

# *Section II.* *CDMRP*

# *ACCOMPLISHMENTS*



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As a manager for Department of Defense (DOD) programs in targeted diseases, the Congressionally Directed Medical Research Programs (CDMRP), U.S. Army Medical Research and Materiel Command (USAMRMC) has interpreted and executed congressional directives for each appropriation with rigor and integrity. As a result, the CDMRP has developed and implemented programs that are innovative, scientifically sound, and responsive to the needs of the scientific and advocacy communities. The CDMRP vision is to be the preferred and responsive source for accessible research funding for targeted diseases. To meet this vision, the CDMRP has made advances over the past year in management execution strategies and development of innovative award mechanisms that reflect this commitment.

This section of the annual report focuses on CDMRP-specific accomplishments in management execution and award mechanisms. For information on research accomplishments related to specific programs, see Sections III–VIII.

## Advances in Management Execution Strategies

The CDMRP has been a pioneer in exploring innovative program management processes, some of which are now being adopted by other funding agencies. The innovative execution processes that have been developed and implemented in the past year have dramatically facilitated the award submission, review, and funding processes for applicants.

### —*Electronic Innovations*

To streamline program management, the CDMRP is committed to moving from paper-based to electronic-based processes.

- ◆ *Electronic Submissions:* A simplified application process was developed and implemented for the Concept Award mechanism in the FY99 Breast Cancer Research Program (BCRP). Electronic application forms were distributed with the program announcement through the CDMRP web site and via email. Investigators then submitted proposals via email or on disk. This first electronic proposal submission by the CDMRP resulted in the receipt of 1,772 proposals. The CDMRP is currently expanding electronic proposal submission to other programs.
- ◆ *Scientific Peer Review Electronic Scoring System:* An electronic scoring system for scientific peer review was developed and piloted in FY00 using personal data assistants (Palm Pilots™) and customized software. Since FY96, scientific peer review scores had been collected using machine-readable score sheets. The score-sheet scanning process, although very accurate, still requires manual quality control checks to ensure accuracy. The electronic scoring system dramatically streamlines the scientific peer review process, increases the efficiency of the scoring process, and eliminates the costs of printing, sorting, distributing, and collecting paper score sheets.



- ◆ *Paperless Contracting:* The CDMRP implemented the electronic delivery of the “Form 9,” a document that is utilized within the USAMRMC to initiate funding and negotiations of individual awards. In paper format, one original and five copies of the Form 9 were required for each award. The new electronic version contains information for all awards for an entire fiscal year’s program in one spreadsheet and eliminates the need to prepare hundreds of paper Form 9s. In addition, contracting data from acquisitions, and funding information and approvals from the comptroller are uploaded directly into the electronic Form 9 spreadsheet, thereby eliminating entry of information onto individual paper copies. The electronic Form 9 with all uploaded information is subsequently used as a spreadsheet for tracking and oversight of each award, which has eliminated the need for creating individual spreadsheets and databases by each of the many responsible individuals. In addition to saving more than one-half of a man-year of labor associated with the processing and tracking of CDMRP’s research awards, this electronic transmission of award data also allows for parallel versus sequential processing and shortens the negotiation time for USAMRMC and the award recipient.

### —Streamlining the Award Negotiation Process for Investigators and Institutions

To expedite the awards process, the CDMRP is developing a plan to modify the necessary documentation related to the Regulatory Compliance and Quality requirements of an award. Currently, a Facility Safety Program Plan must be submitted for each award. Plans are under way to obtain one Safety Program for all awardees supported at that institution. Thus, multiple awards to one institution will require only one Safety Program Plan rather than individual Facility Safety Program Plans for each award. In addition, it is anticipated that approvals of the institution-based Safety Plan will be granted for 3–5 years. This change, which will be implemented throughout USAMRMC for the FY01 programs, will significantly expedite the negotiation review and award processing and lessen the workload on both the institution and investigator.



## CDMRP Responsiveness through Award Mechanisms

One of the characteristics of the CDMRP is its ability to adapt every program cycle to the individual needs of each research program. One means by which the CDMRP addresses these individual needs is to utilize a variety of award mechanisms that will best stimulate research that is considered important for that fiscal year. The different award mechanisms used in the individual programs have allowed the CDMRP to fill unique niches and complement funding opportunities offered by other agencies. As the scope of research programs has been expanded to cover multiple specific health initiatives, the CDMRP has been able to adapt to the needs of individual programs because of the lessons learned through other programs. For example, Idea Awards, originally offered by the BCRP, are now embraced by other programs within CDMRP. These awards encourage novel research that challenges existing paradigms, is high risk with the potential for high gain, and does not require preliminary data. While each program within the CDMRP benefits from knowledge gained in other programs, the specific needs of each individual initiative are maintained.

### —*Innovative Research Awards*

In 1993, a recommendation was made to the USAMRMC by the Institute of Medicine (IOM) 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.”<sup>1</sup> Many of the award mechanisms offered by the CDMRP emphasize support for research on creative and novel ideas to stimulate new directions in research. While each mechanism has different award requirements, all share a common goal of fostering innovative ideas and technology.

The CDMRP has funded more than 1,292 awards that 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-1 summarizes the number of awards made and the dollars invested from FY93-99 appropriations for support of novel ideas.

Of note is a new mechanism, the Concept Award, offered in FY99 by the BCRP that was novel in several aspects. The Concept Award mechanism encouraged the development of initial concepts that could lead to testable hypotheses and involved electronic submissions, one-page applications, and a blinded review. In addition, the process for executing and negotiating this award was expedited. The Program Announcement was released in February 2000, applicants were informed of funding recommendations by early June 2000, and award negotiations were carried out between June and September 30, 2000, allowing many research projects to commence within 5 months of proposal submission.

<sup>1</sup> *Strategies for Managing the Breast Cancer Research Program: A Report to the U.S. Army Medical Research and Development Command*, National Academy of Sciences Institute of Medicine, 1993.

**Table II-1. Summary of Awards from FY93-99 Appropriations That Foster Novel Ideas**

Award Mechanism	Program and Years Implemented	Number of Awards	Dollars Invested
Idea Awards	FY93-99 BCRP FY99 OCRP FY99-99 NFRP	936	\$272.2M
Idea Development Awards	FY97-99 PCRPP	162	\$69.4M
New Investigator Awards <sup>1</sup>	FY97-99 PCRPP FY99-99 OCRP FY99-99 NFRP	96	\$27.7M
Concept Award	FY99 BCRP	98 <sup>2</sup>	\$7.3M
<b>TOTAL</b>			<b>\$376.6M</b>

<sup>1</sup> Does not include the FY93/94 BCRP New Investigator mechanism.

<sup>2</sup> In addition, 206 proposals were placed on an alternate list for consideration by the FY00 program.

### —Building Infrastructure

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.” Based on this clear need in 1993, and the need for similar support identified by Integration Panels in subsequent years, the CDMRP has funded infrastructure 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 by CDMRP Integration Panels to enhance infrastructure are listed in Table II-2.



**Table II-2. Infrastructure Award Mechanisms Utilized by the CDMRP**



Award Mechanism	Key Elements	Program and Years Implemented
Behavioral Center of Excellence	<ul style="list-style-type: none"> <li>◆ Establish multidisciplinary behavioral science centers</li> <li>◆ Establish synergistic programs that incorporate multiple research projects and support for trainees</li> </ul>	FY00 BCRP
Cancer Center Initiation Awards/ Program Projects	<ul style="list-style-type: none"> <li>◆ Establish centers/sustain research enterprises for the study of specific diseases</li> </ul>	FY93/94, FY95 BCRP FY97, FY98, FY00 OCRP FY99 PCRCP
Collaborative-CTR Awards	<ul style="list-style-type: none"> <li>◆ Supply infrastructure support for the development of clinical trials and testing of new agents or technologies through support of new collaboration models</li> </ul>	FY99, FY00 BCRP
Infrastructure Enhancement for Research Support	<ul style="list-style-type: none"> <li>◆ Facilitate the development of shared resources (transgenic animals, information systems, specialized registries, and tissue/cell repositories)</li> </ul>	FY93/94 BCRP
Mammography/ Breast Imaging Equipment	<ul style="list-style-type: none"> <li>◆ Provide support for breast imaging equipment</li> </ul>	FY92 BCRP
Natural History Studies	<ul style="list-style-type: none"> <li>◆ Establish consortium of investigators to carry out clinical trials</li> <li>◆ Support natural history studies of tumor growth</li> </ul>	FY97 NFRP
Special Mammography Demonstration Projects	<ul style="list-style-type: none"> <li>◆ Encourage multidisciplinary, multi-institutional efforts that may result in clinical trials</li> <li>◆ Improve and verify the accuracy of breast imaging</li> </ul>	FY95 BCRP
Virtual Breast Cancer Center of Excellence	<ul style="list-style-type: none"> <li>◆ Establish virtual, electronic centers to address an overarching and/or multi-disciplinary problem in breast cancer research through e-network collaborations to communicate and share data in “real time”</li> </ul>	FY00 BCRP

- ◆ The FY00 BCRP recognized a need for additional behavioral science infrastructure to encourage and support behavioral breast cancer research. Behavioral Centers of Excellence and Virtual Breast Cancer Centers of Excellence were offered to provide foundations for future research.
- ◆ The Ovarian Cancer Research Program (OCRCP) has emphasized the need for multiple disciplines and multiple institutions to work together on related ovarian cancer issues. In FY97, FY98, and FY00, the OCRCP offered Program Project Awards to establish regional centers for the study and treatment of ovarian cancer.
- ◆ The FY99 Prostate Cancer Research Program (PCRP) supported four Cancer Center Initiation Awards to establish regional centers for the study and treatment of prostate cancer.
- ◆ The FY93/94 BCRP offered infrastructure awards to support much needed research resources. Shared resources include tissue and/or cultured cell banks and generation of new cell lines (12 awards), development and dispersement of transgenic animals (2 awards), and development and enhancement of institutional resources, databases, and/or registries (14 awards). These awards have resulted in Internet sites to facilitate the sharing of and access to resources, over 50 publications, and successful acquisition of further funding through the National Cancer Institute.
- ◆ The FY97 Neurofibromatosis Research Program (NFRP) funded two large natural history studies of tumor growth in neurofibromatosis type 1 and type 2 to develop and provide the data, structure, and foundation for future clinical trials.

### —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...” Thus, training is a common research priority among all programs. Almost one-third of all awards made through programs managed by the CDMRP have focused on training/recruitment (Table II-3).

CDMRP’s flexibility is evident when one reviews the spectrum of awards to stimulate talented new investigators, as illustrated in Table II-3. CDMRP has created mechanisms to support both new researchers in the field and established



**Table II-3. Number of CDMRP Training and Recruitment Awards from FY93–99**

<b>Training/Recruitment Award Mechanisms<sup>1</sup></b>	<b>Number of Awards by Program FY93–99</b>
Predoctoral Traineeships	331/BCRP
Postdoctoral Traineeships	297/BCRP 23/PCRP 23/NFRP <sup>2</sup>
Institutional Training Programs	34/BCRP
Sabbaticals	8/BCRP
HBCU/MI Training Awards <sup>3</sup>	2/BCRP
Minority Population Focused Collaborative Training Awards	23/PCRP
Career Development Awards	133/BCRP
<b>TOTAL</b>	<b>874</b>

<sup>1</sup> Undergraduate Summer Training Program Awards were first offered by the BCRP in FY00; the number of awards made for this mechanism will be available after September 30, 2001.

<sup>2</sup> NFRP Postdoctoral Traineeships are nested within the Investigator-Initiated Awards.

<sup>3</sup> The FY99 BCRP created specific award mechanisms to support training in breast cancer research within Historically Black Colleges and Universities/Minority Institutions (HBCU/MI).

scientists interested in extending their expertise to the study of other diseases. The CDMRP has offered Training and Recruitment awards in the form of undergraduate summer training programs, predoctoral traineeships, postdoctoral traineeships, institutional training programs (predoctoral and postdoctoral trainees), sabbaticals, collaborative training awards, and career development awards. The CDMRP has also been able to focus some training awards toward areas of particular need. For example, the BCRP recognized a need for additional translational researchers. Therefore, they offered both Postdoctoral and Career Development Awards that were specifically targeted toward increasing the number of investigators involved in clinical translational research.

The ultimate goal of building a foundation for future research is being met. Preliminary indications are that these training and recruitment award mechanisms are successful in encouraging productive new investigators to enter the field of cancer research. A recent review of the FY93/94 pre- and postdoctoral BCRP trainee accomplishments revealed that, in these programs alone, recipients have produced a total of 495 publications and 388 presentations, posters, or abstracts. This work has garnered more than 10,000 citations in other publications. Additionally, these young investigators have been listed on at least six patents for procedures or devices developed with CDMRP training support.





# Research Accomplishments

The CDMRP is committed to designing means to expedite and simplify the funding process and to provide new and alternative award mechanisms to stimulate research. Through these efforts, the DOD CDMRP aspires to be the first choice among applicants as a source of research support and to shape the future of health care to prevent, control, and cure targeted diseases through funded research.

Almost \$1 billion (B) have been used to fund biomedical research from FY92–99. This has resulted in 2,770 research grants, contracts, and cooperative agreements being awarded and managed by the CDMRP (Table II–4). Scientific advances arising from these awards are expected to have an impact on the targeted diseases. These achievements are discussed in more detail in the corresponding program sections (Sections III–VIII) of this report.



**Table II–4: FY92–99 Awards Managed by the CDMRP**

Program (Fiscal Years)	Grants Managed	Funds Awarded <sup>1</sup>
BCRP (FY92–99)	2,290	\$741.6M
PCRP (FY97–99)	297	\$113.0M
NFRP (FY96–99)	45	\$31.1M
OCRP (FY97–99)	26	\$23.1M
PRMRP (FY99) <sup>2</sup>	16	\$14.0M
DOD/VA (FY99/00) <sup>3</sup>	9	\$6.0M
DWHRP (FY95) <sup>4</sup>	69	\$32.8M
ORP (FY95) <sup>5</sup>	5	\$3.7M
Other Institutionally Based Programs (FY99) <sup>6</sup>	13	\$25.9M
<b>TOTAL</b>	<b>2,770</b>	<b>\$991.2M</b>



<sup>1</sup> Funds awarded reflects monies obligated to contracts, grants, and cooperative agreements for research. For information on withholds and overhead costs for each congressional appropriation, see Appendix B of this report.

<sup>2</sup> Formerly known as the Defense Health Research Program.

<sup>3</sup> Cooperative DOD/Veterans Affairs Medical Research appropriations were combined under one program.

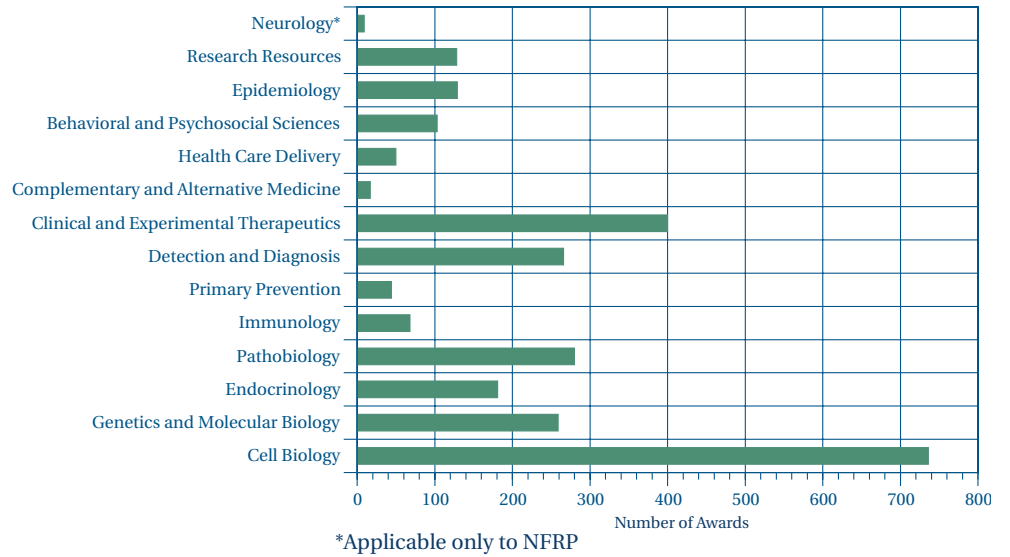
<sup>4</sup> Defense Women’s Health Research Program.

<sup>5</sup> Osteoporosis Research Program.

<sup>6</sup> Includes Advanced Cancer Detection, Center for Prostate Disease Research, Coastal Cancer Control, Computer Aided Diagnosis, Diagnostic and Surgical Breast Imaging and Post-Polio Syndrome.

CDMRP is also committed to funding a diversified portfolio of research efforts. Awards from the BCRP, PCR, PCR, OCR, and NFRP cover 14 major scientific areas encompassing basic, clinical, and population-based research (Figure II-1).

**Figure II-1. Summary of CDMRP Portfolio FY92-99**



The cumulative accomplishments of all 15 programs within the CDMRP are noteworthy and can be measured by the number of resultant publications, abstracts, presentations, and patents/licensures reported by awardees. This information is summarized in Table II-5. In an effort to efficiently disseminate information about research accomplishments, the CDMRP now lists publications, self-reported by awardees, with the corresponding proposal abstract on the web site <http://cdmrp.army.mil>.

The CDMRP believes that by working together we will be able to shape the future of health care. The future is now, as evidenced by the research accomplishments that are described throughout this annual report.

**Table II-5. Outcomes Reported by Awardees**

Publications in Scientific Journals	>2,500
Abstracts/Presentations at Professional Meetings	>2,100
Patents/Licensures (including applications)	>50