

EXECUTIVE SUMMARY



CONTENTS

The Early Years

Partnerships

The CDMRP in FY01

CDMRP Accomplishments

- Management Execution Strategies
- Filling Research Gaps
- Scientific Achievements

Looking Ahead

CDMRP





EXECUTIVE SUMMARY

Congressionally Directed Medical Research Programs

Vision: To be the preferred and responsive source for accessible research funding, shaping the future of health care to prevent, control, and cure diseases.

Mission: To advance health care solutions in areas identified by Congress and the Department of Defense by funding excellent research, recognizing and mobilizing untapped opportunities, creating partnerships, and guarding the public trust.

Over the past decade, the Office of Congressionally Directed Medical Research Programs (CDMRP), a research area directorate within the U.S. Army Medical Research and Materiel Command (USAMRMC), has contributed to the advancement of biomedical research. The CDMRP manages congressional research appropriations that will improve the life of all Americans. As a manager for programs in targeted diseases, the CDMRP has interpreted 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 was established in 1993 when the United States Congress directed the Department of Defense (DOD) to manage a \$210 million (M) appropriation for breast cancer research. Beginning in 1995, the CDMRP's responsibilities were expanded to include the administration of other research programs. In 2001, the CDMRP is responsible for 16 research programs that represent almost \$2 billion (B) in congressional appropriations.

The Early Years

The origin of the CDMRP can be traced back to 1992 when a congressional appropriation of \$25M was made for "army breast cancer research." At the same time, the breast cancer consumer community, led by the National Breast Cancer Coalition (NBCC), was raising public and legislator awareness of gaps in breast cancer research and lobbied to increase the Nation's investment in breast cancer research. In 1992, the NBCC presented President Clinton with a 2.6 million-signature petition for a comprehensive plan to put an end to breast cancer. This grassroots movement led to a fiscal year 1993 (FY93) congressional appropriation to the DOD for \$210M targeted toward breast cancer research. The

USAMRMC¹ was assigned responsibility for administering these dollars. Within the USAMRMC, a new research area directorate, the CDMRP, was established to administer the FY93 Breast Cancer Research Program (BCRP), as well as to manage awards that were supported by the FY92 DOD breast cancer research appropriation.

The USAMRMC is the medical research, development, logistics, and acquisitions arm of the U.S. Army. The Command operates six medical research laboratories and institutes in the United States which are centers of excellence in specific areas of biomedical research. A large extramural research program and numerous cooperative research and development agreements with leading civilian organizations enhance the in-house capabilities of the USAMRMC. Part of the mission of the USAMRMC is to “invent global medical solutions for tomorrow.” Despite this history of research infrastructure and scientific rigor, in 1993, breast cancer was not considered part of the Army’s existing research and development expertise. As such, the USAMRMC sought the advice of the National Academy of Sciences Institute of Medicine (IOM) to identify gaps in breast cancer research and make recommendations as to how this new appropriation could best be used. The IOM made two important recommendations that were applied to the FY93 BCRP and have been subsequently adapted for other programs managed by the CDMRP.

The first recommendation defined a strategy for how the FY93 appropriation should be spent. To carry out this recommendation, the CDMRP sought the advice of a council of leaders in breast cancer research, clinical practice, and advocacy to develop an investment strategy. Today, investment strategies are designed annually by a similar council of leaders for each program, named the Integration Panel, to address the most relevant needs of the research, consumer, and clinical communities. The second IOM recommendation outlined a two-tier review process—scientific merit review followed by a programmatic review. The review process was designed to ensure that the research portfolio reflected not only the most meritorious science, but also the most programmatically relevant. The concept of two-tier review has been applied to all core programs managed by the CDMRP.

Partnerships

The formation of partnerships among the public, private, government, and military sectors is an ongoing process that plays a central role in the CDMRP’s mission to shape the future of health care to prevent, control, and cure diseases. As the executive agent for these targeted appropriations, the U.S. Army is a key participant in these partnerships. A dedicated team of military, federal, and contract personnel is responsible for the daily coordination and administration of the CDMRP. CDMRP partners participate in program implementation, as well as in the execution of awards throughout the lifespan of funding. Finally, the CDMRP has engaged in several cooperative efforts with other funding agencies in an effort to most efficiently utilize our Nation’s research resources.



¹ Known as the U.S. Army Medical Research and Development Command prior to 1995.

The CDMRP in FY01

The CDMRP originated within an environment that necessitated and fostered novel approaches to its operation as a funding agency. The continued successes of the CDMRP and the work of consumer advocates have resulted in yearly appropriations for peer reviewed research. FY01 is the 10th year that Congress has appropriated monies, which now total almost \$2.0B and encompass 16 separate programs. The five core programs within the CDMRP are the:

- ◆ BCRP
- ◆ Prostate Cancer Research Program (PCRP)
- ◆ Neurofibromatosis Research Program (NFRP)
- ◆ Ovarian Cancer Research Program (OCRP)
- ◆ Peer Reviewed Medical Research Program (PRMRP)

CDMRP Accomplishments

Noteworthy CDMRP accomplishments for the past year can be reported in three areas: management execution strategies, filling research gaps, and scientific achievements.

—Management Execution Strategies

One of the past year's accomplishments has been a pilot project with electronic proposal submission. In 2001, the CDMRP requested and received all proposals for the NFRP via a web-based system. This new practice emphasizes the CDMRP's commitment to streamlining program execution such that the proposal submission, review, and funding processes are made simpler and faster for applicants, reviewers, and administrators.



Breast Cancer —————

One out of eight women will get breast cancer in her lifetime.¹

Due to the ongoing efforts of advocacy groups and increased public awareness of health issues, Congress has continued to appropriate money for the USAMRMC BCRP. For FY92–01, Congress appropriated more than \$1.2B to the BCRP for a multidisciplinary effort aimed at eradicating breast cancer. More than 2,800 grants have been awarded.

The BCRP is administered through the office of the CDMRP. It is a well-recognized leader for its novel management strategies and has served as a model for other programs within the CDMRP and other funding agencies. The BCRP is making an impact on the lives of breast cancer patients and their families by bringing them closer to effective treatment and prevention of breast cancer. ◆

¹American Cancer Society, 2001.

Prostate Cancer

Over the past 20 years, through a combination of early detection and better treatments, the survival rate for all stages of prostate cancer combined has increased from 67% to 93%.¹

Congressional appropriations for support of the PCRCP began in FY97. From FY97-01, Congress has appropriated more than \$310M to fund peer reviewed prostate cancer research. More than 430 awards have been made to support innovative ideas and technologies aimed at preventing, detecting, treating, and improving the quality of life of men with prostate cancer.

The PCRCP challenges the scientific community to exploit existing and emerging methods that will continue to increase the survival rates for men with prostate cancer. Through the advancement of prostate cancer screening methods and improved diagnosis and treatment, new directions can be found that will bring an end to prostate cancer. ♦

¹ *Cancer Facts & Figures*, American Cancer Society, 2001.



—Filling Research Gaps

In the second area of accomplishment, the CDMRP has uniquely provided support for research areas of highest priority and greatest need among individual programs. Award mechanisms are offered to sponsor research that may not be funded by other agencies, create foundations on which future research can be built, and encourage the next generation of researchers.

—Scientific Achievements

The third area of accomplishment, the program's scientific achievements, is a culmination or outgrowth of the first two. Through sound management practices and commitment to flexibility, the science funded by the CDMRP is coming to fruition. The CDMRP has funded a broad array of science in research, training and recruitment, and infrastructure. Examples of several notable scientific achievements in each of these categories are provided below.

Research Awards: Research awards include an extensive portfolio of diverse mechanisms that encompass most aspects of scientific investigations ranging from basic laboratory questions to clinical applications. The Idea and Idea Development Award mechanisms encourage innovative perspectives in research. These awards are generating exciting results. For example, one PCRCP Idea Development Award recipient, Dr. Hasan Mukhtar (Case Western Reserve University), has studied the effects of polyphenolics (chemical components of green tea) on cancer prevention. Early results are promising and future research with this natural nutritional therapy may provide a treatment that could slow or possibly even prevent the development of prostate cancer. A BCRP Idea Award



Neurofibromatosis

Neurofibromatosis type 1 is the most common autosomal dominant disorder of humans appearing in childhood.¹

Almost \$70M was appropriated for the NFRP from FY96–01, representing the largest public research funding for neurofibromatosis (NF).² The NFRP promotes research related to enhancing the quality of life for individuals with NF type 1 and type 2 by discovering better ways to diagnose, treat, and eventually cure NF. The NFRP emphasizes the establishment of innovative, multidisciplinary research groups and the translation of basic research into clinical treatments for individuals with NF. ♦

¹ *American Journal of Medical Genetics*, 1999; 89:7–13.

² The National Neurofibromatosis Foundation, Inc.

recipient at the University of Kansas, Dr. Annette Stanton, demonstrated that women who use emotionally expressive coping mechanisms have fewer negative physical symptoms and fewer medical appointments for cancer-related morbidities.

Investigator-Initiated Awards have been used by the NFRP to answer basic questions on neurofibromatosis (NF). Several advances in our understanding of the underlying genetic causes of NF have been made through these awards. In addition, NFRP Investigator-Initiated Awards have produced insights into our understanding of cognitive problems in children with NF, led to new mouse models, and studied the role of NF in tumor formation. Dr. Nancy Ratner's group at the University of Cincinnati has taken a step in this direction by beginning to elucidate the normal function of the *Nf1* gene so that they may determine the role of the malfunctioning gene in the development of neurofibromas.

The funding philosophy of the CDMRP includes support for the maturation of novel ideas and concepts such that they can lead to translational research and clinical trials. For example, the BCRP has offered several translational award mechanisms that support bringing laboratory research from the bench to the bedside. In addition, award mechanisms have been offered by the Breast, Prostate and Neurofibromatosis Research Programs to encourage the testing of new drugs that may improve current clinical treatments. The breast cancer chemotherapeutic agent Herceptin was developed in part by a cadre of BCRP-funded researchers. Another group, headed by Dr. Philip Livingston (Sloan-Kettering Institute for Cancer Research), has developed vaccines targeting carbohydrate antigens, which are yielding promising results in breast and ovarian cancer clinical trials. The PCRP also encouraged research with clinical applications. These awards have shown promising results in the areas of immunotherapy, radiotherapy, and hormonal therapy for prostate cancer treatment. To date, the CDMRP has received over 550 translation-focused applications and has made nearly 50 awards. CDMRP funding has also led to the initiation of over 30 clinical drug and vaccine trials.

Training and Recruitment Awards: Training and Recruitment Award mechanisms are offered to encourage the Nation's finest scientists to join the CDMRP in their mission. The programs of the CDMRP promote the training and mentoring of the next generation of scientists toward independent careers in which creative thinking will produce treatments for human diseases. Other mechanisms assist established investigators with changing career directions into the research of breast, prostate, and ovarian cancers and neurofibromatosis. The success of the trainees who were supported by the CDMRP is illustrated by some of their research accomplishments. A BCRP predoctoral trainee, Dr. Anna Schwartz (University of Utah), worked on a project that showed the importance of exercise during breast cancer chemotherapy. Women who exercised experienced less post-treatment fatigue and an increase in functional ability, while women who did not exercise had a decrease in their functional ability. Using his CDMRP postdoctoral fellowship, Dr. Averell Gnat (University of Maryland) has helped explain the faulty regulation of gene expression in breast cancer and other tumors by refining the molecular structure of the yeast RNA polymerase II complex. BCRP Career Development Award recipients Drs. Kathryn Verbanac and Lorraine Tafra (East Carolina University) have been involved in conducting a multi-institutional study to improve the accuracy of sentinel lymph node biopsy, a minimally invasive technique which has recently been introduced into the management of women newly diagnosed with breast cancer. In total, the CDMRP has awarded over 1,000 Training and Recruitment grants to individuals in predoctoral fellowships through faculty-level positions.

Infrastructure Awards: The Infrastructure Awards offered by the CDMRP have two primary goals: (1) to create or make available resources, such as tissue repositories, animal models, and cell lines; and (2) to establish and support centers or consortia. The BCRP, PCR, OCRP, and NFRP have each supported awards to establish infrastructure that focuses on program-specific needs and targeted

Ovarian Cancer

The chance of living for 5 years after the diagnosis of advanced ovarian cancer is between 20% and 25%.¹

The OCRP was established by a congressional appropriation in FY97. Nearly \$52M was appropriated for the OCRP for FY97–01. The OCRP focuses on building the foundation for a broad, multidisciplinary ovarian cancer research enterprise. The program is dedicated to supporting innovative meritorious research, building infrastructure, and training new researchers. Toward this end, FY97–01 OCRP funds have supported innovative approaches leading to the control, prevention/detection, and treatment of ovarian cancer. ♦

¹ Gilda Radner Familial Ovarian Cancer Registry.



issues. For example, the FY97 and FY98 OCRP supported multidisciplinary Program Projects. One Program Project, led by Dr. Andrew Berchuck (jointly at Duke University Medical Center and North Carolina State University), seeks to elucidate the etiology of ovarian cancer and to translate this knowledge into effective preventive strategies. An individual project within this Program Project, directed by Dr. Gustavo Alvarez, attempts to understand the association between oral contraceptive use and subsequent lower ovarian cancer risk. Dr. Alvarez and his colleagues have demonstrated that the progestin component of oral contraceptives activates cancer preventive molecular pathways in the ovary. Program Project Awards are also showing promising results in identifying new serologic markers for ovarian cancer and facilitating decision making about prophylactic oophorectomy. In addition to the research being supported by these Center Awards, 12 core facilities were established as a result of funded Program Projects, providing resources that will sustain future biomedical research in ovarian cancer.

Looking Ahead

Through the combined efforts and passion of many individuals, the world is closer to eradicating breast cancer, conquering prostate cancer, and building a research foundation that will lead to preventing ovarian cancer. In addition, focused research efforts are bringing us closer to reducing the impact of neurofibromatosis and solving militarily relevant health issues. However, the solutions to these health crises remain a challenge. The CDMRP believes that by continuing to be responsive to the needs of consumers, researchers, and clinicians, the future of health care can be shaped to prevent, control, and cure these diseases. In 2002, the CDMRP will move toward advancing health care solutions in areas identified by Congress and DOD by recognizing and mobilizing untapped opportunities, funding excellent research, creating partnerships, and guarding the public trust. Together we can succeed.

