FY 2011 Estimate
CF	$0	$0
FIC	$0	$0
NCCAM	$620,000	$620,000
NCI	$104,370,000	$104,370,000
NCRR	$61,629,896	$63,287,607
NEI	$2,697,297	$2,697,297
NHGRI	$5,628,722	$5,628,722
NHLBI	$32,487,822	$32,487,822
NIA	$4,082,969	$4,082,969
NIAAA	$6,501,917	$6,501,917
NIAID	$1,031,527	$1,031,527
NIAMS	$6,461,686	$6,461,686
NIBIB	$1,024,918	$1,024,918
NICHD	$16,671,682	$16,671,682
NIDA	$2,316,018	$2,316,018
NIDCD	$1,300,000	$1,350,000
NIDCR	$3,849,890	$3,849,890
NIDDK	$9,028,041	$9,028,041
NIEHS	$1,323,423	$1,323,423
NIGMS	$138,697,749	$138,697,749
NIMH	$20,483,568	$20,483,568
NIMHD	$61,771,392	$61,771,392
NINDS	$14,961,041	$14,961,041
NINR	$417,000	$417,000
NLM	$395,000	$395,000
OAR	$0	$0
OBSSR	$632,537	$632,537
OIR	$1,887,000	$1,908,000
ORWH	$228,436	$228,436

III. COMMUNITY OUTREACH, INFORMATION DISSEMINATION, AND PUBLIC EDUCATION

For the NIH to accomplish its goal of improving the health status of racial and ethnic minorities and other health disparity populations, it will take more than an ambitious research portfolio or enhanced research capacity in the field—it will also take broad, active engagement with the many populations, subpopulations, and communities affected by health disparities. The third overarching goal of the Health Disparities Strategic Plan involves the effective practice of communication in its many forms. Research advances are of limited value if they never reach the arena of health care, missing the goal of improving public health for all Americans. The disparities in health experienced by many subgroups in the United States can all too often be ascribed to lack of information, or misinformation, and research has shown that the provision of accurate, thorough, and culturally appropriate information can significantly improve health and quality of life in our health disparity populations.

NIH outreach, information dissemination, and public education programs and efforts encompass many forms of activity, including the development and dissemination of targeted public health information and intervention campaigns; securing partnerships at the local, federal and global level to establish research, intervention and education collaborations; and offering a wealth of reliable information via the Internet, print outlets and other venues of communication. These activities all seek to incorporate a synergistic blend of research and outreach. Reaching patients, providers and the public in an efficient and culturally appropriate manner with evidence-based, trustworthy information is an intrinsic element of the NIH goal of eliminating health disparities.

The formation of strong bonds among stakeholders at the community level is another important factor in the campaign to eliminate health disparities. Fostering relationships with organizations within and outside of the Federal Government that have direct contact with health professionals, patients, underserved populations, or other target groups is vital to effectively disseminating health messages, research findings, and other important health-related news from NIH. Likewise, seeking input from diverse groups allows NIH to learn about the extent and impact of health disparities, the many and complex health issues that may be addressed by further research, and features to include in clinical trial protocols that may facilitate participation by the affected community.

A. PUBLIC AWARENESS CAMPAIGNS

Having an accurate understanding of disease risk, prevention methods, and treatment options is essential to making tangible progress in eliminating health disparities. Developing, tailoring, and communicating messages conveying that information to people and communities at disproportionate risk is a high priority throughout NIH. Through the development of public health education content, communicated through education materials and campaigns, press releases, the Internet, and other channels, NIH and its ICs strive to reach affected audiences, which may include a diverse population of patients, physicians, caregivers, and community organizations.

Targeted public health education programs have improved awareness, understanding and health behavior change in such areas as diabetes, cancer, and HIV/AIDs. For example, public awareness campaigns have been effective in the past in shifting public attitudes toward cigarette smoking, seatbelt use, drunk driving, and other modifiable detriments to public health. However, it must be appreciated that for maximum efficacy, cultural and regional differences in values, health beliefs, health information-seeking behavior, and preferences for message formats and reliable sources of health information require tailored approaches to outreach and education. These needs require ongoing research and intensive evaluation efforts, both of which in turn will require continuous development of innovative research and evaluation methodologies. It has also become increasingly clear in recent years that public awareness campaigns can no longer be simply one-way, "top-down" communications, but must involve dialogue with the target communities, with listening becoming just as important as telling.

For example, the NHLBI is committed to supporting public health awareness and education campaigns that emphasize outreach to health disparities populations, and to disseminating culturally sensitive materials that help individuals understand cardiovascular disease risk factors and make healthy lifestyle choices**.** One arm of its multi-faceted program, *The Heart Truth® Champions Program*, trains women who work at the local level and represent faith-based, civic, women's and/or health organizations. The program reaches communities of women that bear a disproportionate burden from heart disease, including African American, Hispanic, and Native American groups. To date, more than 200 Champions have been trained across the country in areas of high cardiovascular disease morbidity and mortality.

Objectives:

1. To support and develop research to improve strategies to communicate health information to health disparity populations.
2. To increase outreach and communication activities with health disparity populations.
3. To disseminate research information in the most effective manner.
4. To promote science education among youth in health disparity populations
5. To encourage students from diverse ethnicities to pursue careers in health disparities research.

IC	Activities
NCCAM	• Continue to participate in meetings and conferences that are focused on CAM use among the medically underserved communities, as well as scientific meetings and general public health expos and conferences. • Continue the *Time to Talk* program, in which information is brought directly to the health and medical care professionals, providing them with knowledge, language and tools to address the very important use and understanding of CAM modalities. • Continue to develop and disseminate reliable scientific information that is culturally sensitive, engaging to the reader, and updated frequently to reflect the pace of change in the field. Through its information clearinghouse, NCCAM will respond to individual inquiries from consumers, directing them as appropriate, to a network of reliable resources.
NCI	• *NCI Community Cancer Centers Program* (NCCCP) conducts webinars on cultural competency for various populations in order to identify issues that are unique to culturally diverse populations and across the cancer continuum. Interest topics include understanding reasons for lack of participation in research activities such as clinical trials and appropriate collection and disposal of biospecimens based on cultural beliefs. • Through the *National Outreach Network*, which embeds cancer education dissemination and outreach into some NCI grants, community health educators tailor or repurpose NCI's brochures and other cancer information material to fit specific needs and expectations of targeted underserved communities in order to foster participation in research. • *Extramural Outreach Programs* will include outreach and education activities regarding HPV vaccination and different modes of testing as well as dissemination of cancer information to HIV+ minority populations. • The *Office of Advocacy Relations (OAR) Listserv* provides culturally relevant information and resources for diverse patient advocate groups and identifies opportunities for consumers to get involved in cancer-related activities. Subscribers receive the *NCI Nealon Digest* and periodic e-mail alerts that are tailored to the cancer advocacy community. The *NCI Nealon Digest* is an electronic listing of all Federal cancer news in digest form.
NCRR	• Form partnerships through the NCRR *Science Education Partnership Award* program to educate the public, provide opportunities for mentoring, and encourage young people to pursue careers in health disparities research.
NEI	• Provide culturally specific and appropriate messages for all National Eye Health Education Program (NEHEP) content areas and materials, increase the representation of racial/ethnic populations and organizations in the NEHEP

NEI	Partnership, and continue to facilitate the national dialogue among current and future NEHEP Partnership organizations. • Support a school program for children in grades 4 through 8 called Vision, a series of three lessons designed for vision researchers and eye care professionals for school classroom visits. • Promote glaucoma awareness through the Glaucoma Public Education Program that offers a wide variety of English and Spanish-language educational materials and resources that community agencies can use to conduct glaucoma awareness activities and comprehensive public service campaigns emphasizing early detection. • Continue to promote rehabilitation and services to people with low vision, such as people age 65 and older who have decreased visual function that interferes with their activities of daily living, and people under age 65 who are particularly at risk for low vision (i.e., Hispanic/Latino and African-American populations), through the NEHEP Partnership.
NHGRI	• Facilitate the development of resources to meet the health education needs of communities affected by health disparities. Continue to support online genomic education resources about specific diseases. • Through development of web 2.0 technologies on its website, NHGRI will be able to obtain input around the kinds of resources and materials it makes available to specific audiences. NHGRI will be able to use this information to improve the development and dissemination of resources. • Organize and support the funding of public health education programs that seek input from health disparity communities in their development, so that topics are of relevance to the target community. • Support demonstration projects that seek to develop model activities and programs to engage health disparity populations around particular topics of interest. • Make the resulting data widely available through the database of Genotypes and Phenotypes (dbGaP)
NHLBI	The NHLBI has seven projects that are part of the Community Health Worker (CHW) Initiative and one trans-NIH education program. The projects are described below. • *Salud para su Corazón (SPSC)* is an ongoing community-based heart health education and outreach model to improve cardiovascular health in the Latino/Hispanic community using *promotores* as role models and educators to teach heart health to individuals and families. The capstone tool, *Your Heart, Your Life* training and education curriculum, used to train the *promotores*, has been successfully adapted for use with other ethnic groups (e.g., African Americans, Filipinos, and American Indians and Alaska Natives).

NHLBI	• *Latino Asthma Education Project*: Using the SPSC as a model, this new initiative will focus on reaching Latino parents of children aged 5-11 who have asthma. The project will include training *promotores* (as a train-the-trainer approach) and teaching Latino parents on asthma management, based on the updated *National Asthma Education and Prevention Program (NAEPP)* asthma guidelines. • *Public Health in Public Housing in Low Income Communities – Community-based Outreach Initiative for CVD*: NHLBI and the U.S. Department of Housing and Urban Development (HUD) are working together to train and equip low income and public housing residents to serve as CHWs with strategies and materials presented in the *With Every Heartbeat is Life* curriculum that helps community members, particularly African Americans, gain an understanding of the risk factors that contribute to heart disease and how changes in lifestyle can decrease those risks. • NHLBI has also developed a partnership with the Association of Black Cardiologists (ABC) to increase the use of CHWs in African American and other minority communities. NHLBI will continue to train individuals that work closely with ABC to deliver the messages of the *With Every Heartbeat is Life* curriculum. • *Honoring the Gift of Heart Health*: The NHLBI and the Indian Health Service (IHS) continue to work collaboratively to plan, develop, and implement effective approaches to improve cardiovascular health of American Indians and Alaska Natives. The NHLBI-IHS partnership has encompassed formative research, strategy development, community engagement, capacity building through CHW training, and materials development and dissemination to prevent and control CVD risk factors. The primary intervention tool is the NHLBI *Honoring the Gift of Heart Health* curriculum. • *Healthy Hearts, Healthy Families*: The NHLBI has implemented efforts to promote heart health among Filipino Americans by partnering with communities to develop culturally appropriate educational materials. The *Healthy Heart, Healthy Family (HHHF)* curriculum, picture cards, and easy-to-read booklet series provide concise, culturally appropriate information on heart disease and its risk factors in an easy-to-read format for Filipino communities. • *Heart Guardians: Cardiovascular Disease Prevention (Teacher's Guide and Curriculum)*: In partnership with Na Pu'uwai Native Hawaiian Health Care System, the NHLBI has developed a culturally and linguistically appropriate heart health curriculum for Native Hawaiian elementary school age children. • *Vietnamese American Communities: Healthy Heart Initiative*: The NHLBI has initiated efforts to promote heart health among the Vietnamese community to include development of CHW-oriented outreach and education strategies and development of culturally appropriate materials (bilingual) to engage this population.

NHLBI	- *We Can!™ (Ways to Enhance Children's Activity & Nutrition)*: The project is a trans-NIH national education program reaching children and families, especially those at high risk, as well as community organizations, to help prevent overweight and obesity in youth. *We Can!™* is a science-based national educational program to help youth, ages 8 through 13, maintain a healthy weight through improved food choices, increased physical activity, and reduced screen time. - *Sickle Cell Disease Awareness Campaign*: The NHLBI plans to launch a public education campaign in 2011 to raise awareness and bring nationwide attention to sickle cell disease (SCD). Key components of the resulting awareness campaign will include education of providers and patients about SCD diagnosis and effective treatment options. - *The Heart Truth®: The Heart Truth®* campaign encourages women to talk to their doctors, learn their risk for heart disease and take action to lower it. The centerpiece of the campaign is a national symbol, *The Red Dress®*, which serves as a red alert to inspire women to take action to protect their heart health. *The Heart Truth® Champions Program* trains women who work at the local level and represent faith-based, civic, women's, and/or health organizations. - *The NHLBI Health Information Center (HIC)*: The NHLBI has developed an extensive portfolio of culturally appropriate, multilingual educational materials and resources for racial and ethnic minority populations, including African American, American Indian/Alaska Native, Asian American/Native Hawaiian/Pacific Islander, and Latino/Hispanic audiences. Resources include pamphlets, videos, booklets, cookbooks, and manuals, which are accessible from a single page on the NHLBI Web site. - *Understanding and Promoting Health Literacy*: The objective of this program, which focuses predominantly on cardiovascular and pulmonary diseases, is the development, implementation and evaluation of culturally appropriate health literacy strategies or curriculum which can be integrated into culturally appropriate instructions. Both quantitative and qualitative approaches will be used for evaluating the feasibility of the proposed interventions.
NIA	- Maintain support for the NIA Working Group on Minority Aging *Links* newsletter, which profiles researchers who investigate age-related issues facing underrepresented groups and provides key findings from this field of study. *Links* also features training opportunities for emerging investigators looking for skills to support a career in aging research. - NIA has had a long-standing interest in providing evidence-based information to promote greater physical activity among older adults. NIA published a Spanish-language adaptation of *Exercise and Physical Activity: Your Everyday Guide from the National Institute on Aging* entitled “Ejercicio y Actividad Física: Su guia diaria del Instituto Nacional Sobre el Envejecimiento.” This

NIA	free publication provides practical guidance on exercise and physical activity and expands the target audience to include older people living with chronic conditions. Topics include the health benefits of exercise, strength, balance, and flexibility exercises, motivation, safety, and healthy eating. • NIA developed a template for easy-to-read publications and revised two topics -- *Understanding Memory Loss: What To Do When You Have Trouble Remembering* and *Safe Use of Medicines: Take Your Medicines the Right Way--Each Day!* Both booklets use checklists, questions/answers, and personal stories to convey important health information. • NIA developed a series of Spanish-language outreach materials, including the fotonovela *Nunca es tarde para comenzar a hacer ejercicio*, a poster for clinic waiting rooms, radio public service announcements, and tip sheets to raise awareness of the health benefits of regular physical activity for older adults and inform this special target audience about the free Spanish-language exercise guide now available from the NIA. • The National Institute on Aging Information Center (NIAIC), 1-800-222-2225, distributes a variety of educational materials for the public and health professionals, including *Age Pages* on more than 40 health topics from arthritis and diabetes to sleep and skin care. • At the direction of Congress, NIA established the Alzheimer's Disease Education and Referral (ADEAR) Center to respond to a growing need for information about Alzheimer's disease, research into possible causes and cures, and the disease's impact on families, providers, and the health care system generally. This information clearinghouse responds to public inquiries via the Web, telephone, email, and regular mail; operates a clinical trials database; and creates, maintains, and distributes Alzheimer's-related health information.
NIAAA	• Translate/adapt NIAAA consumer health materials for minority populations. Pretest such materials in focus groups consisting of the members of the targeted communities after receiving input from experts to improve the cultural relevance of health messages. Explore appropriate partnerships, both financial and substantive, for translation of materials. • Explore Spanish and other language subtitling for existing online training on screening and treatment. • Consider new options for the traveling health disparities exhibit, such as the NBC4 Health and Fitness Expo in Washington, DC and the Jackson Mississippi Medical Mall.
NIAID	• Continue support of the NIAID *HIV Vaccine Research Education Initiative (NHVREI)*, an initiative to create an environment in which HIV-affected communities and individuals are more aware, educated, and supportive of HIV vaccine research and have more positive attitudes towards participation in HIV vaccine clinical research.

NIAID	• Increase HIV vaccine and other prevention knowledge and communication capacity among key influencers. • Increase the number of organizations disseminating messages to their communities related to participation in HIV vaccine research. Increase dissemination of accurate HIV prevention research messages (e.g., vaccines and other prevention modalities) through formal and informal media channels.
NIAMS	• Develop new and/or revise culturally and linguistically appropriate materials provided in a variety of languages and formats. • Develop and distribute *IRPartners*, a biannual publication that features research contributions of the NIAMS Intramural Research Program (including the NIAMS Health Partnership Program) and culturally and linguistically appropriate materials developed by the Office of Communications and Public Liaison • Create specific pages on Web site for placement of materials targeting racial and ethnic minority populations. • Use a variety of promotional strategies, including media outreach to outlets serving racial and ethnic minority audiences, to disseminate current information about scientific research and discoveries and other activities regarding health disparities. • Develop and implement a *National Multicultural Outreach Initiative* to improve availability of and access to research-based and culturally relevant health information for minority and underserved populations, with an emphasis that research is the foundation for progress in achieving better bone, joint, muscle, and skin health. • Serve in a leadership capacity to coordinate the NIH Osteoporosis and Related Bone Diseases ~ National Resource Center clearinghouse, which is dedicated to increasing the awareness, knowledge, and understanding of physicians, health professionals, patients, underserved and at-risk populations (such as Hispanic and Asian women, adolescents, and men), and the general public about the prevention, early detection, and treatment of osteoporosis and related bone diseases. • Disseminate information, including materials for underserved populations, through the NIAMS Information Clearinghouse and NIH Osteoporosis and Related Bone Diseases ~ National Resource Center
NIBIB	• Continue to develop and disseminate reliable scientific information and research accomplishments to health disparity populations in culturally acceptable ways using print and online (web-based) information that has been created, including material translated into Spanish, for further information dissemination.

NIBIB	• Plan to exhibit NIBIB-funded research activities, opportunities, and scientific advances at appropriate professional and scientific meetings are currently growing as additional events are targeted.
NICHD	• Provide an active forum that will attract health disparities researchers to discuss their progress, best practices, and challenges in providing community outreach to minority and underserved populations. • Implement a committee to assess the translation of important NICHD-funded research to relevant communities. This committee will develop a toolbox or guidance for planning community engagement activities and effectively translate scientific findings to stakeholders and community members. Examples of these programs follow: Support the *Academic/Community Partnership Conference Series* (U13s) awards and increase the health-related topics that each investigator may focus on if awarded. *Lower Washington Heights CBPR Partnership* aims to improve health literacy and information dissemination within a predominately Latino/African American neighborhood. *Science and Community: Ending Obesity Improving Health* utilizes an academic/community partnership to engage community members regarding obesity across the lifespan.
NIDA	• Ensure that all radio PSAs and educational videos are culturally appropriate for all targeted population groups. • Create television drug abuse public service announcements (PSA) and videos in Spanish which will be distributed to appropriate Hispanic outlets. The PSAs and videos will follow the theme of NIDA's national campaign, "*Addiction is a Brain Disease*," in an effort to educate the Hispanic community about the disease of addiction. • Translate materials into Spanish and distribute them to parents, care givers, and service providers who work with Hispanic populations, and the general public. • Develop a guide and web site containing information on availability of research with racial/ethnic and other health disparity populations. Information such as current research, research findings, and valid measures would be available. • Identify and improve mechanisms for dissemination of research findings within and across groups serving health disparity populations.
NIDCD	• Through the *It's a Noisy Planet, Protect their Hearing* national public education campaign, increase public awareness of noise-induced hearing loss to adolescents through education and mass media efforts and define strategic

NIDCD	partnerships with other national organizations to help disseminate campaign messages and materials.
NIDCR	• Improve oral health communication to populations with health disparities by integrating science-based oral health messages and materials into existing federal health communication and education programs for minority, underserved and special needs population. • Improve oral health communication to populations with health disparities by establishing and maintaining partnerships with communities and organizations that disseminate science-based oral health information to minority, underserved and special needs populations. • Conduct and fund health communications research to better understand the oral health information needs and preferences of minorities, the underserved and special needs populations; develop and test oral health messages and materials for these audiences. • Support broad dissemination of national, state and local data, as well as special population studies, through the support of the CDC-NIDCR Data Resource Center. Broadly disseminate local, state, and national oral health datasets, preparing them for analysis and providing an interface to them so they can be used for program planning and evaluation by other public health and research entities.
NIDDK	• Build on the momentum and success of NDEP's national multicultural diabetes prevention campaign, *Small Steps. Big Rewards. Prevent Type 2 Diabetes*, by continuing to update materials and emphasize core messages related to the *Diabetes Prevention Program (DPP)* and its follow-up study, the *Diabetes Prevention Program Outcomes Study (DPPOS)*. • Provide community health workers/promotores, nurses, health educators and dietitians with interactive tools that can be used to counsel and motivate those at high risk for type 2 diabetes, through NDEP's unique, multi-component primary prevention toolkit, *The Road to Health Toolkit (El Camino Hacia la Buena Salud)*. The toolkit is for community health workers in African American/African Ancestry and Hispanic/Latino communities. • The NDEP is also updating the *GAMEPLAN Toolkit for Health Care Professionals* with findings from the DPPOS. This toolkit provides health care professionals with the latest findings from the DPP and DPPOS studies, as well as materials to help them support their patients in making and sustaining lifestyle changes to prevent and/or delay type 2 diabetes. • The NDEP's new *Support for Behavior Change Resource (SBCR)* provides a searchable database of research, tools, and programs that address the "how to" of psychosocial issues, lifestyle, and behavior change for individuals with diabetes, pre-diabetes, and those who care about them, along with health care professionals, agencies, and organizations.

NIDDK	• Expand Gestational Diabetes outreach with the ORWH through NDEP's *Small Steps. Big Rewards. Prevent Type 2 Diabetes* campaign to raise awareness of the future health risks that having gestational diabetes mellitus (GDM) places on the mother and the child. The strategies are to: 1) expand the NDEP's national media public awareness efforts aimed at consumers and health professionals, and 2) pilot a project to test an intervention strategy that encourages women to talk with their health professionals about lifelong risks after GDM. • Continue to support the *National Kidney Disease Education Program (NKDEP)* with the overall goal to reduce the burden of chronic kidney disease (CKD) and End Stage Renal Disease (ESRD), especially among communities most impacted by the disease. NKDEP aims to reduce the morbidity and mortality caused by kidney disease and its complications by improving early detection of CKD, facilitating identification of patients at greatest risk for progression to kidney failure, and promoting evidence-based interventions to slow progression of kidney disease. • Continue to deliver campaign messages designed to improve diabetes control among racial/ethnic minorities through all types of media strategies (e.g., television, radio, print public service announcements, news coverage, educational materials, traditional and non-traditional media) through a broad network of public and private sector organizations. These campaign messages and materials target African Americans, Hispanic/Latinos, Asian Americans and Pacific Islanders, and American Indians. Materials for this campaign are available in many languages, including English, Spanish, Cambodian, Chinese, Gujarati, Mandarin, Hindi, Hmong, Ilokano, Korean, Laotian, Samoan, Tagalog, and Vietnamese. • Support the availability of the extensive NIDDK inventory of publications for racial/ethnic disparities audiences, including publications about diabetes, kidney failure, chronic hepatitis C virus, hepatitis B, peptic ulcer disease, and *H. pylori* through the NIDDK Information Clearinghouses: the *National Diabetes Information Clearinghouse (NDIC), the National Digestive Diseases Information Clearinghouse (NDDIC), and the National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC)*. • The NIDDK *Minority Organ and Tissue Donation Program* provides intensive educational activities and explores ways to increase organ and tissue donation in communities with a preponderance of racial and ethnic minority groups across the United States. • The *Diabetes Education in Tribal Schools (DETS)* program 1) helps American Indian/Alaska Native children, their parents, and their communities understand the risk of diabetes and its complications, and lifestyle changes to prevent it; 2) Enhances K-12 American Indian/Alaska Native students' understanding and appreciation of direct and indirect effects of scientific discoveries on diagnosis, treatment, control and prevention of diabetes; and 3) Increases the number of

NIDDK	American Indian/Alaska Native children entering health science professions through exposure and understanding of diabetes-related biomedical sciences. • The *Diabetes Education Curriculum in K-12 (DECK-12) Schools* program was established to develop, implement, oversee, and formally evaluate a sustainable, long-term diabetes education curriculum for K-12 urban schools that have a high population of African American and Hispanic/Latino students. The objective is to develop a diabetes education curriculum that can be fully integrated into the existing education curriculum of K-12 schools. The overall goal of the DECK-12 is to increase diabetes knowledge and awareness, to promote diabetes prevention behaviors and skills in high risk children and youth, and to increase interest in health and health-related careers.
NIMH	• Develop broad-spectrum, science-based educational materials, publications, and web-based information most relevant to the mental health needs of communities with mental health disparities. Update educational materials as needed to reflect cutting-edge research that pertains to these communities. • Establish an ongoing process to assess usability of educational materials for improving the impact of NIMH research on mental health disparities (e.g., user satisfaction surveys, focus groups, web analytics, web-usability tests). • Continue active community engagement and community-based participatory research. • Prepare and disseminate the Division of AIDS Research (DAR) strategic plan, as well as promote the dissemination of findings through publications, meetings, webinars, and discussions with stakeholders. • Continue to seek regular input from DAR stakeholders concerning research initiatives to target disparities and career development of new diverse investigators.
NIMHD	• Develop and/or support innovative multi-media initiatives involving targeted health disparity populations as participants (e.g., educational campaigns, entertainment education, public service announcements) to communicate health information to health disparity populations. • Develop and/or support initiatives that promote outreach and communication to health disparity communities in collaboration with other NIH Institutes and Centers, federal agencies, community-based organizations, the private sector, and other groups/organizations. • Coordinate the publication of special issues or special sections pertaining to health disparities research in peer-reviewed scientific journals. • Create, launch, and manage a peer-reviewed Journal of Minority Health and Health Disparities with online access.

NIMHD	• Develop a Health Disparities Course targeting scientific and non-scientific health disparity stakeholders.
NINDS	• Continue NINDS's well-established *Know Stroke in the Community* public education campaign by providing culturally appropriate materials and programs specifically targeted to racial and ethnic communities who are at a higher stroke risk. • Distribute the brochure jointly produced by NINDS and CDC called *What You Need to Know About Stroke*, which is targeted to African American audiences. • Distribute NINDS English and Spanish health education materials at health fairs. Identify local opportunities for stroke education events, including outreach at African American churches, clinics and other potential partnerships that fit the particular needs of each community. • Support the annual *Specialized Neuroscience Research Programs National Conference*, which provides a forum for students, faculty and professionals in the community to share their latest research, address the unique challenges of minority-serving institutions in science, form networks of mentors and colleagues, and gain access to educational and career opportunities. • Increase efforts to translate NINDS publications into Spanish, and provide links to Spanish-language publications and websites on the NINDS home page. • Accelerate the dissemination of neuroscience-related research results and best practices throughout the research community. • Continue to play an active role in the Stroke Belt Consortium (SBC), which involves outreach and education efforts in communities in the south, including annual presentations of the latest educational programs at the national SBC meeting. • Disseminate outreach education materials at national scientific meetings aimed at increasing the participation of individuals from underrepresented groups in science.
NINR	• Continue to use the NINR website to disseminate information on NINR research advances to a wide audience, including scientists, clinicians, and the public, through features such as NINR's *Research Highlights*, which provides short summaries of research findings and links to publications.
NLM	• Disseminate information about NLM's resources and services. • Identify and make additional non-English resources available on *MedlinePlus.* • Improve the outreach of *MedlinePlus* to health providers and others through new web communications such as Twitter and other micro-blogging methods.

NLM	• Reach health providers and their patients by distributing *MedlinePlus* through mobile technologies in both English and Spanish. • Improve e-communications and outreach to health providers through email newsletters and announcements in both English and Spanish. • Improve web discoverability of *MedlinePlus* by health providers by improving search engine optimization in both English and Spanish. • Provide outreach and training for using health information to empower communities, including providing presentations to schools and educational organizations. • Identify and make resources available on *Tox Town* including non-English health information that is sensitive to culturally diverse groups. • Disseminate information about *Tox Town* and *Toxmystery* to health professionals, health care organizations, schools, educational organizations, libraries, health care, community, faith-based, and other organizations who work with minority and low income populations. • Exhibit NLM resources at national meetings of minority health professional and educational organizations and national groups that have a minority focus. • Fund projects with libraries, community, faith-based, minority educational, and other organizations that reach out to minority and low-income populations to improve their access to health information. • Conduct usability study of Spanish interface and develop Spanish-language promotional materials. • Install *Toxmystery* in the NLM Visitor's Center and disseminate *Toxmystery* kiosk specifications to support additional installations. • Prioritize distribution of *NIH MedlinePlus* and *Salud* magazines based on the greatest need and effectiveness in reaching minority, low-income, and low-literacy users. • Conduct focus group testing of the magazine with minority, low-literacy, and Spanish-speaking users. • Identify and make available health care information that is sensitive to culturally diverse populations. • Issue annual RFQ for the *HIV/AIDS Community Information Outreach Program*, publicize and promote the *HIV/AIDS Community Information Outreach Program*, encourage proposal submissions, and issue awards.

NLM	• Monitor performance of funded *HIV/AIDS Community Information Outreach Program* submissions, and if needed, provide support/technical assistance. Use feedback from completed funded *HIV/AIDS Community Information Outreach Program* to inform the future award process and program promotion. • Exhibit and conduct presentations and training sessions for HIV/AIDS information at meetings of minority health professionals such as the Black Nurses Association and the National Medical Association. • Conduct training courses at HBCUs, Hispanic Serving Institutions, Tribal Colleges and other institutions with high minority populations. Invite participation in these training courses by representatives of local community organizations. • Promote the use of AIDSinfo and its companion Spanish-language site, infoSIDA, in minority communities and to providers serving high minority populations. • Continue support for the NIH *Native American Powwow Initiative*. Train NLM staff participating at the pow-wow. Evaluate Powwow Initiative and develop future plans.
ORWH	• Continue to broaden contacts with community- and faith-based organizations with an interest in women's health and the health of special populations. • Continue to develop educational materials targeted at specific special populations of women that address health issues specific to their communities. • Collaborate with community-based advocacy groups and organizations and local and state women's and minority health offices to facilitate the distribution of educational materials developed by the ORWH, including brochures, handouts, posters, videos, and broadcast announcements, at community events such as health-related fairs, workshops, and conferences. • Continue to participate in community health events to provide timely and relevant information to expand public awareness of women's health and health disparities research. • Continue to develop and present workshops, meetings, and symposia to educate advocates in issues related to and methods of reducing health disparities of special populations of women. • Facilitate the continuing education of health professionals about the magnitude of health disparities faced by special populations of women and successful interventions that can reduce health disparities among special populations of women.

ORWH	• Expand the pipeline of information on clinical studies of special populations of minorities and women. • Encourage the participation of professional societies in disseminating information on health disparities of special populations of women to health professionals. • Encourage health professionals to target their health interventions to special populations of women. • Encourage health professionals to use their experience with patients to assist with the development of new health professional-administered interventions targeted at special populations of women. • Continue to provide educational arenas, such as the Women's Health Special Interest Group and the Women's Health Seminar Series, to inform the research community and public of current research addressing health issues of special populations of women. • Continue to work with journal editors to encourage them to publish research results and analyses that report the difference or lack thereof in health and health outcomes among special populations of women. • Encourage researchers to report experiences, successful and unsuccessful, in working with special populations of women. • Encourage researchers to report data by sex and race/ethnicity.

B. PUBLIC/PRIVATE PARTNERSHIPS

NIH often partners with representatives of industry, academia and patient advocacy groups, among others, to support and conduct research designed to improve the overall health and reduce health disparities in the population. Each partner brings its unique set of resources and strengths to the table and the resulting synergy improves and accelerates progress toward common goals.

Partnerships between government agencies and private industry already have extended and accelerated NIH research, research training and the dissemination of information in diverse and creative ways.

Efforts to reduce and ultimately eliminate health disparities in the 21st century will require even more research collaboration among public and private sectors. As researchers tackle ever more complex biomedical problems, strategic partnerships between NIH, private industry and nonprofit organizations will become more important. NIH has mechanisms in place to encourage partnerships among researchers in academia, government and the private sector. Promoting and facilitating new and ongoing partnerships is the mission of the Program on Public Private Partnerships, located in the Office of Science Policy (OSP) within the NIH's Office of the Director. The Program on Public-Private Partnerships will also serve as a point of contact for entities wishing to partner with NIH and can provide contact information and advice regarding the initiation, establishment and implementation of new partnerships. This effort will complement, not replace, the role of the Institutes and Centers as they work with the private sector to serve their missions.

Many of the NIH ICs have historically blended research and outreach to build and maintain communication linkages and partnerships with community-based organizations, health care associations, academic institutions, and business and industry entities to develop targeted interventions and public health education programs focused on diverse populations most at risk for specific diseases and conditions. These IC-level public/private partnerships will complement NIH-level programs, targeting specific populations or diseases.

For example, NIAAA is committed to developing and building partnerships with governmental and private organizations to transmit research-based information on alcohol-based problems to minority, rural, and economically disadvantaged populations. NIAAA will establish collaborative linkages with other NIH ICs and with other governmental and national organizations such as the National Highway Traffic Safety Administration, the Community Anti-Drug Coalition of America, the National Council on Alcoholism and Drug Dependence, Mothers Against Drunk Driving, the National Organization on Fetal Alcohol Syndrome, and Latino and American Indian associations and rural health organizations. These partnerships will be leveraged to help implement a wide variety of alcohol education and outreach programs.

Objectives:

1. To sponsor and support public meetings and educational trainings that bring together health disparity researchers, healthcare providers, community-based organizations, and other health disparity stakeholders (e.g., community representatives).
2. To promote public-private partnerships that reduce health disparities through the SBIR/STTR grant programs.
3. To enhance partnership between NIH extramural grantees and NIH Institutes/Centers and develop partnerships among government agencies that support community engagement activities.
4. To build and enhance community engagement and partnerships with health disparity, minority and other underrepresented communities.

IC	Activities
CC	• Expand outreach workshops related to nursing research and evidence-based practice, designed and implemented through the collaboration between federal agencies, academic institutions and tribal community leadership.
NCCAM	• Attend ethnically specific health and science meetings to work directly with the science and medical fields in understanding the different cultural contributions for CAM use and traditional health practices. NCCAM will also continue to attend forums mainly attended by scientists from underrepresented groups to encourage research on CAM use and traditional and cultural healing practices within their communities.
NCI	• The *Minority Based Community Clinical Oncology Program* addresses the access to health care component of cancer health disparities by making the state-of-the-art cancer clinical trials available to rural, racial/ethnic and other underserved populations. The Program also targets cancer health disparities by proactively increasing the participation of minority and underserved patients in cancer clinical trials, where minorities have been historically underrepresented. The participating institutions identify research issues which contribute to cancer care outcomes and provide this information to the NCI-Cooperative Groups, Cancer Centers, and other investigators involved in designing research projects. Experience gained from MBCCOP clinical trials is disseminated throughout the medical community via scientific presentations, publications, and conferences, with ample opportunities for state-of-the science education and information exchange. • The Cancer Control P.L.A.N.E.T. (Plan, Link, Act, Network with Evidence-based Tools) Web portal provides access to data and resources that help planners, program staff, and researchers to design, implement, and evaluate evidence-based cancer control programs. • AIDS Malignancy Clinical Trials Consortium and AIDS and Cancer Specimen Resource (ACSR) both have put in place increased efforts that use strategic patient and community advocates in order to engage and reach minority HIV+ populations in areas of research studies conducted and supported by NCI. ACSR is specifically developing outreach programs to educate and involve minority populations such that the collection and use of biospecimens for research purposes are informative and representational. • To understand the nature and impact of these communication technology advances, NCI is establishing a system for monitoring effectiveness of its dissemination and outreach strategies to cancer researchers. This system of tracking disseminated information and education is being used to highlight areas where multiple activities exist, to identify gaps in such activities, and to inform NCI about methods used to measure dissemination effectiveness.

NCI	• Develop and facilitate engagement among researchers and community experts to study dissemination strategies among groups suffering from adverse consequences of tumors known to be preventable or amenable to screening. Activities will include encouraging reviews of health disparities, appropriate cancers, and target populations and encouraging linkages between researchers and public health practitioners at clinical care sites serving the under- and uninsured populations to address priority areas in cancer control (e.g., tobacco, cancer screening). • NCI-designated Cancer Centers, particularly those with the "Comprehensive" designation, will develop effective research dissemination strategies to assure that target groups in the population are aware of, receive, accept, and use the most current information and other interventions. The comprehensive cancer center must demonstrate knowledge of the cancer problem in the community it serves, including special and underserved populations; establish a process for setting priorities to reduce cancer incidence and mortality in all segments of the community; establish outreach activities that address needs of the communities served; and collaborate with other centers, community hospitals, and private oncology practices to develop outreach efforts that maximally benefit the community. • The NCI Office of Advocacy Relations is developing online modules for research advocates to assess their cultural competence and build awareness, knowledge, and skills. Using video case studies and other practical tools and resources, these modules will enable advocates to better represent broad, culturally diverse patient populations in the research setting. • The Office of Advocacy Relations will reach out to disparate groups to ensure that NCI has a diverse cadre of research advocates. Applicants will be systematically screened and trained to effectively represent a broad patient perspective. • NCI SBIR Funding Opportunities are available and targeted to support the development of technologies that reduce health disparities. Currently, two small business concerns are using SBIR-funded contracts to develop molecular diagnostic assays that detect basal-like breast cancer. Basal-like breast cancer is a subtype, with a poor prognosis, that is more prevalent in pre-menopausal African American women, and there is currently a lack of effective assays on the market. The development of such an assay could be used to detect basal-like breast cancer and its recurrence as well as aid in guiding and improving clinical practice and outcomes. Set-aside funding for this contract topic is continuing in FY2011 and future funding opportunities aimed at reducing health disparities will be available via the NCI SBIR program. In addition to funding through the contract mechanism, competitive grant applications proposing to develop technologies that reduce health disparities and improve clinical outcomes will be supported with SBIR funding.

NCRR	• Convene workshops to accelerate the dissemination and translation of clinical research into practice. • Support SBIR/STTR funding opportunities to develop and deliver medical technologies that can have a significant impact on healthcare access and health outcomes for health disparity populations. • Continue to support the National IDeA Symposium of Biomedical Research Excellence and the RCMI International Symposium on Health Disparities through U13 conference grants.
NHLBI	• Develop clinical practice guidelines to aid clinicians and their patients in reducing CVD risk by identifying and controlling these CVD risk factors. Updates for clinical guidelines in hypertension, high blood cholesterol, and obesity are being developed simultaneously to create an integrated CVD risk reduction guideline. • NHLBI has also developed integrated CVD risk reduction guidelines for children and adolescents in order to reduce lifetime risk. The guidelines development process involves systematic examination of research findings in order to determine the evidence base for clinical care. The guidelines will be followed by implementation strategies to help improve evidence-based clinical care. • Support projects that will implement and test science-based approaches to improve asthma care derived from two NAEPP reports: the *Expert Panel Report 3-Guidelines for the Diagnosis and Management of Asthma* (EPR 3), and its companion, the *Guidelines Implementation Panel (GIP) Report*. • Develop SCD clinical practice guidelines to provide the foundation of evidence-based treatment and create and implement practice-, patient-, and community-based implementation strategies to improve clinical practice, patient adoption of the guidelines, and stimulate outreach/education to heightened awareness of SCD.
NIA	• The NIA and the John A. Hartford Foundation sponsor the Paul B. Beeson Career Development Awards in Aging Research Program, and have supported Beeson Scholars from 42 of the nation's top medical schools and research institutions. Today, the Beeson program continues to foster the independent research careers of clinically trained investigators — a growing cadre of talented physician-scientists — whose research and leadership are enhancing the health and quality of life of Americans, particularly older people. • Researchers from the *Alzheimer's Disease Neuroimaging Initiative (ADNI)* not only confirmed that certain changes in biomarker levels in cerebrospinal fluid may signal the onset of mild Alzheimer's, but also established a method and standard of testing for these biomarkers. In addition to the NIA, the ADNI public-private partnership includes federal support from the National Institute

NIA	for Biomedical Imaging and Bioengineering, and the participation of the Food and Drug Administration. Private sector support comes from pharmaceutical companies and other organizations through the Foundation for NIH, which has raised more than $25 million from both corporations and non-profits toward ADNI.
NIAAA	• Identify and establish collaborative partnerships with other NIH Institutes, other governmental and national organizations such as the National Highway Traffic Safety Administration, Community Anti-Drug Coalition of America, National Council on Alcoholism and Drug Dependence, Mothers Against Drunk Driving, NOFAS, and Latino and American Indian associations and rural health organizations to implement various alcohol education and outreach programs. • Improve physicians' and other health care providers' skills in detecting alcohol problems, including Alcohol Use Disorders, through the use of research-based NIAAA materials such as the *Clinician's Guide,* which is available in Spanish. Increase awareness among practitioners of the availability of culturally and/or linguistically appropriate materials that physicians can provide to their patients. • Continue to provide support for ethnically oriented groups such as the National Hispanic Science Network and the Association of American Indian Physicians. • Explore partnership opportunities with National Organizations on Fetal Alcohol Syndrome and American-Indian health associations to develop culturally-appropriate outreach materials and activities for Native American women regarding alcohol and pregnancy. • Conduct grant writing and mentoring workshops to provide technical assistance to potential applicants interested in conducting research among health disparities populations.
NIAID	• Continue collaborations with the *HIV Vaccine Trials Network*, NIAID's *Vaccine Research Center*, and other external partners to produce culturally diverse education materials and to identify/implement effective outreach strategies. • Identify appropriate organizations and societies both domestically and globally for potential partnerships and collaborations. • Continue building national community partnerships, especially among target populations, including the Washington, D.C. based Community Education Group. • Continue the Vaccine Research Center Speakers Bureau.
NIAMS	• Promote active dialogue and collaboration with the NIAMS Coalition and other intermediary and voluntary organizations to increase the distribution of information about NIAMS programs and issues specific to health disparities and outreach to racial and ethnic minority populations.

NIAMS	• Maintain a national and local exhibits program to distribute and present health information to health professionals, patients, and the general public. Many events in which NIAMS participates target underserved populations. • Staff and/or send health information to Health Partnership Program members conducting health fairs targeting racial and ethnic minority populations in the Washington, D.C. area. • Maintain regular communication with American Indian/Alaska Native Community Health Representatives through partnership with the Indian Health Service. • Serve in a leadership capacity to coordinate the trans-NIH AI/AN Health Communications and Information Work Group. • Serve in a leadership capacity to coordinate the Lupus Federal Working Group, which facilitates collaboration among the NIH Institutes, other Federal agencies, voluntary and professional organizations, and industry with interests in lupus. • Participate in trans-NIH communication efforts focused on Asian Americans. • Support HHS Office on Women's Health Lupus Awareness Campaign targeting young women of color.
NIBIB	• Develop linkages with minority-serving institutions, organizations, and professional societies to increase awareness of NIBIB research and training programs and to increase participation of minority investigators in NIBIB-funded research. • Support national meetings that target, directly or indirectly, research areas that address health access, diseases of particular importance to minority populations, rural health, and telehealth issues. Support a number of outreach activities, including grantsmanship workshops at extramural institutions, NIBIB biennial Training Grantees Meetings, and other national meetings. Send the NIBIB information exhibit and program and training staff to national meetings, including the Annual Biomedical Research Conference for Minority Students and the Society for Advancement of Chicanos/Latinos and Native Americans in Science, which address minority recruitment, mentoring, and retention issues.
NICHD	• Support annual national meetings (i.e., Society for the Advancement of Chicanos/Latinos and Native Americans in Science, Hispanic Association of Colleges and Universities, etc.) through the sponsorship of pre-conference workshops. • Support the development of educational materials, dissemination of health messages, and support research that addresses health disparities. Examples of these programs follow:

NICHD	*The Cooperative Perinatal Studies and Interventions* is a Georgetown University Medical Center (GUMC)-NIH Partnership (i.e., NIH-DC Initiative) to reduce infant mortality in minority populations. *The Chicago Public-Private Experimental Partnership to Reduce Youth Violence is* a unique collaboration between a University of Chicago-based team and the city government in Chicago which focuses on identifying effective ways of preventing youth violence through implementation and evaluation of randomized experimental interventions. *SIDS Risk Reduction in Native American Population* is a collaboration between the Native American Management Services and the NICHD. Under the guidance of a community-based work group, culturally-appropriate SIDS risk-reduction materials are being developed for use in five Indian Health Service Areas in the Northern Tier.
NIDA	• Encourage professional organizations to create and administer diversity clinical research development programs through the K12 mechanism. • Host writing workshops to facilitate publications on health disparities in peer-reviewed journals. • Develop opportunities (e.g., forums at professional meetings) with key stakeholder groups to discuss drug abuse research needs, plans, and opportunities which include practitioners and consumers. • Develop outreach programs and provide targeted training to community leaders of specific health disparity groups that will enable them to teach families about drug abuse problems and issues specific to their communities and provide those families with culturally appropriate tools for prevention and treatment. • Collaborate with the trans-NIH committee on American Indian/Alaska Native health communication effort to address the information needs of Native Americans. • Explore options to provide targeted training to Hispanic substance abuse treatment providers on effective treatment methods. • Enhance NIDA collaboration with professional organizations through NIDA national meetings and workshops. • Support workshops or programs to train investigators on conducting responsible drug abuse research in racial/ethnic minority and other health disparity communities. Consider creating resources to ensure that such research is appropriate and sensitive. • Develop strategies to obtain more input from racial/ethnic minority and rural populations.

NIDCR	• Establish and maintain collaborations with other NIH components and federal agencies to integrate science-based oral health messages into materials and programs. • Improve oral health communication for minority populations by developing culturally and linguistically appropriate and science-based oral health education messages and materials. • Establish links with African American, Hispanic/Latino American, and Native American health professional organizations to exchange information and promote participation of underrepresented minority members in biomedical research. • Maintain outreach to organizations that serve people with special needs such as Special Olympics Special Smiles and the Special Care Dentistry Association. • Increase outreach to state disability agencies, parent support groups, group home directors, advocacy organizations, health professional organizations, and community-based agencies to promote information for caregivers of people with developmental disabilities. • Increase outreach to organizations that can help disseminate oral health information to Hispanic/Latino populations • Leverage the partnerships among researchers, clinicians, and the community established through the *Centers for Research to Reduce Oral Health Disparities* to accelerate dissemination and implementation of research findings to benefit the health of disparity populations.
NIDDK	• Provide NDEP's *Capacity Building for Diabetes Outreach*: *A Comprehensive Tool Kit for Organizations Serving Asian and Pacific Islander Communities,* which is designed to help organizations strengthen capacity in eight core areas: community assessment, evaluation, organizational support, staffing, building coalitions and partnerships, funding, community outreach, and marketing. • The Community Health Centers (CHCs)--Chronic Kidney Disease (CKD) Pilot Project. CHCs provide primary health care for more than 18 million people with limited access to health care at 1150 CHCs nationwide. Among these patients, 70% are below the poverty line; 40% are uninsured and 45% are receiving Medicare or Medicaid or both; 66% are a racial/ethnic minority. The CHC-CKD pilot project was initiated to determine effective strategies for improving CKD care in those settings by providing their health care providers with tools and resources to better detect and treat CKD. The centers work together to design, implement, and monitor performance improvements related to CKD in patients with diabetes. The participating CHCs collect and report data regarding the CKD-related performance measures of estimated glomerular filtration rate (GFR); urine albumin creatinine ratio (UACR); blood pressure, use of ACE inhibitors and ARBs; documentation of screening tests—Hgb,

NIDDK	albumin, Ca, PO4, total cholesterol, LDL, HDL and TG; and discussion with their provider on four CKD topics (CKD and risk; testing; treatment; kidney failure). NKDEP provides decision support and self-management support tools, CME trainings, and ongoing technical assistance.
NIEHS	• Continue to shape the NIEHS research and training programs in cooperation with the public, and to solicit input from minority and lower socioeconomic status populations in addressing issues of concern to those populations.
NIGMS	• Continue outreach and technical assistance activities.
NIMH	• Work with existing partners (Outreach Partners Program, the Alliance for Research Progress, and the National Coalition Partnership Program) to develop various communications and outreach strategies to increase public awareness of mental health disparities and to promote evidence-based research interventions aimed at improving mental health disparities. • Seek regular input from other Public Health Service (PHS) entities, national, regional and local associations and representatives of NIMH stakeholders to determine information needs and effective modes for communication, dissemination and outreach strategies to target disparities. • Partner with other PHS entities and the advocacy community, as part of a broad communication evaluation, to determine information needs and modes for receiving them in regard to disparities. • Establish an ongoing process to monitor use and dissemination of science-based communication products that address disparities. • Seek regular input from stakeholders to support development of new educational materials for diverse groups of stakeholders addressing mental health disparities.
NIMHD	• Maintain a health disparities stakeholder database to leverage efforts to mobilize and/or disseminate health information to health disparity communities. Create a forum for the interchange of information among health disparities stakeholders. • Convene a biennial Health Disparities Summit bringing health disparity stakeholders together to facilitate the exchange and dissemination of information and ideas. • Continue to provide regional, national, and local seminars on health disparities research targeting the public, policy leaders, the research community, agencies, and institutions. • Develop a cultural competency training program informed by research findings and community input targeting healthcare providers.

NIMHD	• Continue to support conference grants that address health disparities issues on a national and global level. • Hold regional Town Hall Meetings/Listening Sessions with various health disparity populations to disseminate health information and to solicit feedback on their needs to improve community health.
NLM	• Work with the United Negro College Fund Special Programs to host the annual workshop at NLM. • Maintain existing collaborations and develop new collaborations with minority serving public schools, community-based organizations and professional associations. • Support the *National Network of Libraries of Medicine (NN/LM)*, which directs considerable resources and effort to the development, implementation and evaluation of outreach programs, and plays a pivotal role in NLM's outreach programs to reduce health disparities and improve health information literacy. The major focus of the outreach program is outreach to health care providers and consumer health information services. The program encourages and supports collaborations and partnerships with Network member libraries through funded projects and agreements. The projects are designed to target: a) special populations; b) health care providers and public health workers serving special populations; and c) minority institutions and those whose objective is to train minority health practitioners or those who serve minority populations. • Collaborate with NIH Institutes to identify topics needing Spanish translation and encourage increased emphasis in this area • Collaborate with the American Library Association Ethnic Caucuses to provide conference support for health information programming and identify other relevant activities • Collaborate with the National Medical Association to plan and conduct training activities at regional meetings in use of NLM, NIH, and other quality health information resources. Identify additional health professional groups and associations with which to collaborate. • Conduct health information presentations or training activities at meetings of health professionals and health information professionals. • Collaborate with HBCUs, tribal colleges, and Hispanic Serving Institutions to hold training courses for faculty, staff and students in use of electronic health information resources. • Identify minority community-based organizations to collaborate with for training and health information dissemination for the general public.

NLM	• Partner with organizations having closely aligned patient-education goals to increase the distribution of the *NIH MedLinePlus* magazine to minority and low-income populations distribute the magazine at national meetings of organizations that reach out to minority and low-income populations. • Collaborate with organizations serving Spanish speakers to identify key health topics of interest to their members. • Partner with NIH Institutes to increase the number of health topics of interest to culturally diverse populations. • Work with community organizations to promote an understanding of the role of information and information access in fighting HIV/AIDS. • Work with minority educational institutions, including HBCUs, Tribal Colleges and Universities, and Hispanic Serving Institutions, as well as other government agencies to co-sponsor conferences with opportunities for training workshops and information dissemination. • Continue to work with the National Minority AIDS Council on the Equal Access Initiative, to provide training to leaders and staff at funded minority-serving AIDS community-based organizations. • Work with the National Minority AIDS Council and the NIH Office of AIDS Research to expand the Equal Access Initiative with Spanish language materials and resources for the Caribbean.
OBSSR	• Develop and sponsor educational workshops and scientific sessions focused on CBPR at national professional meetings, including annual meetings of the American Sociological Association, American Public Health Association, and Community-Campus Partnerships for Health. The workshops will be aimed at informing scientists, communities, and various publics of CBPR's efficacy in improving health and reducing health disparities.
ORWH	• Continue to expand *Achieving Xxcellence in Science* (AXXS) efforts. • Expand collaboration and partnerships with underserved community organizations and scientific/professional societies, especially those focused on special populations of female scientists at all levels of the career pipeline. • Support workshops and opportunities to stimulate appropriate professional societies to develop management and leadership training programs. • Facilitate ways for professional societies, groups, and organizations to formalize networking opportunities for special populations of women scientists. • Improve mechanisms for disseminating information to professional societies, groups, and organizations on new and existing funding support for grants and

	training programs.

C. DIVERSE PARTICIPATION IN CLINICAL TRIALS

It has become widely recognized in recent years that the biomedical research enterprise in the United States has historically often failed to include participants in research studies reflective of the Nation's diverse population, and that these deficiencies have contributed to health disparities. Therefore, as part of its community outreach, information dissemination, and public health education efforts, the NIH is proactively seeking to ameliorate that situation.

The NIH Guidelines on the Inclusion of Women and Minorities as Subjects in Clinical Research clearly establish that all future NIH-supported biomedical and behavioral research involving human subjects must elicit information about both genders and diverse racial and ethnic groups, and, in the case of clinical trials, examine differential effects on such groups. Many of the NIH ICs have developed specific strategies to increase inclusion of minorities and other health disparity populations in clinical trials and other research studies.

For example, NCI is particularly proactive in efforts to increase opportunities for underrepresented minorities to enroll in cancer clinical trials, which is not surprising given the unique position of cancer clinical trials in the therapeutic armamentarium. NCI has recognized that racial and ethnic minorities and other underserved populations have been characteristically underrepresented in cancer clinical trials. The most frequently cited barrier to recruitment has been a lack of opportunity, including ineligibility and provider factors. Providers have played a vital role, in that they are often the ones who introduce the option of clinical trials to patients. Thus, NCI has instituted an initiative to develop and test interventions to increase community-based provider awareness of and improve provider attitudes toward cancer clinical trials, as well as a program to help make state-of-the-art cancer clinical trials available to rural, racial/ethnic minorities, and other underserved populations.

Objectives:

1. To enhance the participation of racial/ethnic minorities and other health disparity populations in clinical trials.
2. To advance our understanding of the ethical, legal, and social issues of participation of health disparity and minority populations in genetic and genomic research.
3. To support research for development of models of recruitment of minority and health disparity populations as research participants in genetics and genomic research studies.

IC	**Activities**
NEI	• Ensure that all clinical trials funded by the NEI adhere to the NIH Guidelines on the inclusion of Women and Minorities as Subjects in Clinical Research. • Develop Genome-Wide Association techniques that require fewer subjects. Genome-wide association studies (GWAS) have recently met with dramatic success in the analysis of complex diseases such as macular degeneration. NEI is also employing a new genome-wide association methodology that takes into account the unique genetic structure of some populations, such as African-Americans, to conduct the analysis using fewer genetic markers. This technique, which has been successfully applied to map genes for multiple sclerosis and prostate cancer in African-Americans, does not require matching disease cases with healthy control subjects, so fewer individuals are needed for a high power genome scan.
NIA	• The purpose of the NIA Clinical Research Toolbox is to provide a Web-based information repository for investigators and staff involved in clinical research. The Toolbox contains templates, sample forms, guidelines, regulations and information materials to assist investigators in the development and conduct of high quality clinical research studies.
NIAAA	• Conduct a nationally representative survey of 48,000 individuals, the *National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) III* to include Alaska Natives and Native Hawaiians and oversampling of African Americans, Hispanics, Asians, and Pacific Islanders in order to derive more precise estimates of major alcohol-related variables. Collect genetic material from all respondents including ethnic and racial minorities to further understand the underlying biologic vulnerability to alcohol use disorders • Sponsor a conference on the methods that have been successful in accessing health disparity populations and maintaining a positive working relationship during conduct of research studies.
NIAID	• Through the NIAID clinical trials networks, support studies to develop and evaluate innovative and practical approaches to enroll minorities, including minority women and young adult populations – particularly those at an increased risk of acquiring HIV – in research trials in the United States and abroad. These efforts also target medically underserved and other health disparity populations, particularly in urban areas. Support increased recruitment of health disparity populations in organ and cell transplantation clinical research. • Collect samples from ethnic and racial TB populations residing in the United States and from TB patients in the countries of origin for these persons as part of NIAID-supported clinical research/trials centers.

NIAID	• Increase support for clinical trial participation in HIV vaccine research among community leaders/key influencers. • Develop and maintain relationships with community-based and national organizations focusing on health disparity populations, specifically African American and Hispanic/Latino populations. • Collaborate with NIAID's six HIV/AIDS Clinical Trial Networks and external partners to create culturally competent and responsive social marketing and other communications materials on HIV/AIDS trial participation. • Enhance cultural competency within each of NIAID's six HIV/AIDS clinical trials networks. • Foster linkages with appropriate organizations to help increase awareness of HIV/AIDS treatment and prevention research opportunities.
NIAMS	• Conduct activities to improve the quality of patient referrals to the NIAMS Community Health Center, a clinic that offers access to specialized rheumatology care to minority patients in the Washington, D.C. area who are involved in the Natural History Study of Rheumatic Diseases in Minorities protocol.
NIBIB	• Continue to support numerous clinical studies with appropriate participation from health disparity populations.
NICHD	• Through the *Academic Community Partnership* program, seek to develop partnership between extramural research institutions and individuals or organizations with strong expertise in cultural, social, and community factors related to disparity populations. In addition, the NICHD will work to ensure sufficient minority representation in a variety of research studies, to allow scientists to generate valid and important hypotheses related to health disparities. Such research includes: *Viva: Obesity Intervention in the West Oso Independent School District* incorporates collaborative community and school engagement along with interventions to reduce obesity among Hispanic middle school students and their parents. *Improving Minority Healthcare through Dialogue and Dissemination of Information* identifies challenges associated with African Americans' access to health care, informs the community about disease risk factors, and investigates best approaches for disseminating health care disparities information to the community.
NIDA	• Provide information on strategies for recruiting under-represented groups into human subject research and clinical trials.

NIDA	• Expand research that directly recruits health disparity populations for participation in the basic and clinical neurosciences and behavioral sciences studies, with the intent of addressing health disparities. • Ensure that all racial/ethnic minority and rural populations are fully included in the NIDA *National Drug Abuse Treatment Clinical Trials Network (CTN)* as patients, advisors, and research staff. Ensure that a sufficiently large sample is recruited in each study to allow for analyses by specific racial/ethnic groups.
NIDCR	• Continue efforts to increase participation of minorities in the studies supported by NIDCR. These efforts are clearly evident in ongoing clinical trials within the *Centers for Research to Reduce Oral Health Disparities*.
NIMH	• Engage in vigorous outreach to investigators to ensure adequate recruitment of health disparity populations including designing a website resource for program staff and investigators on how to recruit a diverse study sample. • Identify and consult with investigators who have been exceptionally successful in the recruitment of diverse study samples, and use of non-mental health settings for delivery of service. • Increase monitoring and enforcement of the NIH policy on the inclusion of women and minorities in clinical research trials, and sub-group analyses in NIMH research, with bars on funding set in place until application is compliant.
NIMHD	• Foster the development of activities that support the inclusion of diverse populations in sponsored research, including the development of multi-institution networks. • Support bioethics centers which probe the fundamental barriers to the participation of racial and ethnic minorities in clinical trials.
NINDS	• Encourage the inclusion of minorities in general epidemiological research studies and the dissemination of findings from race/ethnicity-based analyses from such studies. • Partner with other ICs in developing programs to improve enrollment of participants in clinical trials including minorities.
ORWH	• Work with the Office of Extramural Research (OER) to expand and update current scientific review guidelines for scientists involved in peer review at the Center for Scientific Review. • In collaboration with OER, determine innovative ways to overcome the barriers for minority women as investigators and/or participants in research.

ORWH	• Encourage the participation of special populations of women in clinical research by increasing their knowledge and trust of the clinical research arena and building awareness of the importance of their inclusion in clinical trials. • Continue to monitor the inclusion of women and minorities in clinical studies, especially those who have previously been excluded from clinical studies, and to stress the importance of the resulting differential data, and conveying those differences to the scientific and consumer communities.

D. SOCIAL NETWORKING

As another element in their outreach and education initiatives, several ICs are exploring the value of new communications technologies and media for interacting with health professionals, health disparity populations, and other stakeholders. Advantages include the ability to communicate instantaneously and cost-effectively, but utility may be limited by access issues among disadvantaged populations.

For example, NIAMS is among the ICs actively investigating the use of social networking media such as RSS, podcasts, vodcasts, Wikipedia, Facebook, Twitter, widgets, blogs and text messaging to communicate with racial and ethnic minority populations.

NIMH is also using new technologies to disseminate information about mental illness, and facilitating the development of new partnerships between diverse groups of stakeholders that encourage them to share technological resources. NIMH will also use new technologies such as webinars to receive input from communities experiencing mental health disparities, and to inform the public about cutting edge mental health research. NIMH will develop ways to use social networking media such as Facebook and Twitter to disseminate mental health research information to reduce disparities.

NCI is also at the forefront of NIH efforts to leverage new media and social networking to positively affect health disparities, with several initiatives in progress or proposed in the area. These tools will become increasingly indispensible to outreach efforts throughout NIH in the years to come.

Objective: To conduct research and, as appropriate, implement new utilization of social networking media to enhance information dissemination, outreach, and public health education efforts to reduce health disparities

IC	Activities
NCI	• NCI, through collaborations with CRCHD and the NCI Office of Communications and Education, proposes to support exploration and development of additional linkages to social media, such as Twitter and

NCI	Facebook, for reaching new audiences and delivering timely cancer health disparities related information and education.
NHGRI	• Support innovative models of recruiting ancestrally-diverse populations to participate in genetic and genomic research, including supporting research on participation in genetic and genomic research of ancestrally diverse populations and developing resources for targeted recruitment, education, and outreach.
NIA	• The NIA is exploring a modification of social media through its Health Disparities Resource Persons Network (HDRPN), which is a web-based resource consisting of research professionals in aging, geriatrics, and gerontology who volunteer their services in support of research and NIA's goals to redress health disparities and to improve the health status of racial, ethnic and disadvantaged older adults. An objective of the HDRPN is to provide technical and capacity-building assistance to NIA and its research constituency for the purpose of supporting efforts to improve minority health and reduce or eliminate health disparities and health inequities.
NIAID	• Continue audience research and usability testing of NIAID digital communication tools to ensure all audience types are being served. • Continue development of content of NIAID disease and research topic areas, including those of interest to citizens affected by health disparities. • Continue with 508 compliance remediation efforts. • Analyze, develop and implement approaches to use of social media and other developing digital communication dissemination concepts.
NIAMS	• Explore use of social media such as RSS, podcasts, vodcasts, Wikipedia, Facebook, Widgets, blogs, text messages and Twitter to reach racial and ethnic minority populations.
NICHD	• Support research that uses new communication technologies and media to conduct research, implement interactions, and facilitate networking among grantees. Examples of this research include: The randomized, control clinical trial *Effectiveness Trial of Youth Suicide Prevention Delivered by Teen Peer Leaders* uses social network methods to identify network mediators of "Sources of Strength" impact, the extent of dissemination of peer-to-peer messages, and to evaluate the efficiency of these strategies for identifying student peer leaders. The *Cell Phone Intervention Trials for Young Adults* uses telephone technology to implement a behavioral weight loss intervention. The use of cell phones to deliver a weight control intervention has the potential to be engaging, enjoyable, practical, and cost-effective.

NIMH	• Work with partners/stakeholders to determine most effective technologies for information dissemination to address the mental health disparities. • Develop ways to use new technology (e.g., Twitter, Facebook) to disseminate mental health research information to improve disparities. • Establish ongoing process to monitor use and dissemination of science-based communication products and technologies that address disparities. • Facilitate the development of partnerships between stakeholders to share technological resources and develop cost effective means to link partners and train partners on how to share technological resources (e.g., webinars, podcasts). • Examine the feasibility of using webinars to hold national and regional meetings to disseminate new research findings and to gain feedback from communities on NIMH health disparities research priorities.
NIMHD	• Explore the use of low-cost, mobile, wireless and other innovative social networking technologies as tools for health promotion and disease prevention for health disparity populations. • Establish NIMHD social networking initiatives and activities specifically targeting underserved and minority groups, including youth and rural populations. • Explore the use of various social networking media (e.g. Facebook, Twitter, blogging) to disseminate information related to NIMHD's mission to various audiences. • Establish and maintain a mobile phone application or texting-based service for interested researchers and the public to contact NIMHD or sign up for emails, listservs or other information. • Establish and maintain listservs that allow 1) funded investigators, 2) potential investigators, and 3) middle school, high school and undergraduate/graduate college students to receive information related to the mission of NIMHD. • Maintain and develop an NIMHD website for use by interested researchers, students and the public that serves as a portal for health disparities-related information, including funding opportunities, current research and statistics.

NIH Health Disparities Budget - Community Outreach, Information Dissemination, and Public Health Education

Institute/Center	FY 2010 Budget	FY 2011 Estimate
CF	$0	$0
FIC	$0	$0
NCCAM	$50,000	$50,000
NCI	$17,440,000	$17,440,000
NCRR	$809,833	$768,676
NEI	$398,891	$398,891
NHGRI	$82,079	$82,079
NHLBI	$2,688,935	$2,688,935
NIA	$15,569,226	$15,569,226
NIAAA	$0	$0
NIAID	$234,721	$234,721
NIAMS	$421,785	$421,785
NIBIB	$0	$0
NICHD	$19,508,222	$19,508,222
NIDA	$150,000	$150,000
NIDCD	$330,000	$340,000
NIDCR	$150,200	$150,200
NIDDK	$15,500,000	$15,500,000
NIEHS	$2,217,496	$2,217,496
NIGMS	$842,434	$842,434
NIMH	$199,076	$199,076
NIMHD	$335,204	$335,204
NINDS	$0	$0
NINR	$0	$0
NLM	$2,148,360	$2,148,360
OAR	$514,150	$514,150
OBSSR	$590,396	$590,396
OIR	$50,000	$50,000
ORWH	$156,969	$156,969

IV. INTEGRATION OF RESEARCH, RESEARCH CAPACITY-BUILDING, AND OUTREACH

Given the multi-factorial nature of health disparities in the United States, it is entirely appropriate that many NIH programs and initiatives aimed at reducing the burden of health disparities incorporate a multiplicity of elements—research, training, outreach/community participation, and more. These are programs that synthesize varieties of approaches and objectives to achieve results that are much more than the sums of their parts. Some are collaborations among ICs, some are specific to particular ICs—all are emblematic of NIH's firm, substantial commitment to the reduction and eventual elimination of health disparities in the U.S. Whether it is understanding differential biological responses and disease susceptibilities among racial/ethnic groups or targeting specific minority groups who suffer disproportionately from particular diseases, or specific diseases disproportionately suffered by particular minorities, creativity, innovation, and dedication will be indispensible ingredients in the multifaceted approaches necessary to solve the health disparities problem.

A. TRANSDISCIPLINARY CENTERS OF EXCELLENCE

Recognizing that programs that encourage the integration of research, capacity-building, and outreach promote a comprehensive approach to eliminating health disparities, NIH will continue to support transdisciplinary centers of excellence. Several NIH ICs have designed centers programs to enhance the potential of institutions for scientific discovery and its effective application to health disparity populations. These centers of excellence serve as models of transdisciplinary translational research through development of clinical and public health interventions from fundamental discoveries and through laboratory investigation of clinical and population observations.

The Centers for Population Health & Health Disparities are an excellent example of the Centers concept in action. The ten Centers, supported by NCI, NHLBI, and OBSSR are designed to support cutting-edge research to understand and reduce differences in health outcomes, access and care. They conduct interdisciplinary research to examine how the social and physical environment, behavioral factors, and biologic pathways interact to determine health and disease in populations. A key objective is to generate a research program that embraces the concept of "multiple levels of analysis" in health sciences, to examine factors operating at the social/environmental, behavioral/psychological, and biological (organ system, cellular, and molecular) levels. Centers are engaged in mechanistic and intervention studies across multiple levels of analysis and across diseases and conditions relevant to the mission of the sponsoring institutes. Center grants fund expansive specialized research programs at universities around the country. Each center has a mandate to develop education and outreach programs to build and sustain a bi-directional bridge between the Center and its defined community. These outreach programs communicate research findings and concepts to their partners and convey the voice of the community to researchers within the Center. In so doing, the outreach activity increases community awareness of health disparities issues and provides researchers with the understanding of what issues are most important to the community.

These centers and programs target certain populations, diseases and exposures. Communications between center directors and all health disparities researchers amplify the benefits of individual centers and programs through communications and collaboration. Rigorous scientific review allows improvement of research or redirection of funding when a particular program is not yielding the desired benefits for public health. Excellence in research and excellence in translating the research into public health benefits are the plans of action for using funded centers and programs for reducing and eliminating health disparities.

Objectives:

1. To provide support for programs that simultaneously engage in research, capacity building, and community outreach
2. To develop the clinical nursing research infrastructure to address health disparities in American Indians and Alaska Natives by expanding nursing research capabilities through community outreach and collaborative training models
3. To broadly and effectively engage communities in clinical and translational research. For example, NCRR's Clinical and Translational Science Award (CTSA) program is creating academic homes for clinical and translational science at research institutions across the country.
4. To lead transdisciplinary exploration of the role of genetics and genomics in understanding health disparities by engaging social, clinical, and basic scientists, and health disparity communities in dialogue and identification of research needs.

IC	Activities
NCCAM	• Continue to support the *Native American Research Centers for Health (NARCH)* programs that not only implement research projects on important health issues that disproportionately affect American Indian communities, but that also support faculty development and research training.
NCI	• *NCI-designated Cancer Centers* serve as models of transdisciplinary translational research through development of clinical and public health interventions from fundamental discoveries and through laboratory investigation of clinical and population observations. To decrease cancer incidence and mortality, centers link internal cancer research initiatives to external health service delivery systems via proactive dissemination programs, education of health care professionals and the public, and community partnerships. • Support the *Minority-Based Community Clinical Oncology Program (MBCCOP)* • The MBCCOP links community cancer specialists, primary care physicians, and other health care professionals to NCI's Cooperative Groups and Cancer Centers to conduct NCI-approved cancer treatment and cancer prevention and control clinical trials. *The AIDS Malignancy Consortium (AMC)* continues to

NCI	work toward improving accrual of minority HIV+ patients. In an effort to improve access to care and improve accrual to clinical trials, collaborations between MBCCOP networks and AMC would offer HIV+ patients not currently receiving treatment both access to treatment and/or clinical trials. Developing partnerships between AMC sites and institutions in medically underserved communities and populations to bring trials to patients rather than bringing patients to the trials would provide an innovative way to reach medically underserved populations. • Collaborations between Small and Large Businesses to Develop and Promote Evidence-Based Communication Products to accelerate commercialization of communication tools and introduce each into clinical practice. NCI, through the Small Business Innovation Research Development Center and the Division of Cancer Control and Population Sciences, is requesting proposals for development of commercially-viable health communication products. • *Transdisciplinary Geographic Management Program (GMaP)* envisions employing at least four strategies to help ensure that GMaP builds strong partnerships within each region in order to have the greatest positive impact on cancer health disparities research and resource capacity. These strategies include updating and creating vehicles for cooperation among GMaP partners; elevating new technologies and science as core emphases; engaging and incorporating communities for education/training and to deliver meaningful cancer advances to populations NCI serves; and enhancing and contributing to the cadre of diverse investigators trained in cancer and cancer health disparities research. • NCI, NHLBI, and OBSSR fund *Centers for Population Health and Health Disparities* that bring together transdisciplinary teams to address health disparities using multi-level, multi-discipline, and multi-factorial approaches. Areas of emphasis are: to advance understanding of development and progression of cancer and other related co-morbidities that contribute to health disparities; to develop new or improved intervention or prevention approaches to enhance health and health conditions that would reduce health disparities; and in partnership with other NIH agencies, to advance understanding of the multi-factorial causes of health disparities. This initiative includes comprehensive training strategies and programs for junior scientists; bioinformatics methods and/or processes for sharing and combining measures and data through availability of common metrics; and intervention models that use multi-level and transdisciplinary approaches to advance understanding of social determinants of health and health disparities.
NCRR	• Encourage partnerships between CTSA, RCMI and IDeA institutions and other NCRR programs through research collaborations, visiting professorships, work groups, and the sharing of resources and infrastructure.

NHLBI	• NHLBI-supported *Centers for Population Health and Health Disparities* promote transdisciplinary research involving social, behavioral, biological, and genetic research to improve knowledge of the causes of health disparities and devise effective methods of preventing, diagnosing and treating diseases, particularly heart disease and promoting health.
NIA	• The *Alzheimer's Disease Centers (ADCs)* actively formulate strategies and plans to recruit diverse populations, including defining and addressing barriers. Some strategies that have met success are: improved patient coordination, increasing the personal attention patients receive, home visits, and support groups. A critical function of the Centers is efforts to increase the diversity of the research patient pool and enhance the research capabilities of the ADCs by integration of research, capacity building, and outreach. • The *Resource Centers for Minority Aging Research* are a highly successful key component of the integrative infrastructure supporting NIA research, training and outreach on minority health and health disparities. The program goals are: 1) increase the number of researchers working on the health of minority elders; 2) increase the diversity of the research workforce by mentoring scholars from minority and other underrepresented populations; 3) conduct research to improve recruitment and retention of minority elders in clinical trials and interventions; 4) create culturally sensitive measures of health; and 5) increase the effectiveness of interventions designed to improve health and well-being of diversity populations.
NICHD	• To address the need to promote diversity in the biomedical workforce, the *Cooperative Research Partnerships to Promote Workforce Diversity in the Reproductive Sciences* has been established. The goals of this program are to: foster the development of competitive reproductive science research programs at institutions that have a record of training minorities; support newly developed collaborations among faculty at institutions that have a record of training minorities and faculty at institutions with established reproductive science research programs; and provide opportunities for a diverse cadre of undergraduate students to participate in research, with the intent of stimulating their interest in pursuing careers in the reproductive sciences. • The study *Community Child Health Network* has designed a prospective observational study in which biosocial and biomedical measurements are combined to test the hypothesis that stressors at multiple levels (individual, interpersonal, family, and societal levels) affect the allostatic load. Increased allostatic load leads to biological disturbances causing adverse perinatal outcomes. Another unique feature of the study is the inclusion of fathers and an analysis of father's allostatic load. The study will also evaluate what factors are protective or contribute to resiliency.

NIEHS **NIEHS**	- The *NIEHS Transdisciplinary Centers* are designed to integrate two or more of the goals of research, capacity building, and outreach/information dissemination/and education. These centers target certain health disparity populations, diseases and exposures in an effort to translate research into public health benefits and actions to reduce and eliminate health disparities.
NIMHD	- Support *NIMHD Exploratory (P20) and Comprehensive (P60) Centers of Excellence for Health Disparities Research* include research on the interactions of significant biological and clinical factors with behavioral and social variables, how they affect each other, and how these interactions influence and contribute to disease and conditions in health disparity populations.
OBSSR	- Support an interdisciplinary leadership network of expert researchers to establish the feasibility, utility, and importance of applying systems approaches to health disparities and related aspects of population health. Network members also will collaborate to illustrate the importance of systems approaches to critical health disparities problems, and will lead to further development and application of systems approaches to the understanding of links between biological, behavioral, social, community, environmental and policy determinants of health disparities and population health.
ORWH	- Continue support for *Specialized Centers of Interdisciplinary Research (SCOR) on Sex and Gender Factors Affecting Women's Health* that provides for interdisciplinary approaches to advancing studies on how sex and gender factors affect women's health. Each SCOR should develop a research agenda bridging basic and clinical research on sex/gender factors underlying a health issue that affects women.

B. COMMUNITY-BASED PARTICIPATORY RESEARCH

Another concept has emerged in recent years that illustrates the profound impact of integrating research, capacity-building and outreach efforts: community-based participatory research (CBPR). CBPR is defined as scientific inquiry conducted in communities in partnership with researchers in which community members, persons affected by the health condition, disability or issue under study, or other key stakeholders in the community's health, have the opportunity to be full participants in each phase of the work (from conception - design - conduct - analysis - interpretation - conclusions - communication of results). Community refers to populations that may be defined by geography, race, ethnicity, gender, sexual orientation, disability, illness, or other health condition, or as groups that have a common interest or cause, such as health or service agencies and organizations, health care or public health practitioners or providers, policy makers, or lay public groups with public health concerns.

CBPR has emerged as an alternative research paradigm that integrates education and social action to improve health and deepen our scientific base of knowledge in the areas of health promotion, disease prevention, and health disparities. It is regarded as an effective method for transferring evidence-based research from clinical settings to communities that can most benefit, thereby improving health. CBPR processes offer the potential to generate better-informed hypotheses, develop more effective interventions, and enhance the translation of the research results into practice. Community-based research seeks to expand knowledge and understanding of potential causes and remedies of health disparities, while at the same time enhancing the capacity of communities to participate in the processes that shape research approaches and intervention strategies.

The NIH has begun to recognize and support the benefits of CBPR, especially as it relates to health disparity communities. For example, the NIMHD CBPR Initiative supports collaborations between scientific researchers and communities to jointly develop, implement, and evaluate health intervention research projects targeting diseases and conditions affecting health disparity populations. This unique and innovative CBPR program is implemented over three phases: 1) planning phase (3-year grant), 2) intervention phase (5-year grant), and 3) dissemination phase (3-year grant). If successful in each of the three phases, grantees could receive 11 years of funding to develop effective and sustainable health interventions in collaboration with health disparity communities. It is expected that the research collaborations between scientific researchers and health disparity communities will increase the communities' capacity to address community health issues and improve the effectiveness of health messages targeted to these communities. To date, NIMHD CBPR grantees have developed and are implementing interventions addressing diabetes, obesity, substance abuse, HIV, and other diseases and conditions of priority to health disparity communities.

Objectives:

1. To build and enhance community engagement and partnerships with health disparity, minority and other underrepresented communities.
2. To encourage and support research projects arising from medically underserved communities.
3. To broadly and effectively engage communities in clinical and translational research, including health disparities research.
4. To develop innovative strategies for involving communities in diabetic retinopathy research, screening and prevention, education, and outreach.

IC	Activities
NCCAM	• Continue to participate in NARCH, which requires community participation due to the importance of the Tribes and Tribal organizations to be involved in the research infrastructure and selection of the significant health issues within that community. The integration of the American Indian communities in the research proposal allows for understanding of the important role that social, behavioral, and economic circumstances play in health issues and health outcomes.

NCCAM	• NCCAM is also supportive of developing tools to understand and integrate Native Traditional healing practices and CAM modalities with conventional medicine.
NCI	• The *Community Networks Program to Reduce Cancer Health Disparities (U01)* is designed to address the cancer burden among racial/ethnic minorities and other underserved populations by using community-based participatory research (CBPR). The primary aim is to increase access to and utilization of beneficial cancer interventions in communities with cancer health disparities and to provide a cadre of well-trained researchers who continue to advance the science and reduce disparities in these communities. • The *Community Networks Program (CNP) – Centers for Reducing Cancer Disparities through Outreach, Research, and Training (U54)* is designed to increase knowledge of, access to, and utilization of beneficial biomedical and behavioral procedures related to cancer in areas ranging from prevention to early detection, diagnosis, treatment, and survivorship. These Centers will have a particular emphasis on high quality intervention research involving controlled, rigorous studies. • The primary aim of *Building Research-Community Partnerships for Health Promotion to Address Cancer Health Disparities (P20)* is to establish partnerships between researchers and communities with the purpose of engaging community members and/or organizations as active participants in the research process, using CBPR approaches. • NCI proposes to support, through its *Transdisciplinary Geographic Management Program* regions, the inter-regional integration, collaboration, and cooperation required for successful information and resource sharing and exchange and for eventual research and research capacity collaborations.
NCRR	• Engage patient advocacy groups, community groups, and their physicians in the research process from protocol idea through enrollment and study results dissemination. • Capitalize on CTSA, RCMI and IDeA grantees' experience to successfully integrate population-based approaches, research in health disparities, and establishment of trusted relationships with communities to improve the conduct of translational and clinical research. • Encourage collaboration among CTSA, RCMI, and IDeA grantees to address challenges among populations who face much higher rates of disease, premature death, and disability than other populations. Working together, these programs can address challenges that exist in clinical and community-based research to engage members of racial and ethnic minority groups and people living in rural or inner-city areas.

NEI	• Fortify community research capacity, public outreach, and clinical effectiveness research protocols by strengthening the Diabetic Retinopathy Clinical Research Network (DRCR.net). The objective of the DRCR.net is to maintain a collaborative network to facilitate multi-center clinical research on diabetic retinopathy, diabetic macular edema and associated conditions. Its priorities include involvement of community-based practices as well as university-based centers. Another priority is to collaborate with industry to facilitate investigations and opportunities otherwise not possible.
NHGRI	• Build and/or enhance relationships and partnerships with community-based and faith-based organizations, health care associations, foundations, and academic institutions representing health disparity populations. Facilitate dialogue between these communities and NHGRI and the dissemination of research findings with public health impact. Facilitate opportunities for organizations representing health disparity populations to explore issues with NHGRI, through such outlets as meetings and roundtable discussions. Support contracts/grants for the development of similar meetings and discussions outside the NIH. Participate in meetings and conferences organized by relevant organizations. In addition, examine ethical, legal, and social implications related to genomic research.
NHLBI	• Support community-based research to address cardiovascular care and emergency room use in primary care practices, informed consent in emergency situations, stroke and thrombosis, and overweight and obesity in children and adults. • Support studies to determine the effectiveness of a Community Health Worker (CHW) intervention in CVD risk reduction among Caribbean Latinos. The dissemination activities will prioritize developing mechanisms for the sustainability of the CHW intervention including discussions with local Medicaid managed care plans which have ongoing interests in innovative cost-effective culturally appropriate health care delivery models such as CHWs. • The *GoodNEWS Trial* tests community-based participatory research (CBPR) lay health promoter (LHP) collaboration in African-American churches, for reducing risk factors for cardiovascular disease among congregation members.
NIAMS	• Conduct community-based participatory research in rheumatology care with patients who suspect they have, or have been diagnosed with, a rheumatic disease upon referral by a primary health care provider and acceptance into the *Natural History Study of Rheumatic Diseases in Minorities* protocol.
NICHD	• A community-based participatory approach will be utilized to engage consumers, family members, and researchers in the design, implementation, and evaluation of culturally sensitive diagnostic and intervention tools targeted toward minority children with intellectual and developmental disorders. Community-based participatory approaches include:

NICHD	Support *the Community Child Health Network (CCHN)* to advance the understanding of the combined biomedical, social, behavioral, and environmental influences on the course of prenatal development, pregnancy outcome, and early child development. Support the *Academic-Community Partnership Conference Series (U13)* initiative which focuses on engaging the community in the identification of community health concerns that disproportionately affect communities of color including: infant mortality; sudden infant death syndrome; fibroid tumors; childhood, adolescent, and/or adult obesity; literacy; information dissemination; pediatric and maternal HIV/AIDS prevention; and violence prevention. Support *Addressing Health Disparities in Maternal and Child Health through Community-Based Participatory Research*, a Phase II initiative that uses the CBPR methodology to conduct small research projects that address a community health concern; increase the understanding of community related factors and/or cultural beliefs and practices that significantly impact health outcomes in one of the areas of emphasis; or focus on the development of innovative health messages with the ultimate objective of increasing health literacy in areas of concern.
NIDCR	• Aim to reduce disparities in cancer survival by promoting early detection of oral and pharyngeal cancer through a rural community-based intervention project focused on African Americans with research ongoing at the University of Florida's Southeast Center for Research to Reduce Disparities.
NIMH	• Develop funding opportunities that support collaborations between researchers and other relevant partners, including consumers, practitioners, and payers, to strengthen research to address disparities that are high-impact areas of science.
NIMHD	• Continue supporting the *NIMHD Community-Based Participatory Research (CBPR) Initiative* where communities partner with researchers to plan and develop interventions, implement interventions, and disseminate research findings and health information.
NINDS	• Support research projects that engage communities in efforts to better understand parameters of health disparities and in development and implementation of community based prevention/intervention strategies.

C. PARTNERSHIPS/NETWORKS

Effective integration of research, capacity-building and outreach to dispel health disparities also involves coordination, cooperation, and collaboration with a broad spectrum of stakeholders to accomplish shared goals. NIH and its ICs must work in concert with their individual and collective research communities to pursue transformative science. Working together with practitioners, policymakers, and a broad spectrum of stakeholders helps to ensure that evidence-based solutions are quickly and broadly implemented. NIH is committed to strengthening partnerships with its entire stakeholder communities, including those best positioned to help reach communities where health disparities result in a disproportionate burden of morbidity and mortality.

For example, the NLM's outreach program encourages and supports collaborations and partnerships with member libraries of the National Network of Libraries of Medicine (NN/LM) through funded projects and agreements. The projects are designed to target special populations, health care providers and public health workers serving special populations, minority institutions, and those groups whose objective is to train minority health practitioners or serve minority populations. The NLM funds approximately 200 community-based projects per year to enhance access to health information for minority and underserved populations. They build upon long-standing relationships with minority-serving institutions and develop many new relationships with schools, churches, public health departments and others interested in improving health literacy and information access.

The formation of robust partnerships and networks is critical to the success of the NIH research enterprise, both in accelerating the pace and breadth of discovery and in proliferating research findings into the appropriate communities. The integrated network paradigm encourages conduct of team science and sets the stage for forging new frontiers for health disparities research and innovation. This integration across existing research facilities, which incorporates evaluation of programs and science management, is vital for institutions that lead health disparities research and training programs. Research networks devoted to health disparities research and training implement state-of-the-art technologies from basic, clinical, and population sciences, and address the spectrum of issues related to health disparities. Through these research networks, the health disparities research and training infrastructure can more effectively advance the science of health disparities. Further, these networks can contribute to the recruitment and retention of the next generation of health disparities researchers, achieve measurable reductions in health disparities across the Nation, and address the health disparities research challenges of the 21st century.

Objective: To lead and support coordinated interdisciplinary efforts to reduce health disparities efforts through the establishment or expansion of effective partnerships and networks.

IC	Activities
CC	• Develop and expand the clinical nursing research infrastructure to address health disparities in American Indians and Alaska Natives through community outreach and collaborative training models. • Develop Native American nurse-scientists and interdisciplinary health professionals engaged in biomedical, clinical, behavioral and health services research through structured mentoring and pre-doctoral training programs. • Expand outreach workshops related to nursing research and evidence-based practice, designed and implemented through collaboration among federal agencies, academic institutions, and tribal community leadership.
NCI	• *HIV and AIDS Malignancy Awards to Initiate Research and Community Efforts Focused on AIDS-Related Cancers in Racial/Ethnic Populations in the United States.* During FY 2009, NCI funded supplements for research on HIV/AIDS-related cancers among racial/ethnic minority and underserved persons. These administrative supplements are intended to provide support for NCI program partnerships with the *Center for AIDS Research/AIDS Malignancy Consortium, Community Networks Program (CNP), Comprehensive Partnerships to Reduce Cancer Health Disparities (CPRCHD), and Patient Navigation Research Program (PNRP).* The partnerships engage community organizations by conducting HIV/AIDS-focused needs assessments as a basis for future activities. These activities consist of culturally sensitive and appropriate HIV/AIDS awareness and education or other interventions to facilitate increased prevention, early detection, and support for individuals diagnosed as HIV+ who are at risk for an AIDS-related cancer.
NIAID	• Foster early and continued collaboration with industry in the clinical development of a broad range of candidate HIV vaccines. • Identify populations at high risk for HIV acquisition and develop effective interventions for reducing their risk (HPTN 061 and HPTN 064). • Establish a District of Columbia-wide data analysis mechanism to identify and address health issues and outcomes for people receiving HIV care and treatment. • Augment the District of Columbia's HIV-related subspecialty medical care and enhance access to research studies. • Conduct a pilot program to study the voluntary test-and-treat concept aimed at stemming new cases of HIV infection.
NIAMS	• Facilitate collaborations between basic and clinical researchers in ways that help translate basic discoveries into new drugs, treatments, and diagnostics for scleroderma.

NIAMS	• Collaborate with other NIH components to share and apply knowledge to the study of lupus, vitiligo, scleroderma, and keloids.
NIBIB	• Support the *Community Infrastructure* grant program, which fosters the development, expansion, or reconfiguration of bi-directional relationships between academic health centers and community entities in the pursuit of improved public health through research. These transformative collaborative arrangements may influence the next generation of health science research through the involvement of underserved communities. For example, there are collaborations that develop or expand telehealth networks linking academic health centers and health care providers in rural and other medically underserved areas by leveraging existing telehealth and related programs (e.g., HRSA, IHS, USDA and other agencies' resources) to increase community capacity for clinical and translational research.
NIDCD	• Support a two-year pilot study of hearing assessment in newborn Native American infants. This pilot study will be conducted in collaboration with the NIAAA and the NICHD as part of the *Prenatal Alcohol and SIDS and Stillbirth (PASS) Network*. The PASS Network has comprehensive clinical sites working with Northern Plains Indian communities to help decrease fetal and infant mortality and to improve child health in these communities.
NIMH	• Develop new collaborations with relevant partners whose mission focuses on mental health disparities, including researchers, consumers, advocacy and professional organizations, faith-based communities, mental health providers, payers, racial and ethnic minority communities, economically disadvantaged communities, educators and policy makers, to strengthen research to address disparities.
NIMHD	• Support and organize a biennial Health Disparities Summit, bringing together different disciplines, institutions, IC's and agencies. • Continue to host and support the Federal Collaboration on Health Disparities Research (FCHDR) meeting of various federal agencies. • Implement a coordinated approach to rural health disparities research with HRSA, the Office of Rural Health Policy and other partners to improve rural health research and healthcare delivery services. • Continue to lead, review, and evaluate NIH minority health and other health disparity research via the NIH Health Disparities Strategic Plan.
NINDS	• Building on the experience with the *Stroke Disparities Program* and the *Alaska Native Stroke Registry*, consider developing and piloting similar programs in other communities. • Host and coordinate a seminar series on health disparities in the neurosciences in collaboration with NIAAA, NICHD, NIDA and NIMH.

NLM	• Continue to support and encourage collaborations and partnerships with member libraries of the National Network of Libraries of Medicine (NN/LM) through funded projects and agreements designed to target special populations, health care providers and public health workers serving special populations. The NLM funds approximately 200 community-based projects per year to enhance access to health information for minority and underserved populations. • Increase research capacity through information technology, information dissemination, and outreach to minority-serving colleges and universities. Initiate collaborative projects with Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs) and Hispanic Serving Institutions to strengthen their capacity to conduct research addressing environmental health and health disparities in minority and low socioeconomic communities. The current program includes representation from 14 HBCUs, three Hispanic Serving Institutions, and three Tribal Colleges.
ORWH	• Encourage competitive research linked to reducing health disparities and to increase the capacity of the Tribes and their academic partner to reduce distrust by the Native American communities and peoples toward research. This is aimed at increasing a cadre of Native American scientists and health professionals to be competitive for NIH funding. • Support the Oglala Sioux Tribe and their partnership with a Tribal College and local medical school to address health issues identified by the tribe and to expand the research capacity and infrastructure that has been developed within the Tribe over the past decade.

NIH Health Disparities Budget - Integration of Research, Research Capacity-Building, and Outreach

Institute/Center	FY 2010 Budget	FY 2011 Estimate
CF	$0	$0
FIC	$0	$0
NCCAM	$560,000	$560,000
NCI	$38,900,000	$38,900,000
NCRR	$3,193,264	$0
NEI	$1,978,722	$1,978,722
NHGRI	$372,891	$372,891
NHLBI	$13,506,233	$13,506,233
NIA	$17,126,142	$17,126,142
NIAAA	$2,751,621	$2,751,621
NIAID	$5,768,078	$5,768,078
NIAMS	$388,562	$388,562
NIBIB	$0	$0
NICHD	$68,385,663	$68,385,663
NIDA	$0	$0
NIDCD	$0	$0
NIDCR	$426,728	$426,728
NIDDK	$0	$0
NIEHS	$6,117,980	$6,117,980
NIGMS	$7,108,849	$7,108,849
NIMH	$0	$0
NIMHD	$111,657,258	$111,657,258
NINDS	$2,011,840	$2,011,840
NINR	$0	$0
NLM	$510,000	$510,000
OAR	$0	$0
OBSSR	$223,902	$223,902
OIR	$0	$0
ORWH	$904,500	$904,500

Acronyms of NIH Institutes and

CC	NIH Clinical Center
FIC	Fogarty International Center
NCCAM	National Center for Complementary and Alternative Medicine
NCI	National Cancer Institute
NCRR	National Center for Research Resources
NEI	National Eye Institute
NHGRI	National Human Genome Research Institute
NHLBI	National Heart, Lung, and Blood Institute
NIA	National Institute on Aging
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NIAID	National Institute of Allergy and Infectious Diseases
NIAMS	National Institute of Arthritis and Musculoskeletal and Skin Diseases
NIBIB	National Institute of Biomedical Imaging and Bioengineering
NICHD	Eunice Kennedy Shriver National Institute of Child Health and Human Development
NIDA	National Institute on Drug Abuse
NIDCD	National Institute on Deafness and Other Communication Disorders
NIDCR	National Institute of Dental and Craniofacial Research
NIDDK	National Institute of Diabetes and Digestive and Kidney Diseases
NIEHS	National Institute of Environmental Health Sciences
NIGMS	National Institute of General Medical Sciences
NIMH	National Institute of Mental Health
NIMHD	National Institute on Minority Health and Health Disparities
NINDS	National Institute of Neurological Disorders and Stroke
NINR	National Institute of Nursing Research
NLM	National Library of Medicine
OAR	NIH Office of AIDS Research
OBSSR	Office of Behavioral and Social Sciences Research
OIR	Office of Intramural Research
ORWH	Office of Research on Women's Health