

**National Center for Research Resources (NCRR)
National Institutes of Health (NIH)
Five-Year Strategic Plan for Reducing Health Disparities**

**Submitted to
The National Center for Minority Health and Health Disparities**

**For
The NIH Comprehensive Strategic Plan and Budget
To Reduce and Ultimately Eliminate Health Disparities**

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**National Center for Research Resources Comprehensive Strategic Plan and Budget
Submission for the NIH Comprehensive Strategic Plan and Budget
To Reduce and Ultimately Eliminate Health Disparities**

National Center for Research Resources Mission Statement

The National Center for Research Resources (NCRR) serves as a catalyst for discovery for NIH-supported investigations throughout the Nation by creating, developing, and providing access to a comprehensive range of human, animal, and technology-related resources and other research tools to facilitate biomedical research. NCRR promotes collaborations within and across scientific disciplines and provides quick, flexible approaches to address new and evolving research queries.

Overview of the Strategy for Addressing Health Disparities

NCRR intends to mobilize its research resources and other infrastructure components to continue to facilitate initiatives of other NIH Institutes and Centers (ICs) to study Health Disparities (HDs), with the ultimate goal of eliminating the disparities frequently observed among ethnic and minority populations. NCRR provides funds to support institutional and faculty development as well as research on diseases that disproportionately impact minority and other special populations.

The following are NCRR's objectives for increasing the research capacity needed to conduct health disparities research:

1. Increase instrumentation and bioinformatics resources
2. Increase research competitiveness through institutional development
3. Upgrade or build research laboratories
4. Support research training and career development
5. Expand clinical research collaborations involving minorities and recruit minority patients.

NCRR Divisions

Division of Research Infrastructure

The NCRR Division of Research Infrastructure (DRI) sponsors diverse programs and projects

that develop, expand, and invigorate the nation's biomedical research infrastructure. The Research Centers in Minority Institutions (RCMI) Program enhances the research capacity and infrastructure at minority colleges and universities that offer doctorates in the health

sciences. Eligible graduate institutions must have one or more under-represented minority groups that comprise at least 51 percent of their student body representation and offer doctorate degrees in the health-related sciences. RCMI support includes funds to recruit established and promising researchers, acquire advanced instrumentation, modify laboratories for competitive research, and to fund core research facilities and other research support. Because many investigators at RCMI institutions study diseases that disproportionately affect minorities, NCRR support serves the dual purpose of bringing more minority scientists into mainstream research and enhancing studies of minority health.

Supported by DRI funding through the RCMI Clinical Research Infrastructure Initiative, clinical research activities at these centers encourage minority scientists' participation in clinical investigations. Six of the 18 RCMI-supported institutions have clinical research centers, and a seventh holds an NCRR-supported General Clinical Research Center-described below. These special centers provide an effective mechanism for minority investigator participation in health disparities research.

The DRI also awards extramural construction grants that match institutional funding to support new and ongoing construction projects at research facilities nationwide, including minority-serving institutions.

Both the extramural Research Facilities Improvement Program (RFIP) and the Animal Facilities Improvement Program (AFIP) provide institutional grants to construct new or renovate existing research laboratories and clinical facilities, and to renovate and repair existing animal facilities that support biomedical and behavioral research. A special initiative provides support for Minority Serving Institutions to upgrade their animal research facilities to the standards of the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC).

The Institutional Development Award (IDeA) Program targets institutions in states that historically have not had the capacity to successfully compete for NIH research grants. The program helps strengthen their infrastructure and ability to compete independently for Federal funding. In addition, this subset of states includes several special populations to be included under this initiative.

Division of Clinical Research

The NCRR Division of Clinical Research (DCR) provides resources to translate scientific knowledge into effective patient care through its network of 80 General Clinical Research Centers (GCRCs), located at academic medical centers and teaching hospitals nationwide. Each GCRC provides a specialized research environment for conducting patient-oriented studies of many diseases-including cardiovascular disease, cancer, diabetes, and AIDS-that affect adults

and children. Among the research resources available at most GCRCs are specially trained staff (including research nurses, dieticians, and biostatisticians), computer hardware and software systems for data management and analysis, both inpatient beds and outpatient facilities, and sophisticated laboratories vital for clinical research. In addition, several GCRCs have satellite research facilities to include special research populations as well as other nearby institutions that serve to expand the scope of investigations. DCR also supports clinical research career development through NIH-wide mechanisms: K23, K24, and K30.

The Science Education Partnership Awards (SEPA) bring together researchers, educators, community groups, science centers, museums, and other organizations to create and disseminate recent scientific findings that both stimulate an interest in the pursuit of a career in science and informs the public to make healthier lifestyle changes.

Division of Biomedical Technology

The NCRR Division of Biomedical Technology (DBT) provides access to cutting-edge technologies and instruments that play a critical role in health-related discoveries. At Biomedical Technology Resource Centers-located at universities and research institutions nationwide-teams of scientists discover, develop, and disseminate technological innovations that can be applied to a broad spectrum of biomedical investigations. Each resource center specializes in a particular type of research tool or technology such as synchrotron radiation, mass spectrometry, laser applications, flow cytometry, advanced microscopy, or simulation and computation. Qualified biomedical investigators can gain direct access to these centers, remotely use state-of-the-art instruments or advanced databases via the Internet, or request that specialized materials be shipped to them.

DBT also supports investigator-initiated research projects, including exploratory/development grants, to create new or improved instruments and technologies that may eventually evolve into full-fledged resource centers.

The DBT Shared Instrumentation Grant (SIG) Program allows three or more NIH-supported investigators to purchase sophisticated commercial instruments that cost at least \$100,000. Instruments that cost more than \$750,000 may be funded through the new DBT-supported High End Instrumentation Program.

Division of Comparative Medicine

The NCRR Division of Comparative Medicine (DCM) ensures that biomedical investigators have sufficient access to healthy research animals and animal-related materials that are critical to understanding human health and disease. DCM-supported animal resource centers, biomaterial and information resources, and career development awards enable investigators to carryout research, and to create, preserve, or distribute a wide variety of high-quality animal and animal-related models.

Eight Regional Primate Research Centers (RPRCs) and related resources maintain nonhuman primates and provide specialized research environments. Because these animals are so closely related to humans, they are optimal models for studying normal biological processes and devastating diseases. DCM also sponsors the national NIH Chimpanzee Management Program, which supports long-term, cost-effective housing and maintenance of chimpanzees that can be used in biomedical research.

DCM-supported Mutant Mouse Regional Resource Centers (MMRRCs) make available quality, genetically altered mice. Other rodent resources emphasize the discovery and preservation of naturally occurring and induced mutant mouse models of human disease, and also cryopreserve mouse germplasm.

Repositories and stock centers offer access to additional animal models, including wild-type, mutant, or genetically defined strains of zebrafish, fruit fly, and roundworm. Other animal-related resources broaden the usefulness of animal models, providing specialized tissues, cells, and microorganisms; DNA arrays for analysis of gene expression; computer models; and comprehensive shared databases and resources.

Summary Comment: NCRR programs provide a variety of shared resources, biomaterials and specialized research centers to facilitate patient-oriented research, animal model-based research as well as to develop and provide access to advanced technologies. Although the estimates appear as ‘hard’ numbers, they truly reflect ‘estimates’ because future NIH appropriation levels are unknown and the level of research to be conducted by other NIH Institutes and Centers through NCRR resources is unknown. Consequently, NCRR estimates for this Plan are extrapolations from ongoing related research currently hosted by NCRR programs.

Research Infrastructure Goal

To reduce and ultimately eliminate health disparities, NIH will expand its programs and develop new initiatives with respect to research capacity and infrastructure.

Area of Emphasis: Provide increased funding at institutions across the country for resources, new equipment and shared instrumentation programs for use in health disparities research.

Rationale and Priority

Institutional development strengthens an organization’s infrastructure and increases its capacity to conduct cutting-edge biomedical and behavioral research. A strong infrastructure provides modern research laboratories and equipment, develops the research skills of talented investigators at the institution, and attracts established investigators to the institution.

In order to enhance the distribution of biomedical and behavioral research geographically, NCCR, on behalf of NIH--developed the IDeA Program to foster research within states that traditionally have not received significant levels of competitive funding from the NIH. These states provide a special opportunity to study special populations.

NCCR Objective 1: Increase Resources and Shared Instrumentation

In recognition of the need for and advantages of continuing investment in new instrumentation for the advancement of biomedical research, the NCCR announced a new program for the support of high-end research instrumentation. Awards will be made for up to a maximum of \$2.0 million in direct costs for a single major item of advanced equipment.

Access to the high-speed network known as Internet2 will allow biomedical investigators to utilize sophisticated computational tools available at major technology centers across the nation and enable them to address research questions that focus on areas such as genomics, proteomics, and bioinformatics. Internet2 access will also facilitate sharing of educational resources and data, enhance clinical research capacity, and provide access to ethnic minority populations and socially marginalized groups, thereby improving efforts to address health disparities across the nation.

Action Plan 1.1: Increase Access to Research Equipment and Shared Instrumentation

NCCR will increase the level of funds available through the SIG program, which supports acquisition of commercially-available equipment costing more than \$100,000, and markedly expand the High End Instrumentation Program in FY 2003. More than 100 letters of intent for a FY 2002 RFA provide evidence of a widespread need for research instrumentation costing between \$750,000 and \$2,000,000. The instrumentation will facilitate investigators' studies to discern why health disparities exist and to test approaches to eliminate them.

Action Plan 1.2: Provide Internet2 and Advanced Bioinformatics Tools to Minority Serving Institutions to Facilitate Minority HD Research

NCCR will work with minority-serving graduate and medical schools to assure that, where appropriate, their researchers have access to Internet2 and advanced bioinformatics tools to facilitate participation in NIH-sponsored clinical trials and other studies for those diseases which disproportionately affect ethnic and minority populations.

Performance Measures

NCCR will use the specialized expertise of workgroups and the National Advisory Research Resources Council (NARRC) to routinely monitor and assess the implementation of proposed activities to ensure programs are designed to meet the needs of stakeholders. This includes monitoring Program Announcements (PAs), Requests for Applications (RFAs), and grantee activity and progress.

Outcome Measures

NCRR plans to measure impact and outcomes by tracking new awards made and analyses/findings disseminated by grantees and staff.

NCRR Objective 2: Increase Research Competitiveness through Institutional Development

The purpose of the IDeA Program is to foster capacity building for health-related research through support for faculty development and enhancement of the research infrastructure of institutions located in states with historically low aggregate success rates for grant awards from NIH. Two recently developed programs provide competitive support to attain the goals of the IDeA Program. The purpose of the Biomedical Research Infrastructure Networks (BRIN), which provides up to 3 years of support, is to promote the development, coordination, and sharing of research resources and expertise that will expand the research opportunities and increase the number of competitive investigators. In addition, BRIN is intended to enhance the caliber of science faculty at undergraduate schools; this, in turn, will attract more promising students to those institutions.

The second IDeA program, Centers of Biomedical Research Excellence (COBRE), provides 5 years of support for a multidisciplinary team, led by an NIH-funded investigator, to develop faculty biomedical research expertise and competitiveness within a thematic research focus. Funds are provided to build the research infrastructure to enhance the institution's research capacity and competitiveness for NIH grant funds.

Special populations within the IDeA states include Native Americans, Aleuts, Native Alaskans, African Americans, Hispanics and Hawaiians/Pacific Islanders with diseases that affect them disproportionately. Both BRIN and COBRE provide research support for studies on those populations as well as the impact of health disparities on those populations.

Action Plan 2.1: Biomedical Research Infrastructure Networks (BRIN)

NCRR will provide competitive support through BRIN to IDeA state investigators for health disparity studies of the special populations within the 23 IDeA states and Puerto Rico.

Action Plan 2.2: Centers of Biomedical Research Excellence (COBRE)

Provide competitive support through COBRE to IDeA state investigators for health disparity studies of the special populations within the 23 IDeA states and Puerto Rico.

Performance Measures

Each grant must contain an evaluation component to assess whether the effectiveness of the approach taken will meet the goals or benchmarks for building an effective institutional research network. The NCRR will routinely monitor and assess the implementation of proposed activities.

Outcome Measures

NCRR will routinely monitor the implementation of proposed activities through the increase in research grant awards to IDeA state institutions that participate in BRIN and COBRE; increased number of peer reviewed research papers focusing on health disparities; and better quality graduate students attending graduate schools in the state.

Area of Emphasis: Increase funding support for construction and renovation of research facilities across the nation aimed at enhancing the capacity of these institutions to conduct health disparities research.

Rationale and Priority

The objective of the extramural RFIP is to facilitate and enhance the conduct of PHS-supported biomedical and behavioral research by supporting the costs of designing and, constructing non-Federal basic and clinical research facilities to meet the biomedical or behavioral research, research training, or research support needs of an institution or a research area at an institution.

Very few minority graduate institutions have an animal research program accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC). To further strengthen biomedical research programs that include the capacity for more sophisticated animal-based research at these institutions, it is essential to upgrade their animal research facilities and staff support to AAALAC standards.

NCRR Objective 3: Upgrade or Build Research Laboratories

NCRR will provide support to upgrade or build research laboratories to accommodate modern research and to increase health disparities research. Special emphasis will be given to smaller, developing institutions.

Action Plan 3.1: Construct or Renovate Biomedical Research Facilities for Health Disparities Research

NCRR will assist institutions with developing the research infrastructure necessary to provide stable, well-maintained, state-of-the-art research environments that will enable them to conduct HD-related research.

Action Plan 3.2: Assist Minority Graduate-Level Institutions in Upgrading Their Animal Research Facilities

The leadership of the minority graduate schools funded through the RCMI Program have identified the need for upgrading their animal research facilities among their top priorities. In response, NCRR staff has arranged meetings between senior institutional officials from the participating minority institutions and AAALAC staff to apprise institutional officials of the requirements for animal research facilities accreditation by AAALAC. NCRR staff will also facilitate AAALAC pre-accreditation evaluation site visits so that specific facility needs can be identified for each participating minority institution.

Additionally, Public Law 106-525 states that "In carrying out subsection (a), the Director of the Center [NCMHD] - (1) shall assist the Director of the National Center for Research Resources in carrying out section 481(c)(3) and in committing resources for construction at Institutions of Emerging Excellence." The NCRR Director will work with the NCMHD Director to improve research facilities at minority institutions.

To further enable this effort, NCRR has developed a special initiative within its AFIP for minority-serving graduate-level institutions to compete for funds for upgrading their animal research facilities to become AAALAC accredited. Since minority graduate schools lack flexible institutional funds, NCRR will waive the requirement for matching funds for successful minority institution applicants to this special initiative.

Performance Measures

NCRR will use the specialized expertise of workgroups and NARRC to routinely monitor and assess the implementation of proposed activities to ensure programs are designed to meet the needs of stakeholders. This includes monitoring PAs, RFAs, and grantee activity and progress.

Outcome Measures

NCRR plans to measure impact and outcomes by tracking new awards made and analyses/findings disseminated by grantees and staff.

Area of Emphasis: Expand opportunities in research training and career development for, and provide research supplements to, research investigators from minority and other special populations experiencing health disparities.

Rationale and Priority

NCRR concurs with the public comments on the October 2000 NCMHD Strategic Plan that there is a need for research training and career development programs targeted to minority investigators. NCRR will support research training and career development programs to ensure that more minority investigators are positioned to focus their research on those diseases that disproportionately affect racial/ethnic minorities.

NCRR Objective 4: Support Research Training and Career Development

NCRR has identified several programs to enhance the training and career development of minority investigators.

Action Plan 4.1: Mentored Medical Student Program

NCRR plans to support mentored clinical research development programs to pique the interest of minority medical students, as well as provide career development programs for post-doctoral fellows and junior faculty to acquire the research tools for state-of-the-art clinical investigation through the Mentored Medical Student Program. NCRR will promote and support these model programs to the seven RCMI institutions with affiliated medical schools. In addition, NCRR will provide support for K23s, K24s and the clinical loan repayment program to qualified minority candidates as well as other candidates who conduct health disparities research.

Action Plan 4.2: Support Science Education Partnership Awards (SEPA)

NCRR plans to support Science Education Partnership Awards (SEPA) that will expose racial and ethnic minority K-12 students and the public to science to increase their understanding of biomedical research and its implications to their health. This includes expanding their awareness of HD prevention and treatment strategies so that these groups will make healthier lifestyle choices. The SEPA Program will build partnerships between biomedical and behavioral researchers, educators, community groups, and other interested organizations to develop HD-related science museums and other comparable exhibits. Researchers who study human disease and illness can make major contributions to science education programs by passing on their knowledge and also demonstrating the excitement of carrying out health-related research.

Performance Measures

NCRR will use the specialized expertise of workgroups and NARRC to routinely monitor and assess the implementation of proposed activities to ensure programs are designed to meet the needs of stakeholders. This includes monitoring PAs, RFAs, and grantee activity and progress.

Outcome Measures

NCRR plans to measure impact and outcomes by tracking new awards made and analyses/findings disseminated by grantees and staff.

Area of Emphasis: Increase the number of participants in clinical trials from minority and ethnic populations and other special populations experiencing health disparities.

Rationale and Priority

Through collaboration, NCRR will enable increased participation of ethnic minority physicians in clinical research that includes high proportions of ethnic minority patients or volunteers. NCRR supported resources provide a unique mechanism to leverage research participation. Research partnerships can be developed between these resources and NIH supported investigators. One such example is the RCMI Clinical Research Centers which are geographically located close to GCRC sites. Utilizing this geographical relationship, research partnerships can be developed between RCMI-Clinical Research Centers with many young, aspiring minority clinical investigators and GCRC-based clinical investigators who may serve as mentors to promising minority physicians and dentists.

Although the NIH requires the inclusion of minorities in clinical research and clinical trials, it has, at times, proven difficult for investigators to recruit adequate numbers of representative minority patients for research studies, either because of their geographic location or due to a lack of trust of non-minority health providers within the community. By facilitating the career development of minority clinical investigators, the participation of minorities in clinical trials most likely would increase.

NCRR Objective 5: Expand Collaborations to Involve Minorities in Clinical Trials and Recruitment of Minority Patients

The collaboration between GCRCs and RCMI-Clinical Research Centers will provide minority investigators ready access to the more robust clinical research infrastructure available through the

GCRCs. In addition, NCRR will encourage formation of consortia between RCMI-Clinical Research Centers and nearby GCRCs to create a critical mass of collaborating investigators who will be positioned to more effectively address HD research.

Action Plan 5.1: Foster Collaboration Between General and Minority Clinical Research Centers

NCRR will develop comprehensive centers for studies on health disparities through collaborations among RCMI-Clinical Research Centers, GCRCs and other NIH components. NCRR will develop approaches to encourage community-based minority participation in clinical research studies that focus on diseases that differentially impact ethnic minorities and constitute health disparities. NCRR will facilitate collaborative involvement among IC-supported disease-specific centers, RCMI-supported minority medical schools, and community health centers.

Action Plan 5.2: Support Research Resources for HD-Related Clinical Research

To expand the conduct of HD-related research, NIH supported investigators will require increased research capacity provided by NCRR supported multidisciplinary research resources. Minority participation in clinical research studies at these resources will result in statistically meaningful research that will provide important information to health care providers of minority patients.

Performance Measures

NCRR will use the specialized expertise of workgroups and NARRC to routinely monitor and assess the implementation of proposed activities to ensure programs are designed to meet the needs of stakeholders. This includes monitoring PAs, RFAs, and grantee activity and progress.

Outcome Measures

NCRR plans to measure impact and outcomes by assessing changes in participation level of individuals and institutions engaged in NCRR-sponsored research related to minority populations. In addition, research development programs will be monitored to determine degree of participation in research. Formal evaluation plans and processes, however, have not yet been determined.

NCRR Health Disparities Budget
(Dollars in Millions)

Institute / Center	FY 2002			FY 2003		
	Research	Infrastructure	Outreach	Research	Infrastructure	Outreach
NCRR	\$0.00	\$72.30	\$0.00	\$0.00	\$78.20	\$0.00