

Section VII.

PEER REVIEWED

MEDICAL RESEARCH

PROGRAM



CONTENTS

Military Relevance

History of the PRMRP

- Program Background
- Congressional Appropriation and Funding History

FY00 Program

FY01 Program

Scientific Achievements

Summary

FY00-01 Joint Programmatic Review Panel Members

- U.S. Navy Representatives
- U.S. Marine Corps Representative
- U.S. Army Representatives
- U.S. Air Force Representatives
- Office of the Assistant Secretary of Defense (Health Affairs)
- Department of Health and Human Services
- Department of Veterans Affairs

CDMRP

Peer Reviewed Medical Research Program

Mission: To support biomedical research with direct relevance to military health.

Congressional Appropriations for Peer Reviewed Research

\$19.5M in FY99, \$25M in FY00, and \$50M in FY01

Funding Summary

16 awards from the FY99 appropriation

14 awards from the FY00 appropriation

~35 awards anticipated from the FY01 appropriation

Military Relevance

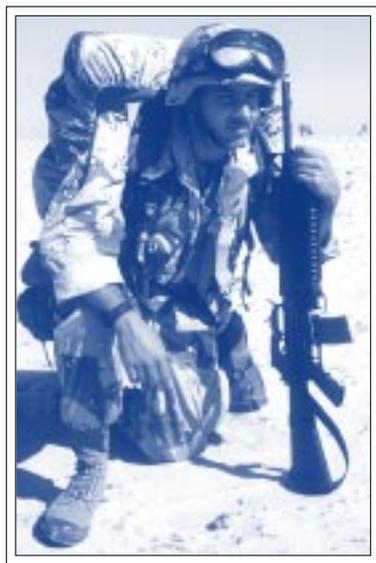
In their efforts to protect our country, members of the military are subjected to a variety of diseases and injuries that are not commonly encountered by civilians. For example, the extremely loud noises generated by artillery equipment and explosives place military members at risk of hearing loss. Trauma management continues to be an area of high military relevance both in times of war and during training exercises. Military forces deployed in tropical, Third World countries can be exposed to a variety of potentially deadly infectious diseases such as malaria, leptospirosis, and hepatitis. Members of the military that operate armored vehicles can experience acute lung injury and respiratory complications due to short, intermittent, high-level exposures to toxic gases (e.g., carbon monoxide, sulfur dioxide, ammonia, and nitrogen oxides) from engine exhaust and the firing of weapons. Research sponsored by the Peer Reviewed Medical Research Program (PRMRP) aims to preserve the health of our military forces.

History of the Peer Reviewed Medical Research Program

—Program Background

The Department of Defense (DOD) PRMRP¹ was established in fiscal year 1999 (FY99) by *Appropriations Conference Committee Report No. 105-746*, which provided \$19.5 million (M) to DOD to establish a medical research program that focused on issues pertinent to U.S. military forces. Congress directed the Deputy Secretary of Defense to work with the Surgeons General of the Services to establish a program to select medical research projects of clear scientific merit and direct relevance to military health. The U.S. Army Medical Research and Materiel

¹ In FY99, the first year of the PRMRP, this program was called the Defense Health Research Program.



Command (USAMRMC) became the Executive Agent for this new program through Joint Services coordination and the specific recommendation of the Armed Services Biomedical Research Evaluation and Management (ASBREM) Committee. The USAMRMC instituted the plan recommended by the ASBREM Committee, one aspect of which was the formation of a Joint Programmatic Review Panel (JPRP) to determine programmatic priorities. The JPRP is composed of representatives from the Army, Air Force, Navy, Marine Corps, Department of Defense Health Affairs, Department of Health and Human Services, and Department of Veterans Affairs. The JPRP, a panel that serves an analogous function to the Integration Panels of other programs within the Office of the Congressionally Directed Medical Research Programs (CDMRP), is usually chaired by the Reliance Panel Chair for Biomedical Science and Technology. The CDMRP administers the PRMRP using the management infrastructure and procedures applied to other congressionally directed programs.

—*Congressional Appropriation and Funding History*

From FY99–01, Congress appropriated a total of \$94.5M to fund peer reviewed research focused on military health through the PRMRP. A total of 30 awards have been made reflecting the program’s mission to support research with direct relevance to military health. Appendix B, Table B–5, summarizes the directions from Congress for the PRMRP appropriations and the investment strategy executed by the PRMRP for FY00–01. Additional details of the FY99 program may be found in the *DOD CDMRP Annual Report* of September 2000.

FY00 Program

Congress appropriated \$25M for FY00 for “medical research projects of clear scientific merit and of direct relevance to military health.”² The DOD PRMRP was continued with this appropriation. In accordance with congressional language and JPRP guidance, awards were offered in 18 research topic areas. Programmatic emphasis was given to meritorious proposals with direct relevance to military health involving issues not being addressed within other established DOD programs. Table VII–1 provides a summary of the FY00 PRMRP by topic area.



² *Appropriations Conference Committee Report No. 106-371*, p. 253-254.

Table VII-1. Funding Summary for the FY00 PRMRP



Topic Areas	Number of Proposals Received	Number of Awards	Investment
Acute Lung Injury Research	20	0	0
Advanced Soft Tissue Modeling	5	2	\$3.8M
Alcohol Abuse Prevention Research	14	4	\$4.0M
Childhood Asthma	3	1	\$1.6M
Defense and Veterans Head Injury Program	25	2	\$3.1M
Dengue Fever Vaccine Research	5	1	\$0.4M
Diabetes	13	0	0
Digital Mammography Imaging	5	0	0
Gulf War Illnesses	17	2	\$1.2M
Healthcare Information Protection*	6	0	0
Laser Eye Injury/Eye Cancer Research and Treatment*	3	0	0
Military Relevant Disease Management*	23	2	\$7.1M
Padgett's Disease	2	0	0
Retinal Display Technology	3	0	0
Sleep Management*	5	0	0
Smoking Cessation	9	0	0
Stem Cell Research	5	0	0
Volumetrically Controlled Manufacturing	0	0	0
Total	163	14	\$21.2M

* Topic areas recommended for continuation by the JPRP for FY00; these topic areas were included in FY99, but not FY00, congressional language.

FY01 Program

The PRMRP continued with a \$50M FY01 congressional appropriation to support peer reviewed research pertinent to the health of military forces. Congress identified 27 areas that could be supported by the appropriation. In addition, the PRMRP continued to offer award opportunities in 4 topic areas that had been offered in previous years and had direct military relevance; these 31 topic areas are listed in Figure VII-1. In response to a call for proposals in a supplement to the *USAMRMC 99-1 Broad Agency Announcement*, 180 proposals were received in May 2001. Scientific peer review was held in July 2001 and programmatic review was in September 2001. Approximately 35 awards are anticipated.

Scientific Achievements

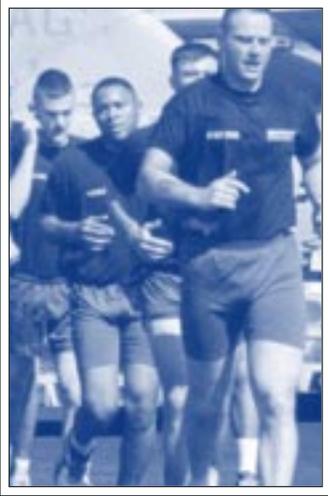
Research funded by this relatively new program is already producing results. Through FY00, 30 awards have been made from basic research through clinical applications. For example, PRMRP researchers are conducting a multicenter, double-blind, randomized placebo-controlled trial of the interactions between the insect repellants DEET and pyrethrum, and pyridostigmine bromide (PB). The repellants are commonly used as prophylactics for insect bites. If enemy nerve agent use is threatened, PB is also used as a prophylactic to reversibly inhibit neuromuscular junction acetylcholinesterase, which in turn prevents irreversible binding by nerve agents. The safety of all three agents when used independently has been confirmed; however, no systematic studies have been performed addressing the safety of these agents when used in combination. This study will determine the short-term safety and neurocognitive effects of these agents. Subjects are currently being enrolled at two centers and the trial has been initiated. (LTC Michael Roy, M.D., M.P.H.)

Acute Lung Injury Research	Medical Surgery Technology
Alcohol Abuse Prevention Research*	Microsurgery and Robotic Surgery Research
Arthropod-Transmitted Infectious Disease	Military Relevant Disease Management*
Biological Hazard Detection System/Bio-Sensor Microchip	Molecular Biology for Cancer Research
CAT Scan Technology for Lung Cancer	Neural Mechanisms for Chronic Fatigue Syndrome
Childhood Asthma	Obesity-Related Disease Prevention, Especially in Minorities
Dengue Fever Vaccine Research	Padgett's Disease
Digital Mammography Imaging	Quatum Optics
Freeze-Dried Platelets	Remote Emergency Medicine
Fungi Free	Ultrasound
Gulf War Illnesses Research	Sleep Management*
Healthcare Informatics	Smoking Cessation
Health System Information Technology	Social Work Research
Human Imaging Institute/ Magnetoencephalography Laboratory	Tissue Regeneration for Combat Casualty Care
Laser Eye Injury*	Venus 3-D Technology
Medical Records Management	Vitamin D Research



* Topic areas recommended by the JPRP for continuing in FY01.

Figure VII-1. Topic Areas Offered by the FY01 PRMRP



Alcohol abuse prevention is another topic area of interest due to the impact it can have on the readiness of the military personnel. Understanding the mechanisms underlying alcohol abuse can lead to effective therapeutic interventions. Several PRMRP research projects in this area have shown promising results. Studies performed by investigators at Tripler Army Medical Center in Honolulu, Hawaii, indicate that short-term alcohol abuse (equivalent to 3 days of binge drinking) can alter the hydration status of the soldier 18 hours after the last alcoholic drink. These results suggest that soldiers need to adequately rehydrate themselves after any use of alcohol to restore fluid and electrolyte balances. (Catherine Uyebara, Ph.D.) Other PRMRP-supported researchers are examining the effects of long-term alcohol exposure on the communication process between nerve cells. Specifically, investigators at the University of New Mexico Health Sciences Center are characterizing receptor levels of the neurotransmitter glutamate in the hippocampus, a region of the brain that is important for learning, memory, and mood. Studies performed in rats show a surprising result; the level of receptor expression of a specific glutamate receptor did not change after long-term alcohol exposure. Whether glutamate receptors change after alcohol withdrawal is currently being investigated. (C. Fernando Valenzuela, M.D., Ph.D.) The effects of long-term alcohol exposure on cholesterol distribution is being examined by investigators at the University of Minnesota. In an aorta cell line model, they have demonstrated that ethanol can inhibit cellular efflux of cholesterol. These alcohol-induced changes in cell cholesterol content, which cannot be assessed with routine blood tests, could have important pathophysiological consequences on cell functions. (W. Gibson Ward, Ph.D.)

Summary

Since 1999, the PRMRP has been responsible for managing \$94.5M in congressional appropriations, resulting in 30 awards for FY99–00. The products of these efforts will directly impact the lives of America's soldiers and veterans and ultimately affect military readiness and thus benefit all Americans.

FY00-01 Joint Programmatic Review Panel Members

—U.S. Navy Representatives

Chair, Rear Admiral, Steven E. Hart: Assistant Chief for Operational Medicine and Fleet Support, Bureau of Medicine and Surgery, Washington, DC. Board-certified in Family Practice and Aerospace Medicine/Preventive Medicine. Certified as Healthcare Executive, American College of Healthcare Executives. Member, American Medical Association, American Osteopathic Association, Association of Military Surgeons of the United States, and Society of U.S. Naval Flight Surgeons.

Alternate Chair; Captain Edward Lane: Director of the Navy Medical Research and Development Division. Chief, Bureau of Medicine and Surgery in Washington, DC. Research interests include bacterial, mycotic, viral, parasitic, and entomological diseases.

Captain James R. Campbell: Medical Research and Development Liaison, Office of Chief of Naval Operations and Bureau of Medicine, Washington, DC. Adjunct Professor of Microbiology, University of Maryland, Adjunct Professor of International Health, George Washington University School of Public Health, and Clinical Professor of Public Health Sciences, University of Hawaii School of Medicine. Research interests include bacterial, viral, parasitic, and entomological diseases.

Commander Douglas Forcino: Medical Research and Development Liaison Officer for the Chief of Naval Operations (N931) in Crystal City, Virginia. Research interests in cerebral and coronary blood flow regulation, hemodynamics, central nervous system oxygen toxicity, and effects of hyperbaria on cardiovascular function.

Lieutenant Commander Randal LeBlanc: Director for the Navy Medical Research Laboratories and Deputy Director for the Navy Medical Research and Development Division, Bureau of Medicine and Surgery, Washington, DC. Member, American Academy of Medical Administrators. Member, American Academy of Contingency Planners.

—U.S. Marine Corps Representative

Lieutenant Commander Joseph A. DaCorta: Head, Expeditionary Medicine, Marine Corps Warfighting Laboratory, Quantico, VA. Diplomate, American College of Healthcare Executives. Member, Association of Military Surgeons of the United States.

—U.S. Army Representatives

Colonel Kent Holtzmuller: Assistant Professor of Medicine in the Department of Medicine at Uniformed Services University of the Health Sciences. Director of Hepatology Service and Staff Gastroenterologist at Walter Reed Army Medical Center in Washington, DC. Board-certified in Internal Medicine with a specialty in Gastroenterology. Board-certified, National Board of Medical Examiners. Research interests include epidemiology and treatment of viral hepatitis, hepatocellular carcinoma, and steatohepatitis.

Colonel James Lamiell: Attending physician at Brooke Army Medical Center, Texas. Chief of the Clinical Investigation Regulatory Department, Army Medical Department Center and School (Texas). Clinical Investigation Consultant to the Surgeon General of the U.S. Army. Ad hoc consultant to Association for Assessment and Accreditation of Laboratory Animal Care International. Chairman of the *Army Medical Department Journal* Editorial Board. Board-certified in Internal Medicine and Critical Care Medicine.

Lieutenant Colonel Bruno Petruccelli: Epidemiology Program Manager, U.S. Army Center for Health Promotion and Preventive Medicine at Aberdeen Proving Ground in Maryland. Fellow, American College of Preventive Medicine. Diplomate, National Board of Medical Examiners. Board-certified in General Preventive Medicine and Public Health.



—U.S. Air Force Representatives

Lieutenant Colonel Roger L. Gibson, D.V.M., Ph.D., M.P.H.: Program Director, Military Public Health, Clinical Program and Policy, Office of the Assistant Secretary of Defense. Member, American Veterinary Medical Association and American Public Health Association.

Major Mark Nunes: Director of the DNA Diagnostic Laboratory, Laboratory Director for Breast Cancer Education and Awareness Project, Staff Clinical Geneticist and Staff Attending Pediatrician at Keesler Air Force Base, Mississippi. Fellow, American Academy of Pediatrics.

Lieutenant Colonel (SEL) Paul Friedrichs: Director of Population Health Management, Analyst for Health Benefits and Policy Division, Directorate of Programs and Resource, at the Office of the Surgeon General at Bolling Air Force Base, Washington, DC. Diplomate, American Board of Urology. Fellow, American College of Surgeons.

Lieutenant Colonel Alfred Graziano: Chief of the Clinical and Biomedical Research and Development Division at Bolling Air Force Base in Washington, DC. National certification, Clinical Laboratory Scientist. Board-certified as medical technologist, American Society of Clinical Pathologists. Certified as Inspector for the College of American Pathologists.

—Office of the Assistant Secretary of Defense (Health Affairs)

Salvatore Cirone, D.V.M., M.P.V.M.: Program Director for Health Sciences Policy, Department of Health Affairs in Falls Church, Virginia. Diplomate, American College of Veterinary Preventive Medicine.

—Department of Health and Human Services

Commander Patrick McNeilly: Executive Assistant to the Principal Deputy Assistant Secretary for Health, Office of Public Health and Science, Office of the Secretary in Washington, DC. Alternate, Surgeon's General Policy Advisory Committee.

—Department of Veterans Affairs

Brenda Cuccherini, Ph.D., M.P.H.: Program Specialist at the Veterans Health Administration, Department of Veterans Affairs in Washington, DC. Member, Human Subjects Research Subcommittee of the Committee on Science for the National Science and Technology Council. Research interests include Common Variable Immunodeficiency, Lyme Disease, and Chronic Fatigue Syndrome.

◆ *For more information about this and other programs managed by the CDMRP, visit <http://cdmrp.army.mil>* ◆