



II. CDMRP Accomplishments

*...shaping the future of health care
to prevent, control, and cure diseases.*

CDMRP Accomplishments



Background

The Congressionally Directed Medical Research Programs' (CDMRP's) mission is to provide hope by promoting innovative research, recognizing and mobilizing untapped opportunities, creating partnerships, and guarding the public trust. The CDMRP continues to make advances in each of these areas and as a result serves as a national and international model for reinventing science administration.

The CDMRP has funded approximately \$1.95 billion in biomedical research from fiscal year 1992 (FY92) to FY02. This has resulted in 4,910 research grants, contracts, and cooperative agreements (Table II-1). Scientific advances arising from these awards are having an impact on the targeted diseases managed by the CDMRP. For information on achievements related to specific programs, see the corresponding program sections of this report (Sections III–XI).

The CDMRP is committed to funding a diversified portfolio of research efforts. These awards cover over a dozen major scientific areas encompassing basic, clinical, and population-based research. The CDMRP believes that by working together we will be able to shape the future of health care, as evidenced by the accomplishments that are reported below and described throughout this annual report.

Table II-1. FY92-02 Awards Managed by the CDMRP

Program (Fiscal Years)	Grants Managed	Dollars Invested
BCRP (FY92–02)	3,671	\$1,173.8M
PCRP (FY97–02)	797	\$341.1M
NFRP (FY96–02)	103	\$77.7M
OCRP (FY97–02)	63	\$52.5M
PRMRP (FY99–02)	98	\$116.3M
CMLRP (FY02–03)*	10	\$7.5M
TSCRP (FY02)	3	\$0.9M
NPRP (FY02)	38	\$37.2M
Other Programs (FY95–02)	127	\$141.5M
Total	4,910	\$1,948.5M

*Appropriations for FY02-03 CMLRPs were combined to fund 10 awards to date.



Promoting Innovative Research

In 1993, a recommendation was made to the U.S. Army Medical Research and Materiel Command (USAMRMC) by the Institute of Medicine to “create an environment in which creative ideas and first-rate research can flourish and in which investigators are not afraid to gamble on risky but alluring ideas.”¹ Many of the award mechanisms offered by the CDMRP emphasize support for exploration of ideas that will stimulate new directions in research. While each mechanism has different award requirements, all share the common goal of fostering innovative ideas, creative solutions, and breakthrough technologies.

Through FY02, the CDMRP has funded 2,601 awards across five mechanisms that specifically encourage innovative scientific ideas and approaches to disease eradication. These awards have made significant contributions to our understanding of disease processes, the development of therapeutics, and the improvement of quality of life. Table II-2 summarizes the number of awards made and the dollars invested from FY93 to FY02 for support of novel ideas.

Table II-2. Summary of Awards from FY93–02 That Foster Novel Ideas

Award Mechanism	Programs (Fiscal Years)	Number of Awards	Dollars Invested
Concept	BCRP (FY99–00*, 02)	455	\$40.5M
Exploration	BCRP (FY02)	20	\$4.4M
Idea/Idea Development	BCRP (FY93–02)	1,357	\$462.9M
	PCRCP (FY97–02)	422	\$210.2M
	NFRP (FY99–02)	24	\$9.3M
	OCRCP (FY99, 02)	29	\$14.1M
	NPRP (FY02)	17	\$7.8M
	TSCRCP (FY02)	3	\$0.9M
Innovator	BCRP (FY01–02)	6	\$16.8M
New Investigator	PCRCP (FY97–02)	231	\$72.5M
	NFRP (FY99–02)	21	\$9.7M
	OCRCP (FY99–00)	16	\$6.9M
Total		2,601	\$856.0M

*Concept Awards offered by the FY99 BCRP were supported by both FY99 and FY00 appropriations.

¹ Institute of Medicine, Strategies for Managing the Breast Cancer Research Program: A Report to the U.S. Army Medical Research and Development Command, 1993.



Recognizing Untapped Opportunities

The CDMRP has been a pioneer in exploring and mobilizing untapped research and management opportunities, from creating award mechanisms that fulfill unique niches to developing innovative management execution processes, many of which are now being adopted by other funding agencies. Collectively, these new practices reflect the CDMRP's commitment to creating foundations on which future research can be built.

CDMRP Award Opportunities

The CDMRP has provided support for areas of highest priority and greatest need among individual programs. The CDMRP has ensured that the focus and structure of research categories and award mechanisms offered within individual programs match the unique opportunities for research breakthroughs. In addition to promoting innovative research, the CDMRP has offered opportunities to develop necessary research resources and train new investigators.

Developing Research Resources

In the 1993 IOM report, it was noted that "research in breast cancer is impeded by the inadequate access to resources that are appropriate for sharing—including tumor samples, cell lines, animal models, DNA probes, follow-up data on women diagnosed with breast cancer; information about ongoing clinical trials, and economic data to evaluate the cost of care."² Based on this clear need in 1993, and the need for similar support identified by Integration Panels (IPs) in subsequent years, the CDMRP has funded research resources awards across most of its programs. These awards are designed to provide researchers with support to (1) create or obtain materials and data from multiple sources that would otherwise be difficult to acquire or (2) establish and support centers or consortia that can provide a foundation for future research. Award mechanisms developed to enhance research resources are listed in Table II-3.

² *Institute of Medicine, Strategies for Managing the Breast Cancer Research Program: A Report to the U.S. Army Medical Research and Development Command, 1993.*

Table II-3. Summary of Research Resources Awards from FY92–02

Award Mechanisms	Programs (Fiscal Years)	Number of Awards	Dollars Invested
Behavioral Centers of Excellence	BCRP (FY00)	4	\$23.2M
Breast Cancer Centers of Excellence	BCRP (FY01–02)	8	\$51.9M
Cancer Centers of Initiation/ Program Projects	BCRP (FY93–95)	4	\$17.8M
	PCRP (FY99)	4	\$8.5M
	OCRP (FY97–98, 00–01)	16	\$30.2M
Collaborative-Clinical Translational Research	BCRP (FY99–00, 02)	3	\$5.5M
Mammography/Breast Imaging Equipment	BCRP(FY92)	2	\$4.1M
Natural History Studies	NFRP (FY97)	2	\$5.7M
Prostate Cancer Consortium	PCRP (FY02)	2	\$19.9M
Prostate Cancer Consortium Development	PCRP (FY01)	5	\$0.7M
Research Resources	BCRP (FY93/94)	28	\$23.4M
Special Mammography Demonstration Projects	BCRP (FY95)	8	\$11.4M
Total		86	\$202.3M

Support for Training and Recruitment

In the 1993 IOM report, it was stated that the "best investment the program can make is to stimulate talented new investigators...."³ The CDMRP's commitment to training and recruitment is demonstrated by its portfolio of funded projects, nearly one-third of which focus on training and recruitment.

The CDMRP's flexibility is evident when one reviews the spectrum of awards to stimulate talented new investigators, as illustrated in Table II-4. The CDMRP has created mechanisms to support both new researchers in the field and established scientists interested in extending their expertise to the study of other diseases. Through FY02, the CDMRP has offered 13 different training and recruitment award mechanisms with the ultimate goal of training and mentoring the next generation of scientists that will produce treatments for human diseases. Preliminary indications are that these mechanisms are successful in encouraging productive new investigators to enter targeted fields of research.



³ Institute of Medicine, Strategies for Managing the Breast Cancer Research Program: A Report to the U.S. Army Medical Research and Development Command, 1993.



Innovative Program Management Execution Processes

The CDMRP continues to emphasize new and innovative practices to advance program management execution, as detailed below.

Electronic Proposal Submission and Review

The CDMRP has been a leader in advancing electronic technology to improve and streamline program management, thus saving time, saving money, and improving quality. Beginning in FY00, the CDMRP implemented an electronic submission process for a single award mechanism within a program. In FY03, applicants for all CDMRP programs were required to electronically submit their proposals. To date, over 7,400 proposals have been received electronically. Additionally, to facilitate the proposal review process, reviewers for both tiers of review receive their review materials in electronic format.

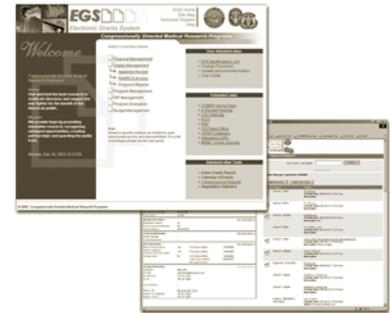
Table II-4. Summary of Training and Recruitment Awards from FY92-02

Award Mechanisms	Programs (Fiscal Years)	Number of Awards	Dollars Invested
Career Development	BCRP (FY93-01)	175	\$38.9M
	NFRP (FY02)	1	\$0.2M
Career Transition Awards	NPRP (FY02)	4	\$1.6M
Clinical Research Nurse	BCRP (FY02)	11	\$1.9M
CTR Postdoctoral Fellowship	BCRP (FY00)	2	\$0.3M
HBCU/MI Training	BCRP (FY99-02)	9	\$5.5M
Health Disparity Training-Prostate Scholar	PCRP (FY01-02)	3	\$0.5M
Institutional Training	BCRP (FY93/94, 98-99)	34	\$19.9M
	OCRIP (FY02)	1	\$0.6M
Minority Population Focused Training	PCRP (FY98-00)	24	\$1.3M
Physician Scientist Training	BCRP (FY02)	6	\$3.0M
Postdoctoral	BCRP (FY93-02)	480	\$64.4M
	PCRP (FY99-02)	91	\$8.3M
	NFRP (FY98-02)	34	N/A*
	NPRP (FY02)	19	N/A
Predocctoral	BCRP (FY93-02)	583	\$38.2M
Prion Techniques Fellowship	NPRP (FY02)	1	\$0.04M
Sabbaticals	BCRP (FY93/94, 96-97)	8	\$0.8M
Undergraduate Summer Training Programs	BCRP (FY00-02)	16	\$2.3M
Total		1,502	\$187.7M

*These programs offered support for postdoctoral trainees as nested traineeships within Investigator-Initiated Research Awards; therefore, dollars invested for the nested postdoctoral traineeships are not available.

Information Management

The CDMRP Electronic Grants System (EGS)⁴ was launched in FY02 to enable real-time electronic management of CDMRP proposals from receipt to grant closeout. EGS is a customized business system and state-of-the-art database that allows multiple users within the USAMRMC to input data, download reports, and manage daily administrative tasks associated with grants. The implementation of EGS has allowed CDMRP to virtually eliminate paper processing of grants, which not only saves time and money for both the proposal submitter and the government but also increases the accuracy of data management processes.



Creating Partnerships

Public, private, government, and military partnerships occur in all aspects of the programs and have been key to the success of the CDMRP. We believe that these effective partnerships are leading us closer to finding cures for many diseases and are facilitating our ability to effectively address critical health issues. Highlighted are three important partnerships that play a central role in helping to shape the future of health care to prevent, control, and cure diseases.

Consumers and the CDMRP

The CDMRP is a recognized leader in integrating consumers in virtually all aspects of program execution. The value of consumer involvement is derived from their firsthand experiences with the disease. This adds a perspective, passion, and a sense of urgency, which ensures that the human dimension is incorporated in program policy, investment strategy, and research focus. Consumers for most of the core programs are survivors of the disease and representatives of consumer advocacy organizations. For programs such as the Neurofibromatosis Research Program, consumers are individuals with the disease, their family members, or representatives of consumer advocacy organizations.

Consumers are voting members on scientific peer-review panels, serve on IPs, and are active participants in executing some research projects. For example, consumers serve on research project advisory boards, assist in patient recruitment, and promote public education. Thus, it is vitally important to foster partnerships among the research managers, scientists, and those who are ultimately most affected by policy and research.

⁴ Formerly known as the Enterprise Data System.



For more information on consumer involvement and serving as a consumer reviewer in the first tier of review, peer review, see the consumer page on the CDMRP website (<http://cdmrp.army.mil>).

Military Initiatives and the CDMRP

The military continues to be a central partner in all aspects of the CDMRP. Three important military initiatives are highlighted in the following:

- ◆ First, the military partnership is reflected in the day-to-day coordination and administration of the CDMRP. A dedicated team of individuals, including military personnel and civilian and contractor staff, is responsible for executing the congressional directives for targeted diseases and works together to implement each program's unique vision.
- ◆ Second, several past and current programs managed by the CDMRP have a unique military focus. For instance, research sponsored by the Peer Reviewed Medical Research Program (PRMRP) aims to improve the health of our military forces. The guiding body that determines programmatic priorities for this program is called the Joint Programmatic Review Panel (JPRP) and is composed of representatives from all branches of the military and the Office of the Secretary of Defense/Health Affairs. Additional information on the PRMRP and JPRP can be found in Section VII. Another program currently managed by the CDMRP, the National Prion Research Program, also incorporates a unique military focus. The health threats posed by prion disease currently appear to involve food and possibly blood supplies, including those in overseas deployment zones. Because of this remarkable military threat, representatives from the military also serve on the guiding body that determines programmatic priorities for this program. Refer to Section X for additional details about this program and military focus.
- ◆ Third, the CDMRP partners with the military to support research through the Small Business Innovation Research (SBIR) Program.⁵ This program is designed to harness the innovative talents of U.S. small businesses for our country's military and economic strength. The Department of Defense (DOD) SBIR program funds early-stage research and development efforts to support projects that fulfill a DOD need and have the potential for commercialization in the

⁵ The SBIR Program is mandated by Public Laws 97-219, 99-43, and 102-564.

military and private sector markets. For the FY03 SBIR program, proposals were solicited in three topic areas, and four Phase I contracts were awarded in (1) Development of a Microfluidic Refractometric Proteomic Array System; (2) Supersensitive Detection of Biomarkers for Prostate Cancer; (3) Proteomic Biomarker Diagnostics for Early Detection of Cancer Using MEMS Biosensor Arrays; and (4) Isolation of Focal Adhesion Kinase-Specific Modulators in Angiogenesis. The FY02 SBIR program continued with solicitation of Phase II proposals. Three Phase II contracts were awarded in (1) Development of High Throughput Molecular Profiles for the Detection and Staging of Cancer; (2) Near Infrared Technology for the Detection of Cancer; and (3) Improving Near Infrared Technology for the Detection of Cancer; and (3) Improving Near Infrared Imaging Quality for Cancer Detection Using 3D Camera.



Scientific Community and the CDMRP

The scientific community is an essential partner in assisting the CDMRP to shape the future of health care. The fulfillment of program goals requires the cooperation and communication across multiple scientific and clinical disciplines. Scientists and clinicians provide the necessary subject matter on peer review expertise panels, and basic scientists and clinicians participate in vision setting and programmatic review as IP members. With their assistance, the CDMRP has supported innovative, interdisciplinary approaches and collaborations in the scientific community to tackle the complex causes of disease and to translate this knowledge to improved disease prevention, patient survival, and quality of life. Whether it is an individual scientist or a team of experts, every investigator funded by the CDMRP is part of the partnership in the war against disease.

Guarding the Public Trust

Equally important to funding excellent research, recognizing and mobilizing untapped opportunities, and creating partnerships is guarding the public trust. The CDMRP was created in response to the concerns of individuals affected by cancer and disease. As a steward of these appropriated funds, the CDMRP develops and implements programs that employ fair selection processes, are of high scientific quality and programmatic relevance, and are responsive to the needs of the American public.

Efficient Program Management Execution Processes

Over the years, the CDMRP has implemented efficient, cost-effective processes to administer an increasing number of medical research programs and an increasing volume of awards within each program (Table II-5).

Table II-5. The CDMRP: Then and Now

	CDMRP - 1992	CDMRP - 2002
Number of Research Programs	1	16
Appropriation(s)	\$25M	\$391.7M
Number of Awards	26	730



Examples of strategies that have resulted in more efficient program management processes include the following:

- ❖ Development of standard electronic Program Announcements, reducing the time and cost required for publishing a Program Announcement
- ❖ Development of an Institution-based Safety Plan for all applicants from a single institution, replacing individual safety plans from every awardee
- ❖ Development of the CDMRP website to quickly disseminate program information, including on-line posting of Program Announcements
- ❖ Electronic proposal submission, replacing the need for 30 paper copies of each proposal
- ❖ Introduction of a scientific peer-review electronic-scoring system, eliminating the cost of printing, sorting, distributing, and correcting paper score sheets
- ❖ Development of a programmatic review database to assist programmatic reviewers in making funding decisions (provides instantaneous information, relevant tally of available dollars, portfolio balance, information of applicant, and proposal demographics)
- ❖ Electronic dissemination of summary statements to both reviewers and applicants, reducing the time and cost associated with administrative and programmatic functions
- ❖ On-line processing and tracking of individual awards within the USAMRMC—a savings of more than one-half of a man-year of labor



Outreach and Communication

The CDMRP recognizes the importance of reaching out to all communities who are affected by disease. The CDMRP has supported several efforts to foster program awareness to lead our nation in the war against cancer and disease.

Working with Special Populations

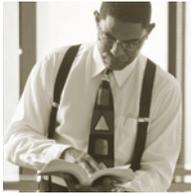
In 1998, the CDMRP established the Special Populations Program (SPP) to enhance the ability of the CDMRP to address the significant disparities that exist in the incidence, morbidity, and mortality among different ethnic groups⁶ in many of the diseases for which the CDMRP provides support. The purpose of the SPP is to address disparities in underserved, understudied, and underrepresented communities. Its mission is to enhance the CDMRP's efforts in this area by creating new award mechanisms, reaching out to communities through improved communication, and partnering with other agencies.

Over the years, individual programs within the CDMRP have designed award mechanisms that (1) address the disparities in the incidence, prevalence, morbidity, and mortality rates among different ethnic groups; (2) attract proposals from investigators at Historically Black Colleges and Universities/Minority Institutions (HBCU/MI); and (3) increase research on minority populations. Multiple awards have been made in response to award mechanisms targeting these three areas including the following:

- ◆ The Prostate Cancer Research Program (PCRP) awarded \$9.9M to the University of North Carolina at Chapel Hill to study Racial Differences in Prostate Cancer. The primary goal of the project is to uncover the reasons why prostate cancer mortality is higher in African Americans than Caucasians by a multidisciplinary study of a large number of men with newly diagnosed prostate cancer from two geographic areas where prostate cancer mortality not only differs between races but also between two African American groups.
- ◆ The PCRP awarded \$338,798 to the National Human Genome Center at Howard University (HBCU) to study Gene Expression and Haplotype Analysis of Candidate Genes for BPH and Prostate Cancer in African Americans.



⁶American Cancer Society—Cancer Facts and Figures 2003.



- ◆ The PCRFP awarded \$462,664 to Howard University (HBCU) to study UV Exposure, Vitamin D, and Prostate Cancer Risk in African Americans. The goal of this project is to explore the effects of UV exposure, serum vitamin D, and skin color on prostate cancer risk in a large case-control study of African American men aged greater than 65 years from the Washington, DC area.
- ◆ The Breast Cancer Research Program (BCRP) awarded \$1.0M to the University of Texas at Brownsville (MI) to study Interrelationships of Hormones, Diet, Body Size, and Breast Cancer among Hispanic Women. The project will explore breast cancer etiology, specifically the interrelationships between hormones, diet, body size, and breast cancer among Hispanic women.
- ◆ The BCRP awarded \$850,920 to Morehouse School of Medicine (HBCU) to study the Antiproliferative Bio-Markers in Breast Cancer. The primary goal of the research effort is to develop a rich intellectual environment, ultimately becoming an independent research and training program of excellence for minority investigators.

To effectively disseminate such funding opportunities, the SPP has established and maintains a contact list of investigators conducting research at HBCU/MI and on minority populations. These intensive efforts have resulted in meaningful partnerships to address health disparities among ethnic groups.

Additionally, the CDMRP has ensured the participation of minority scientists and consumers in its review panels. Relationships with minority scientists and consumers have been fostered by attendance at conferences sponsored by such groups as the Intercultural Cancer Council, Society for the Advancement of Chicanos and Native Americans, DOD HBCU/MI Technical Assistance Conference, and Minority Health Professions Foundation. The CDMRP has also formed affiliations with organizations such as the Hispanic Association of Colleges and Universities and the National Association of Native American Physicians.

Communication among Cancer Funding Agencies from the United States and United Kingdom

The CDMRP is a founding member of the International Cancer Research Portfolio (ICRP), a joint initiative among U.S.- and U.K.-based cancer funding organizations to classify their respective research portfolios and facilitate communication among cancer researchers, cancer funding organizations, health care policy makers, health care professionals, cancer survivors, and anyone with an interest in the most current cancer research.



The ICRP represents a database of information on cancer research awards that were classified using the Common Scientific Outline (CSO). This outline was initiated by the National Cancer Institute (NCI) to categorize its funded research projects in a scientific and disease-related manner. The CDMRP was invited to participate in this effort in 1997 and worked with the NCI to develop a working model of the CSO. In subsequent years, additional cancer-funding organizations were asked to join the efforts of the NCI and the CDMRP in evaluating the utility of the CSO as a tool to facilitate the description of their respective portfolios and communication among funders. As of September 2003, the ICRP represents the portfolios of the NCI, CDMRP, and 15 funding organizations that are members of the U.K. National Cancer Research Institute. The ICRP website was launched in 2003 and allows the public at-large to view and browse information about research supported by these cancer-funding organizations (<http://www.cancerportfolio.org/>).

Opening the Lines of Communication to the Public and Research Communities

The CDMRP has always recognized the importance of keeping the public informed and disseminating program information. The CDMRP website and advertisements for upcoming funding opportunities are just two of the ways that the CDMRP fosters program awareness. (See Section I for additional information on these efforts.) However, during the past year, the CDMRP has focused more attention on community outreach and communication. Highlighted below are some of the efforts that have been used to further promote public awareness of the CDMRP:

- ◆ Extensive advertising for specific award mechanisms, including the BCRP Innovator Award in the *New York Times* and *Wall Street Journal* to recruit exceptional nominees from diverse fields who have the potential to contribute to the eradication of breast cancer
- ◆ Distributing electronic award information to consumer advocacy groups, including the National Breast Cancer Coalition and National Neurofibromatosis Foundation, Inc.
- ◆ Immediately posting award information on the CDMRP website and encouraging recipient institutions to do the same
- ◆ Sponsoring accomplished PCRCP awardees to attend and present their CDMRP research achievements at the 2001 and 2002 Annual Scientific Retreats held by the nonprofit, public charity the Prostate Cancer Foundation formerly known as CaP CURE (the Association for the Cure of Cancer of the Prostate); to date, attended by 25 PCRCP awardees.



In addition, the CDMRP has several projects that are currently in development to further open the lines of communication with the public and research communities. These efforts include the following:

- ◆ The development of a new electronic taxonomy coding system for capturing research accomplishments for the entire CDMRP research portfolio. This innovative system will identify outcomes of CDMRP research and verify our return on investment. Currently under development, it will be used to catalog and track research advances attributed to CDMRP investigators as well as allow our staff to better assist researchers with their grants and clinical protocols. Ultimately, such improvements in grants and information management will lead to further advances in disease prevention, treatment, and management.
- ◆ A comprehensive evaluation of CDMRP-funded clinical trials and assessment of issues that might improve the funding, approval, and success rate of these projects in the CDMRP portfolio.
- ◆ The development and launch of an on-line survey for CDMRP grant applicants and recipients to assess the level of satisfaction with the CDMRP application, funding, and grant management procedures. A tangible outcome will be an assessment of the extent to which our customers believe that CDMRP has achieved its program goals.