

Outlook

Naval Medical Research and Development Command



Volume 5
Issue 2

Our mission is to provide timely solutions to Navy and Marine Corps medical and operational problems through biomedical research, development, test, and evaluation

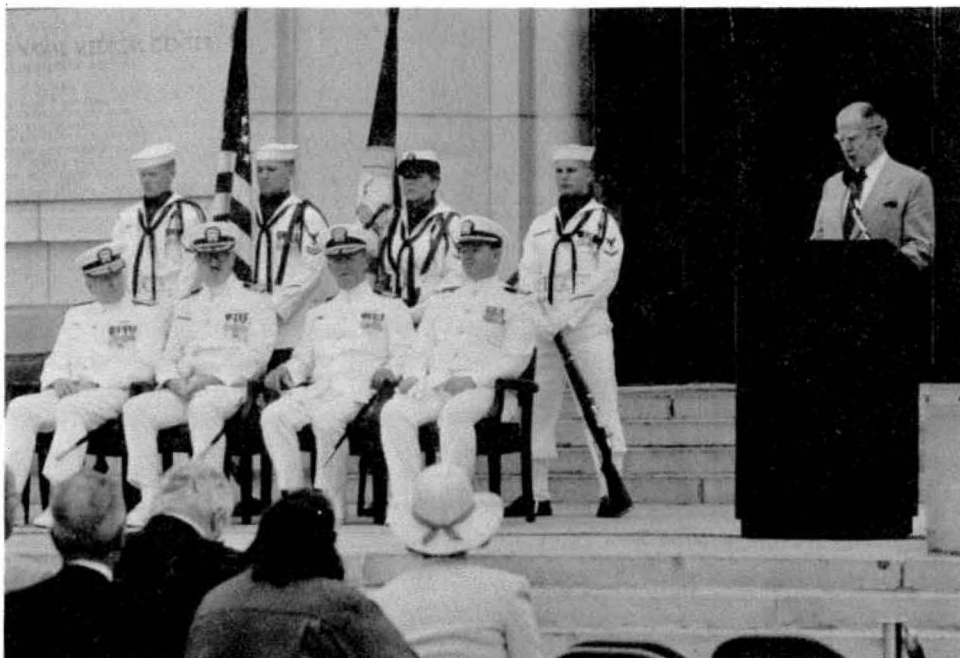
August
1994

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CHANGE OF COMMAND AND RETIREMENT AT NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND

CAPT Thomas N. Jones, MSC, USN relieved CAPT Edward T. Flynn, Jr., MC, USN, as Commanding Officer of the Naval Medical Research and Development Command.



Former Navy CNO ADM Elmo R. Zumwalt Jr. speaks to family, friends, and staff of NMRDC. Seated are RADM H.P. Scott, MC, USN; CAPT E.T. Flynn Jr., MC, USN; CAPT T. N. Jones, MSC, USN; and LCDR J.T. MacNew, CHC, USN.

CAPT Flynn, one of the Navy's most knowledgeable experts in diving physiology, retired on 10 June 1994 after 27 years of service.

Speaking at the ceremony, RADM Hugh P. Scott, MC, USN, Director, Medical Resources, Plans and Policy Division, Office of the Chief of Naval Operations commented on CAPT Flynn's very successful and highly productive naval career which included duties involving the full gamut of diving medical research, teaching, the specialty practice of anesthesia, and executive medicine.

RADM Scott highlighted CAPT Flynn's work at the Naval Medical Research Institute prior to his assuming command of NMRDC, "During his years at the Naval Medical Research Institute, CAPT Flynn rose through the ranks from bench scientist, to division head, to department head, and ultimately to the prestigious Chair of Science. During his watch, CAPT Flynn performed studies on a wide range of diving medical related topics including: the pathogenesis of decompression sickness and

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NMRDC COMMAND MASTER CHIEF - HMCM Cecil McWilliams, USN

HMCM Cecil McWilliams relieved HMCM Kelly M. Pedersen in March 94 when HMCM Pedersen transferred to the Fleet Reserve.

HMCM McWilliams' Navy career has taken him to, Naval Hospital Annapolis, MD; Keflavik, Iceland; Brooklyn, NY; USS Midway CV-41; USS Hunley AS-31; USS L.Y. Spear AS-36; N&MCRC Roanoke, VA; and the 2nd Med Batt, Saudi Arabia, just to name a few places.

Since reporting aboard, he has already visited NMRI, Bethesda, MD; NBDL, New Orleans, LA; NAMRL, Pensacola, FL; NHRC, San Diego, CA; NDRI, Great Lakes, IL; NDRI DET, Bethesda, MD. He plans to visit NSMRL, Groton, CT; NMRI TOXDET, Wright-Patterson AFB, OH; NAMRU-3 Cairo, Egypt; and NAMRU-2 Jakarta, Indonesia by the end of 1994.

HMCM McWilliams sees the future of NMRDC's enlisted personnel by looking back.

"It was August 1971 when I boarded a bus in Baltimore, MD and shipped out to Great Lakes, IL for the haircut of my life. I try to reflect back to times like these so I

will always remember where I came from and I can keep in touch with the needs and wants of today's sailors," said HMCM McWilliams.

His advice for today is, "My challenge to all enlisted personnel is to strive towards upward mobility, stay ready for advancements, pursue off duty education and get involved with your community and 'make things happen'. We control many aspects of our future within the Navy. The amount of time studying for advancements for example can determine if we get advanced or not. In closing I want to challenge every sailor to push for excellence, self improvement and **MAKE THE DIFFERENCE.**"

Two issues that he is working on currently are an NMRDC Junior Sailor of the Year Award instruction and a Senior Leadership Award instruction.

HMCM McWilliams can be reached at NMRDC by calling commercial 301-295-1825 or DSN 295-



HMCM Cecil McWilliams, USN
NMRDC Command Master Chief

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NMRDC CHANGE OF COMMANDS

On 20 MAY 94, CAPT Larry M. Dean, MSC, USN relieved CAPT Thomas N. Jones, MSC, USN as Commanding Officer, Naval Health Research Center, San Diego, CA.

On 11 AUG 94, CAPT Jerry C. Patee, MSC, USN will relieve CAPT Alfred J. Mateczun, MC, USN as Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, FL.

On 15 SEP 94, CAPT Alfred J. Mateczun, MC, USN will relieve CAPT Richard G. Hibbs, MC, USN, as Commanding Officer, U.S. Naval Medical Research Unit No. 3, Cairo, Egypt. CAPT Hibbs will report to Naval Medical Research and Development Command, Bethesda, MD as Executive Officer.

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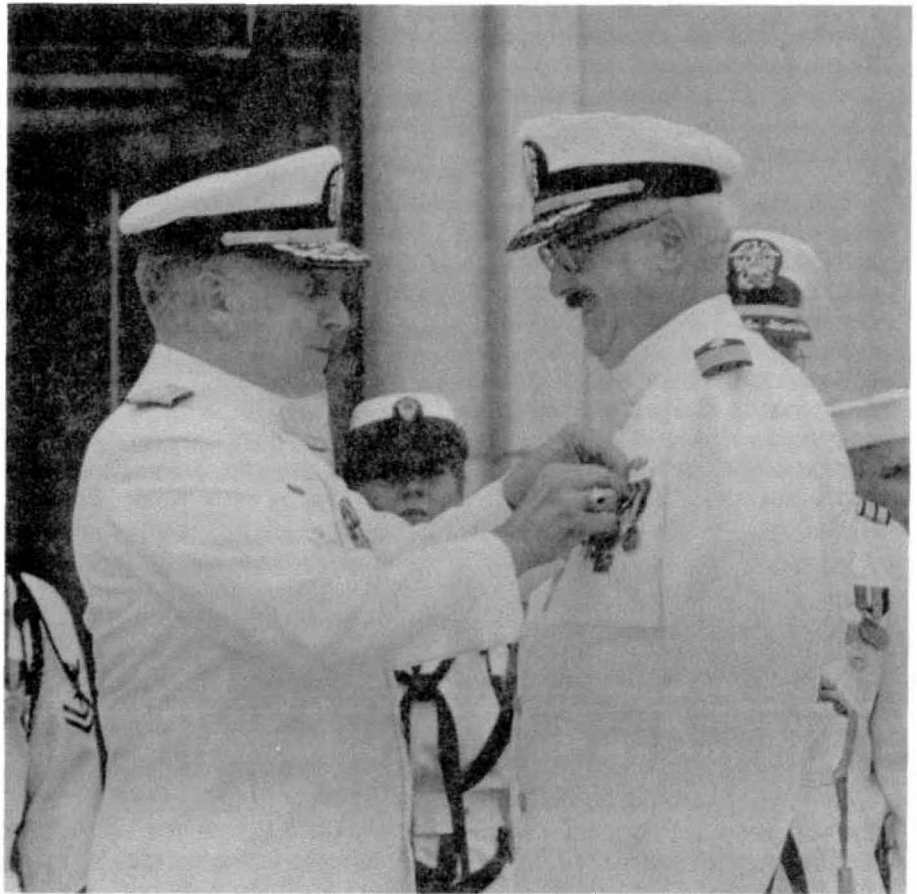
arterial gas embolism, the neurological basis of high pressure nervous syndrome, thermal protection of divers, and, hyperbaric atmosphere control, to name just a few." CAPT Flynn's contributions to diving research have been significant and will continue to have a major influence on Navy diving well into the future.

CAPT Flynn assumed command of NMRDC in June 1991, during a period that was characterized by tri-service reorganizations, research and development budget cuts, and sharp reductions in military end-strength.

RADM Scott pointed out CAPT Flynn's efforts during this time, "He transformed NMRDC from a collection of independent laboratories, each on its own course, into a corporate system having a focused sense of purpose and a more efficient organizational management structure. He was the guiding force in the development of the Navy medical R&D strategic plan moving NMRDC into the 21st century. The plan is designed to maintain the science base and applied research capabilities for rapid responses to operational and medical support requirements while eliminating all redundant infrastructure and associated excessive costs".

CAPT Flynn was involved in marketing Navy medical research and development efforts to the private sector. During his three years as Commanding Officer, he established the Navy lead in technology reinvestment, often referred to as technology transfer. Commercial partnerships were encouraged between NMRDC's researcher and their counterparts in the private sector to integrate Navy technological innovations into civilian use products, services and internal processes.

CAPT Flynn commented on life in the Navy, how others influenced his career, the importance of his family's support, and the challenging role as the commanding officer of NMRDC, "What joins us together is our love of the Navy, our love of science, and our love of Navy



RADM Hugh P. Scott, MC, USN, pins Legion of Merit on CAPT Edward T. Flynn Jr., MC, USN

medicine and all that it stands for. Navy life is filled with interesting, unusual, and challenging experiences that later turn into fond memories. Along the way you encounter people who mold your life and in the process become lifelong friends."

He added, "I've had the opportunity to examine the research enterprise from the bench level all the way to the halls of Congress. I've seen our research products become reality in the Fleet and save lives. I've had the chance to work with some of the finest people in the world. They are what makes the Navy great. They are what I will miss the most."

CAPT Jones left command of the Naval Health Research Institute, San Diego, CA, one of NMRDC's laboratories, to assume command. As he spoke to those in attendance he focused on the future of Navy

medical research and development and the challenges ahead, "We are not going to be doing 'more with less', rather, we are going to be doing our 'very best' with what we have."

CAPT Jones went on to say, "We don't navigate any R&D course with just programs and dollars, we do it with people. The most important asset we have at NMRDC is our people. And the people of NMRDC are committed to providing the best biomedical research support to the men and women of the Navy and Marine Corps."

During the change of command and retirement ceremony in front of the National Naval Medical Center Tower, former Navy CNO ADM Elmo R. Zumwalt Jr., board chairman of the Navy's C.W. Bill Young Marrow Donor Recruitment and Research Program, praised NMRDC's

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ENLISTED AIR WARFARE SPECIALTY WINGS AWARDED AT NAMRL

by R.E. Ford, HMCS(SW), USN, NAMRL Senior Enlisted Advisor

Recently, The Naval Aerospace Medical Research Laboratory (NAMRL) presented Enlisted Air Warfare Specialty wings to five members bringing the enlisted force at NAMRL from 18% to 40% warfare qualified. These qualifications are met in addition to their regular duties and are not the normal duties of a hospital corpsman.

The Enlisted Aviation Warfare Specialist Insignia exemplifies the exceptional and competent asset that the wearer is to the aviation community. It is only by completing the rigorous personal qualification standards, demonstrating the maintenance and safety taskings, passing a written test, and demonstrating general knowledge at the oral board can a person qualify as an Air Warfare Specialist.

For a hospital corpsman working in the aviation community, earning the designation of "Air Warfare"

provides a personal and professional insight into the hazards, duties, and responsibilities of the aviation community.

HMC(AW) Teneal Flowers USN LCPO, Accelerated Division

HMC(AW) Flowers, assigned to NAMRL since the summer of 1991, has 14 years in the Navy. HMC(AW) Flowers is involved with the Partners in Education program and was the first NAMRL person to receive the Enlisted Air Warfare Specialty in December 1992.

HMC(AW) Mark D. Marcos, USN Head, Operating Management Division

HMC(AW) Marcos is an Advanced Laboratory Technician and Fleet Marine Corpsman. Assigned to NAMRL in July of 1990, he has 19 years of Navy experience. He earned his wings in the Enlisted Air Warfare Specialty in April 1993.

HM1(AW) Jose M. Garcia, USN LPO, Environmental Physiology Division

HM1(AW) Garcia is an Advanced Laboratory Technician with 11 years of Navy experience. He was assigned to NAMRL in March 1989. He enjoys coaching Tee Ball in the local community. He qualified for the Enlisted Air Warfare Specialty in June 1993.

HM2(AW) Michael A. Cross, USN LPO, Aviation Performance Division

HM2(AW) Cross, an Operating Room Technician assigned to NAMRL since August 1990, is a biomedical technician. HM2(AW) has enjoyed 11 years in the Navy. Currently he is involved with Partners in Education, Pensacola Runner's Association, and a local Bream Fishermen Association. HM2(AW) Cross earned his wings in the Enlisted Air Warfare Specialty in February 1994.

HM2(AW) Marcus T. Jones, USN LPO, Operating Management Division and Assistant Master at Arms

HM2(AW) Jones is a Fleet Marine Corpsman with seven years in the Navy. He was assigned to NAMRL in May 1993. HM2(AW) Jones actively participates in the annual Manna Food Drives locally and earned his wings in the Enlisted Air Warfare Specialty in an unprecedented three months.

RETIREMENT AND CHANGE OF COMMAND *cont from pg 3*

pioneering efforts in bone marrow transplantation research and the support of the National Marrow Donor Program. According to ADM Zumwalt, "Prior to the Navy's role in supporting the institution and growth of the National Marrow Donor program, the only realistic marrow donor for any patient seeking a marrow transplant was a brother or sister, and only 30% of these patients had a sibling who adequately match them. With Navy support the National Marrow Donor Program has over 1,200,000 volunteers and now 50% of patients seeking donors have the potential for a transplant from a matched donor from outside their own family, an unrelated donor."

ADM Zumwalt pointed out that NMRDC played a pivotal role in the development of the key technology for matching donors and patients by the direct analysis of the HLA genes using DNA methods, "Together with the National Marrow Donor Program, the Navy has provided the scientific and technical support to transition DNA based testing from the research laboratory to clinical reality". He went on to add, "Because of the

Navy's research efforts the National Marrow Donor Program can offer the hope of cure to thousands of Americans with otherwise fatal diseases and to provide contingency support in the event of national disaster or military conflict where marrow toxic materials are involved."

ADM Zumwalt also praised other NMRDC accomplishments such as the Joint Forward Laboratory in Somalia that was part of the Joint Medical Task Force. This laboratory rapidly diagnosed infectious diseases that occurred in deployed forces allowing the preventive medicine practitioners to put measures in place to prevent epidemics.

He also mentioned research concerning frozen and freeze-dried blood products and universal donor blood for military emergencies, studies of the molecular and cellular mechanisms regulating inflammation, night vision training aids, a prototype electronic battlefield medical data collection device, and vaccine development efforts focusing on campylobacter, cholera, and malaria. Just a few accomplishments by NMRDC.

NMRDC FOCUSES RESEARCH ON THE HEALTH ISSUES OF WOMEN IN THE MILITARY

With the increasing number of women serving in the Navy and Marine Corps and with more women deploying to combat-eligible assignments, questions concerning the health care needs of Navy women are being addressed by the NMRDC.

NMRDC is currently managing two coordinated studies concerning the health and health care needs of military women who are deployed on ships. The first and larger study, conducted by the Naval Health Research Center, San Diego, CA, is a three-pronged survey of women's health care aboard ship. The study will evaluate the training needs of deployed health care providers pertinent to the health care needs of military women. The study will also determine what changes need to be made in Navy ship formularies (list of medicines available) to provide better health care for female crew members. Finally, the study will focus on the type of pre-deployment screening that should be done to lessen health-related problems during deployment.

The second, smaller study, conducted by the Clinical Investigations Department of the Naval Medical Center Portsmouth, VA focuses on defined health care needs.

Both studies meet specific requirements of the Operational Medicine and Fleet Support

Division, Bureau of Medicine and Surgery. Together, these two research studies will provide an overview of the status of health care for Navy women aboard ship and will serve as a basis for designing comprehensive longitudinal research about trends in military women's health care.

NMRDC is also managing a study at the Naval Aerospace Medical Research Laboratory, Pensacola, FL, to define "gender blind" physical standards for Naval aviators. This study was requested by the Chief of Naval Personnel. Initial work includes the measurement, by test pilots, of physical strength required to use aircraft controls under extreme conditions. Vision, hearing, anthropometric (body measurement) and other standards also are on the research agenda.

An increase in the resources available for Navy medical research on women's health is expected from the Defense Women's Health Research Program (DWHRP). DWHRP is part of the FY94 Defense Appropriation by the U.S.

Congress and the Army was established as the lead agent by the Secretary of Defense.

The DWHRP has three major research areas:

Information - Research focused on identifying and quantifying the nature and scope of women's health issues.

Policy, Standards and Practices - Research supporting the development of physical and psychological standards related to military training, operations, deployment, and retention.

Solutions - Research emphasizing interventions that have a potential for impacting the health issues associated with women's military service.

NMRDC accepted DWHRP research proposals from in-house laboratories and from other research facilities. These proposals were distributed to the appropriate NMRDC Research Area Manager for technical review, and to the women's issues designated representatives at BUPERS, BUMED, the Navy Secretariat, and the Headquarters of the U.S. Marine Corps. Representatives from these groups met with the BUMED Operational Medicine and Fleet Support Division to prioritize the Navy in-house proposals on 29 JUNE 1994. A tri-Service in-house prioritization, coordination and selection meeting will follow. Extramural DWHRP proposals will be selected through a separate process managed by the Army.

Navy women's health research is a recognition of the health care needs of women in the military. Leading research by NMRDC, and additional research sponsored by the Defense Women's Health Research Program, will enhance the health, safety and performance of the entire Navy team.

NAMRL PERSONNEL RECEIVE HONORS

Three from the Naval Aerospace Medical Research Laboratory were recognized for their individual accomplishments.

Richard G. Olsen Ph.D. was selected for the 1994 - 1995 edition of "Who's Who in Science & Engineering" for his contributions in bioengineering research. Dr. Olsen, Head of the Bioengineering Division at NAMRL, is a leading Navy authority on bioelectromagnetics with more than 15 years experience in radio frequency and microwave dosimetry.

NAMRL Executive Officer, CAPT Jerry C. Patee was presented the Sonny Carter Award by the Society of U.S. Naval Flight Surgeons at the Aerospace Medical Association's 65th Annual Scientific Meeting in

San Antonio, TX. The award was given for outstanding support of the Naval Service Operational Forces by improving communication and increasing teamwork between the aeromedical communities.

CDR Michael H. Mittelman was presented the Ashton Graybiel Award for 1993 - 1994 Best scientific Publication of the Year entitled, "Contact Lenses in Aviation: The Marine Corps Experience." CDR Mittelman is an optometrist and aerospace physiologist and is assigned as the Assistant Department Head of Research at the laboratory.

FIVE NEW PROPOSALS SELECTED FOR THE FY95 INDEPENDENT RESEARCH PROGRAM

NMRDC's Independent Research (IR) program soon will see some exciting new research with the addition of five new IR work units in FY95. These studies (see box) were chosen from a group of 25 proposals submitted last January and externally reviewed by approximately 45 technical experts from universities, industry and other Federal organizations. Congratulations to all our IR winners!

Investigators interested in joining the IR competition for the FY96 program might benefit from reviewing some key points of the IR program.

The IR program's main goal is to keep Navy in-house investigators energized, enthusiastic, and competent in basic research by providing support for their high-interest, "edge-of-the-envelope" ideas. The focus on Navy staff investigators is why contract employees (Geo-Centers Inc., IPAs, etc.) can no longer be principal investigators on IRs. It is also why Infectious Disease (ID) investigators can participate in the IR program, even though Army has the lead for the core ID research, and why "transferring" leadership of IRs to non-federal employee investigators is normally unacceptable.

Even though IRs should be high risk studies, the Office of Naval Research expects productivity, demonstrated mainly in the form of peer-reviewed publications. IR investigators should feel an urgency to publish and to keep NMRDC informed of all publications "in progress". Timely, high quality publications and other research products will help preserve NMRDC's IR funding now, and for future program years.

IR proposals are selected competitively; NMRDC is concerned that the competition be fair to all contenders. For equity, we insist that IR proposals be on time, as late submissions theoretically could benefit from more preparation time. Thus, any IR proposal received after the published deadline are not included in the IR competitions.

IR budgets should not request equipment unless the equipment is unique to the IR (centrifuges, computers, microscopes, etc. generally are not IR-specific). Other items frequently trimmed in IR budget requests are travel, contracts and consultants (all of which should be

kept to a minimum) and overall yearly budget requests above the IR maximum (\$120K).

IRs should reflect novel, creative principal investigator-driven ideas. IR proposals should not represent a group effort to bring more money into a project area. A comparison of an IR and related core work should demonstrate that the IR is a distinct effort with a unique ex-

pected product, not a reiteration or simple extension of work in progress.

The next IR competition for FY96 funds began with a call for proposals in July 1994. Proposals will be due to NMRDC on 15 DEC 94.

GOOD LUCK to all scientists in the FY96 IR competition!

NMRDC FY95 IR PROGRAM

The FY95 IR program will consist of 13 work units, with median funding of \$103K. Total program funding in FY95 is \$1260K.

New FY95 IR Work Units (first year):

"Mechanisms of Free Radical Production in the Brain from Hyperbaric Oxygen Exposure"

Dr. Andrea Harabin, NMRI

Goal: To determine the source(s) and effect(s) of oxygen free radicals in the brain which are believed to be central to the development of oxygen-induced seizures.

"Mimicking of Conformational Peptides by Phage-Displayed Peptides"

Dr. Wei-Mei Ching, NMRI

Goal: To investigate a novel approach to creating synthetic vaccines, combining mimicking folded conformational epitopes with phage displayed library technology and solid phase peptide synthesis.

"Genetic Analysis of Dengue Viral Replication"

LCDR Kevin Porter, MC, USNR, NMRI

Goal: To determine the proteins involved in the replication of the dengue viral genome and to analyze the structure-function relationship for these proteins.

"Development of a DNA Vaccine Based Method for Identification and Assessment of Unique Targets of Protective Immune Responses"

LT Robert Gramzinski, MSC, USNR, NMRI

Goal: To use the emerging "Naked DNA vaccine" technology to identify targets of protective immune responses in Plasmodium yoelli and Plasmodium falciparum.

"Use of a Dominant Negative Construct of the IP3 Receptor to Investigate the Importance of IP3 in Signal Transduction In Vitro and In Vivo"

CDR David Harlan, MC, USN and LT Thomas Hickey, MSC, USN, NMRI

Goal: To determine the role of the inositol-triphosphate receptor in T cell activation and signal transduction, clarifying the mechanism(s) of this critical mediator of Ca^{2+} metabolism.

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ROUND-2 OF NMRDC'S BASIC RESEARCH COMPETITIONS TAGS THREE WINNERS FOR FY95 AND FY96 FUNDING

NMRDC recently completed the second round of two competitions to select new, high quality studies for our basic research (6.1Navy) program. These competitions were to select the FY95 Base Enhancement (BE) and the FY96 Accelerated Research Initiative (ARI). (See Outlook, December 1993, for first round information on the BE and ARI processes)

Base Enhancement

The five contending BE proposals were externally reviewed for technical merit during February and March 1994. The reviewers' feedback showed that each proposal would be a worthy investment, yet their consistently high scores and comments strongly supported the proposal entitled "Simultaneous and Successive Color Contrast: Investigations of the Red-Green and Blue-Yellow Systems and Refinement of the Opponent

Model," by Dr. Kevin Laxar, Naval Submarine Medical Research Laboratory (NSMRL). This winning proposal was thought to be "strong on innovation" with a high likelihood of advancing our understanding of basic mechanisms of color vision. This knowledge has important potential application in the design of visual information displays used in Navy operations. Dr. Laxar will begin this work in FY95 and will be supported in the 6.1Navy base program until the research is ready to transition.

Accelerated Research Initiative

On March 5, 1994, a panel of external experts met to receive briefings on the competing FY96 ARI proposals, to discuss the pros and cons of each candidate, and to recommend an optimal investment strategy.

The ARI panel members were Steven Zornetzer, Ph.D., Office of Naval Research (Chairman); Steven Colburn, Ph.D., Boston University; Robert Gilkey, Ph.D., Wright State University; Howard Bassen, Ph.D., Food and Drug Administration; John Monahan, Ph.D., Food and Drug Administration; Charles Lowenstein, M.D., Johns Hopkins University; Paul Miller, Ph.D., Johns Hopkins University.

This was not an easy task. Each proposal had compelling strengths and the panel clearly struggled to reach consensus on which project would yield the greatest value for the Navy. The panel members deserve sincere thanks for the energy they all invested into our selection process and for their commitment to making the best possible recommendations for our limited ARI funds.

The proposals selected through this evaluation process were: "Effects of Microwave Radiation on Cognitive Performance," by Dr. John D'Andrea, NAMRL; and "Enhancement of Cues Required for Creating Three-dimensional Sound Environments," by Dr. Thomas Buell, NSMRL. These proposals are now being revised to incorporate the panel members' critical recommendations and will be funded during FY96 -FY00, in the range of \$350K - \$400K each year. The selection of these efforts shows that, as in prior years, our external colleagues believe we should fund proposals that are not only technically excellent, but also important

NMRDC FY95 IR PROGRAM cont from pg. 6

Continuing FY95 IR Work Units (second year)

"Antimicrobial Activities of Polymorphonuclear Neutrophil Granule Components in Human Periodontal Disease"

Dr. Donald Turner, NDRI

"Characterization of the Role of Costimulatory Molecules in Organ Transplantation and in Septicemia"

Dr. Ryo Abe, NMRI

"Culturing Plasmodium sp. Sporozoites In Vitro"

LCDR Eileen Franke, MSC, USN, NMRI

"Validation of a Computer-based Psychomotor Test (CBPT) for the Selection of Female Naval Aviators"

LT David Street, MSC, USN, NAMRL

"Effects of Avermectins (Mectizan^R) on Acquisition and Transmission of Specific Arthropod-Borne Rickettsial, Spirochetal, and Arboviral Pathogens"

LT Steven Presley, MSC, USNR, NAMRU-3

Continuing FY95 IR Work Units (third year)

"The Role of Cytokines in Recovery from Enteric Compromise Following Hemorrhagic Shock"

Dr. Florence Rollwagen, NMRI

"Evaluation of the Influence of Superantigens and Polyclonal B-Cell Activators in Periodontal Disease"

Dr. Glenn Miller, NDRI DET-Bethesda

"Immunity to Malaria Infection and T Cell Reactivity to the Circumsporozoite Protein"

CDR Walter Weiss, MC, USNR, NMRI DET- Kenya

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SCIENTIFIC TEAM LAUNCHES MILITARY-BASED INTERVENTION FOR STD/HIV PREVENTION

by Michelle Stoia, NHRC Command Technical Editor

Prevention has become a major thrust in AIDS research as it is increasingly evident an HIV vaccine or curative chemotherapy will not be imminently available. Further, this fatal illness is completely preventable through changes in individual risk behaviors. However, the prevention effort is hindered by a lack of information on effective methodologies and educational programs to change what are often well-established risk behaviors. The Navy medical community has formed a multidisciplinary team to develop and test military specific behavioral interventions for the prevention of HIV and other sexually transmitted diseases (STDs). In addition, a cornerstone of the approach is to validate noninvasive diagnostic testing for STDs for improved screening and treatment.

This team consists of medical researchers at the Naval Health Research Center, San Diego, CA; the Naval Medical Research Unit 2, Jakarta, Indonesia; the Naval Environmental and Preventive Medicine Unit #5 (NEPMU-5), San Diego, CA; and NEPMU-6, Pearl Harbor, HI; the Consolidated Preventive Medicine Unit, Okinawa, Japan; and the University of California, San Francisco (UCSF). The program is funded by both the Naval Medical Research and Development Command and the National Institutes of Health. This dual-funding line reflects the applicability of this research to the civilian community.

The first platform selected was military personnel involved with Western Pacific deployment because of the increasing prevalence of HIV infection in some of the foreign ports and the potential impact of STDs on operational readiness. The study design includes an experimental group receiving the STD behavioral intervention training and a comparison group receiving basic life support (BLS) training, with approximately 800 male Marines enrolled. Study activities involve early-deployment baseline STD screening and a questionnaire, STD intervention training (or BLS), and late-deployment STD screening and a questionnaire. The effectiveness of the STD intervention training will be evaluated both biologically (acquisition of STD infections) and through analysis of the self-report questionnaire data of STD knowledge, attitudes, and behaviors.

The behavioral intervention program is 8 - 10 hours of interactive education delivered by preventive medicine technicians (PMT). It was developed by UCSF researchers in collaboration with Navy investigators, particularly from the preventive medicine community, and line Marines. It is different from standards STD education programs in that it is Marine-specific and emphasizes skill-building.

The program components are "multimedia" with didactic slide sessions, educational games, skills-building exercises, role-playing, and videos. The first video depicts Marines on liberty during a Western Pacific deployment and

the consequences of behavior. The second video, a dialogue with three HIV-infected active duty personnel (two men and one woman), powerfully portrays the impact of being HIV-infected. Key elements of the intervention includes STD knowledge, perceived susceptibility, peer influence, use of alcohol, and safer sex practices.

Initial intervention training has been successfully completed, demonstrating this to be a feasible approach. Verbal and written feedback from Marine participants and PMT instructors have enthusiastically endorsed the behavioral intervention program.

A major biologic research component of this program is to evaluate a new molecular technology capable of diagnosing two common STDs (chlamydia and gonorrhea) on a urine specimen. Urethral swabs, which are uncomfortable, are one of the barriers to STD detection, treatment, and counseling. Validation of this technology would provide a rapid, painless, and more acceptable alternative for STD diagnostics for active-duty personnel.

Future efforts for this research include the application of these strategies to shore-based military personnel. Future efforts for active-duty women will include designing and implementing effective programs for the prevention of not only STDs but also unplanned pregnancies. The ultimate outcome is to educate military personnel and to teach them how to defend themselves and their families against life-threatening illness and disease.

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to the Navy and not sufficiently studied in the civilian sector.

Because of recent changes at the Office of Naval Research (the funding sponsor for 6.1N and other NMRDC programs), NMRDC's ARI competition is likely to be redesigned for future years (the name "ARI" and some program constraints may disappear).

We expect the funding opportunity for new research to remain, however, and definitely will continue the emphasis on competition, to ensure that scientific excellence is a primary criterion for funding work in our basic research program.

THE NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND AND TECHNOLOGY TRANSFER

The primary mission of the Naval Medical Research and Development Command (NMRDC) is to provide timely solutions to Navy and Marine Corps medical and operational problems through biomedical research, development, test, and evaluation. NMRDC's research areas concentrate on combat casualty care, infectious diseases, diving and submarine medicine, environmental and occupational health, aviation medicine and human performance, military oral health, and bone marrow research.

These seven research areas focus on operational medicine, which is occupational medicine practiced in a military environment. Operational medicine is very different from traditional medical care provided at military and civilian hospitals and clinics. Operational medicine specifically addresses the physical readiness, performance, and safety issues of military recruits, special training groups, and personnel in the surface, submarine, air, and amphibious warfare communities.

NMRDC includes a system of strategically located basic-science and technology-based laboratories in the U.S. and overseas. At these laboratories Navy and civilian scientists conduct basic, clinical, and field research. These in-house research efforts are complemented by a contract and grant program with universities and private industry. NMRDC also supports research in other Navy laboratories as well as in partnership with the Army and Air Force and other Federal agencies.

While NMRDC's mission remains the same, the command has expanded in a new supplementary direction of technology reinvestment, often called technology transfer, that benefits the Navy and the country's economy. New commercial partnerships are forming between NMRDC's researchers and their counterparts in the private sector to integrate Navy technological innovations into civilian-use products, services and internal processes.

To derive maximum return on research dollars, Congress passed legislation in the 1980s allowing the transfer of federally funded technology to the civilian sector. The Stevenson-Wydler Technology In-

novation Act in 1980 and the Federal Technology Transfer Act in 1986 opened the doors for strategic alliances between federal laboratories and universities, non-government laboratories, and industry.

This compilation of laws authorized Federal laboratories to enter into Cooperative Research and Development Agreements (CRADAs). Federal research assets (other than money) that have application to the civilian community (dual-use) are shared with non-government laboratories and industry through CRADAs. These laws are the only statutes that permit Federal laboratories to provide a private partner with protected proprietary information, intellectual property rights and exclusive marketing rights in advance of final research results.

NMRDC has made significant progress in the area of technology transfer through CRADAs. Since 1990 NMRDC's technology transfer efforts have increased and currently there are 40 active CRADAs.

NMRDC's first CRADA was signed by the Commanding Officer on July 24, 1990. The agreement transferred a cell line developed by Dr. Donna G. Sieckmann of the Naval Medical Research Institute (NMRI), Bethesda, MD, to Pharmingen for commercial development. The cell line, named DS-1, produces monoclonal antibodies against mouse IgM^a, producing a key reagent for immunoglobulin test kits. Pharmingen, a California-based corporation, provides biological test materials and monoclonal antibody tests to the public. In return for the use of the DS-1 cell line, Pharmingen pays NMRI a fee based on sales of monoclonal antibody test kits.

In March 1994, an NMRDC Technology Transfer Advisory Board and Working Group was formed to work closely with the in-house laboratories to consolidate, promote and market technology transfer efforts through an outreach program to industry. As a way to continue developing interactions between private industry and NMRDC, members of the advisory board have teamed with the Stennis Space Center, NASA, Marshall Flight Center, the Gulf Coast Alliance for Technology Transfer and Martin Marietta Manned Space Systems to provide seminars at various corporations throughout the country.

In addition, NMRDC involvement with the Office of Naval Research's Industrial Programs Divisions (IPD) resulted in a \$50 thousand grant to NMRDC to support new initiatives in marketing NMRDC technologies.

Other, more traditional technology transfer efforts include networking through attendance at professional meetings, presentations, publications, external scientific peer review, use of contractor technical personnel at NMRDC laboratories, Small Business Innovation Research (SBIR) programs, and contracts and grants to the civilian sector. NMRDC's activities in these areas include more than eight million dollars annually in civilian sector extramural contracts and grants, and more than half a million dollars in SBIR.

CRADAs and establishment of intellectual property remain the core of NMRDC's technology transfer efforts. In the future NMRDC will implement Navy policies for technology transfer in ways that are innovative and adapted to Navy medical research and development and support the mission of this command.

NMRDC's NEW CRADAs

A Cooperative Research and Development Agreement (CRADA) is an agreement under the technology transfer statutes that permits the unique capabilities or inventions of a Government laboratory to be supported by a collaborator in the private sector. Instructions on entering into and processing CRADAs are available from NMRDC Intellectual Property Counsel, A. David Spevack at commercial 301-295-6759 or DSN 295-6759.

Naval Aerospace Medical Research Laboratory Maxwell Safety products, Ltd

Goal: To provide Maxwell with data, not otherwise obtainable by a small business, for OSHA and the FCC in order to gain approval, endorsement and permission for the use of the Radio-Frequency Radiation suits in industry and to provide the Navy with this data for its internal use.

Naval Medical Research Institute Cellco, Inc

Goal: To develop technology that will permit *in vitro* culture and expansion of human hematopoietic progenitor cells. A specific culture system will be tested for the ability to rapidly and significantly expand human hematopoietic stem cells for use in clinical situations such as autologous bone marrow transplantation and gene therapy.

Naval Medical Research Institute MicroCarb, Inc

Goal: To develop, test and evaluate the safety, immunogenicity and protective efficacy to prototype Campylobacter vaccines derived from organisms grown on mucus, mucus-derived components, defined or purified mucus components or their analogs.

U.S. Naval Medical Research Unit No. 3 Murex Corp

Goal: To evaluate rapid diagnostic assays for the detection of HIV antibodies in a high prevalence population in the Republic of Djibouti providing an actual field environment utilizing different body fluid sources compared against the "gold standard" serum HIV ELISA with confirmatory Western blot.

U.S. Naval Medical Research Unit No. 2 Hoffmann-La Roche Inc

Goal: To compare the efficacy of mefloquine versus doxycycline as anti-malarial prophylactic agents of chloroquine-resistant malaria in Indonesia through a placebo-controlled, blinded trial and perform related research studies.

Naval Medical Research Institute Molecular Devices Corp

Goal: To produce high affinity murine monoclonal antibodies and/or polyclonal sera to saxitoxin and fluorescein, and investigate the sensitivity and specificity of these antibodies in rapid hand-held diagnostic assays, and the threshold biosensor.

Naval Medical Research Institute Vical Inc

Goal: To collaborate in the evaluation of novel vaccine approaches for the prevention of malaria, by direct intra-muscular administration of genetic material (DNA) encoding protein antigens derived from malaria parasites.

Naval Health Research Center The University of Alabama at Birmingham

Goal: To examine evidence for carriage and invasive disease due to mycoplasma species infections among Navy personnel diagnosed with pneumonia and to compare three diagnostic techniques for detecting pharyngeal colonization with mycoplasma.

Naval Aerospace Medical Research laboratory Bristol-Myers Squibb Co

Goal: To provide information on the effects of lipid-lowering agents on complex cognitive and performance tasks. COGSCREEN, a computerized battery of performance tests will be administered to aviation personnel with elevated serum cholesterol values.

Naval Medical Research Institute Cytel Corp

Goal: To develop and test various types of constructs and formulations, based on specific synthetic peptide sequences derived from the Plasmodium parasites, potentially useful in the treatment and prevention of malaria.

Naval Medical Research Institute Genelabs Technologies, Inc

Goal: NMRDC/NMRI has a library of Hepatitis sera that will be provided to Genelabs for evaluation by Genelabs' proprietary techniques. Data on these evaluation results will be provided to NMRDC/NMRI.

Naval Medical Research Institute SyStemix, Inc

Goal: To evaluate the porcine stromal culture system for licensure by SyStemix in connection with SyStemix' development effort to commercialized SyStemix' proprietary human hematopoietic stem cell process and expansion system for therapeutic proposes.

Naval Dental Research Institute Jolley Consulting and Research, Inc

Goal: To develop a dental/medical diagnostic instrument which is based on recombinant DNA produced monoclonal antibody fragment labeled with a fluorescence dye and detected by a fluorescence polarimeter.

NOTES FROM COUNSEL

by A. David Spevack, NMRDC Intellectual Property Counsel

Use Of Copyrighted Materials

Many times I have received requests regarding the copying and use in collections of copyrighted material from journals and books. The Navy has a policy stated in SECNAV instructions that the Department of Navy will respect the rights of copyright owners in the use or copying of a copyrighted work. The Navy does not condone, facilitate or permit the unlawful use or copying of copyrighted work for private or personal purposes. When necessary, the Navy will pay reasonable compensation for the use of a copyrighted work (see SECNAVINST 5870.5). Form letters are available as attachments to SECNAVINST 5870.5 for obtaining permission from a copyright owners.

There has always been some question about what is the infringement of a copyright because there is a feeling that we are a not-for-profit organization and therefore it would be fair use. There are two aspects to the situation. One is quite clear - when you are using someone's copyrighted material for your own profit, that is a *no questions* infringement. The second, and somewhat cloudy area, is when you are denying the copyright owners an opportunity to sell. The cases that relate to this particular area cover such areas of a law firm (or a Government office) buying one copy of a particular journal or newsletter and making copies for distribution within the office. Just because the library has one copy and the copyright owner has made some profit does not mean that the journal can be copied *in toto* and separate copies given to every other person in the laboratory. A recently reported case deals with anthologies or "course packs". The case was between Princeton University Press versus The Michigan Document Service, Inc. and Kinko's. Instead of suggesting a textbook for a course, professors selected readings from several different sources, had them compiled and copied and

sold these compilations as the course text. This practice was defended in court as a fair use of teaching, educational or scholarship or research under 167 U.S. C 107. The court rejected these arguments and found it to be "blatant and willful infringement."

Several of our research groups have adopted a similar practice of creating compilations of journal articles on a particular field. It is *fair use* if you are making one compilation that is available in the library for people to refer to. It is definitely *not fair use* if multiple copies are made of this compilation and then distributed broadly to all interested persons, unless approval for the compilation and reproduction is obtained from each and every one of the copyright holders of the articles in the compilation. If there are any questions on letters requesting permission to use copyrighted material, please call Counsel at 301-295-6759 or DSN 295-6759.

Survey

For this issue, I am not summarizing any of the recent ethics issues. This Fall we will see another ethics film that is being developed by the Ethics Counsel for the Navy. I would like to take a survey of how many people believe that this command should develop an instruction on scientific ethics. By scientific ethics, I mean guidance on proper keeping of notebooks, crediting people on publications, submitting documents for human and animal use in testing, etc.. I would like to hear from both sides, we may be able to convince the editor to carry some of the comments in later issues of OUTLOOK. I will treat nonresponses as enthusiastic support of putting such an instruction into place!

Inventorship, Inventorship, Who Has Inventorship?

Several times in these pages I have addressed the issue of who is the inventor of a patent application or an author on a paper. I have stated that having the wrong inventorship, either too many or too few, can cause the patent to be invalidated.

Recently, the Court of Appeals of the Federal circuit dealt with an interesting situation in the case Sewel versus Walter (decided 7 APR 94). The case involved an apparatus for back projected data. The question was who made the invention between a person named Walter who had laid out improvements on his own prior patent, including the particular details of what was needed to improve his device and Sewel who designed chips to be used for an embodiment of Walter's general design and algorithm. Sewel actually designed the hardware structure following a computerized simulation design by Walter and making changes to the system as Walter had specified. A patent office board had found that Sewel's contribution was nothing more than ordinary skill of a designer who was following the algorithm to develop the hardware architecture for the apparatus. The conception of what had to be done was Walter's and not Sewel's.

This type of determination also applies in our chemical processes. A person should not be held to be an author or an inventor if all they are contributing is ordinary skill in carrying out the specific assignments and design of someone else. In an article, important contributions that are within routine skill should be acknowledged at the end of the article and not as co-authorship's. As inventors, include only those who contribute to the essential parts (elements) that make up the invention and distinguish the invention from what existed before.

RADIATION SAFETY

by Kip Johnson, NMRDC Special Asst. for Occupational Safety and Health/NMRI Safety Manager

Since 1896, ionizing radiation has been known to produce biological damage. This fact was acknowledged within months of Roentgen's discovery of x-rays. Exposure of individuals to radiation is a legitimate concern in many NMRDC activities that use radioisotopes and x-ray producing equipment as research tools. The radiation that makes these elements useful also makes their use a matter of concern for laboratory workers and the general public.

The Danger

Radiation can cause significant damage to many tissues in the body. Large doses of high energy x-radiation can cause cataracts, damage to the developing embryo or fetus (especially during the first tri-mester), genetic damage, malaise, nausea, anemia, sloughing of cells, hair loss, increased risk of cancer and direct damage to the neural and cardiovascular systems. These effects are dependent on the total dose, frequency of exposure, area of the body exposed, and the individual's radio-sensitivity. The chart below lists known exposures risks and their biological effects. Very low doses over a lifetime cannot be considered without risk as cancers from previous exposures may result later in life.

Reducing Exposures

The generally accepted practice is to keep exposures, "As Low As Reasonably Achievable" (ALARA). This is to be taken in context with reasonable costs, practicality and cost-benefit considerations. Each aspect of an operation should be evaluated to see if there are alternatives by which the procedures can be modified to further reduce exposures. Some of the more common alternatives to be considered are any of the following recommendations:

Selection of isotopes - The radioisotope with the lower energy emission level should always be chosen. Beta emitters are less penetrating than gamma emitters. Beta emitters also cause less damage than alpha emitters if accidentally ingested (Beta emitters should not be injected due to damage to the GI tract). Choose radioisotopes that have short-lived half-lives over long term since dis-

posal will be quicker and cheaper. Although carbon-14 and tritium have long half lives (6000 and 12.3 years, respectively), their use is acceptable since their energy levels are relatively low at .156 MeV and .0186 MeV. Penetration levels are limited to .3 mm in tissue and 10 inches in air for carbon 14 and only .006 mm in tissue and .2 inches in air for tritium.

Shielding - Shielding is usually the first protective measure which comes to mind when considering radiation protection. A piece of plastic 3/4" thick would shield against virtually all common beta emitters. Personnel who work with high energy P-32 can minimize hand exposures by slipping thick-walled plastic tubing over test tubes and other containers. Lead is one effective material to be used to shield against gamma emitters. A lead brick, two inches thick would reduce the intensity from most gamma sources. It should be remembered to use two layers of overlapping bricks to prevent radiation from streaming in a direct path through a seam.

Distance - Distance is an effective means of reducing the exposure to radiation. The radiation

level from a point source decreases proportionally to the inverse square rule. This is, if you double the distance, the radiation level will decrease to 25%. Because the exposure rate does go down rapidly with distance, sources should always be handled with tongs. Source transfers must be done as expeditiously as possible. Thinking of distance as a protective measure, leads us to avoid accidental direct contact with any radioactive source.

Time - Time is perhaps the easiest means of reducing any radiation received. Reducing exposure time will reduce the total dose received by exactly the same proportion that the time is shortened. Laboratory workers should leave sources within their protective containers as much of the time as possible while working.

Quantity - New techniques often allow work with much smaller amounts of radioactive materials than procedures employed just a few years ago. All procedures with radioisotopes should be taken with an efficient and effective method for using less of the radioactive substance at one time and throughout the experiment.

RESULTS OF ACUTE WHOLE-BODY RADIATION EXPOSURE	
REMS	BIOLOGICAL EFFECTS
0.01	None - amount received from TV in one year
0.10	None - amount received from 'naturally occurring' radiation
10	None - life-time dose from background radiation
50	Possible radiation sickness; headache, malaise, nausea
100	Possible radiation sickness; little or no life shortening
250	Acute radiation sickness, few or no deaths, but significant life shortening. Full-fledged radiation sickness including: loss of hair, nausea and vomiting. Recovery may take up to three months
450	Half of those exposed will die within 30 days. Those who survive will exhibit permanent impairment
1000	Death of all exposed within 30 days

Current Navy exposure limit is 5.0 Rems per year for laboratory workers using radiation. The general public and pregnant laboratory workers are limited to .5 Rems.

NHRC BEGINS THREE STUDIES OF GULF WAR VETERANS

by Michelle Stoia, NHRC Technical editor

At the direction of the Surgeon General of the Navy, the Naval Health Research Center (NHRC), San Diego, CA in collaboration with the U.S. Army; the University of California, San Diego; the Department of Veterans Affairs, and other Navy commands, is launching three five-year studies to examine the evidence for Persian Gulf War-related illnesses.

These studies, designed to help define a Gulf War Veterans Syndrome, will target likely origins and associated risk factors. In addition, they may also lead to better diagnostic tools, and improved treatment and preventive cure measures for military personnel deployed in future conflicts.

The Navy's comprehensive approach toward understanding and explaining the diverse symptoms experienced by some of the more than 650,000 U.S. military personnel deployed to the Persian Gulf during the 1990-91 period began in November 1992 with initial data collected by a multidisciplinary team. This group of researchers, led by epidemiologists from the Navy Environmental and Preventive Medicine Unit No. 2 (NEPMU-2), conducted surveys of personnel of Reserve Naval Mobile Construction Battalion 24. Because attempts to determine the causes of Gulf War-related illnesses have been inconclusive to date, additional medical research and clinical resources are being used to investigate this problem.

Researchers at NHRC have planned three extensive studies designed to determine if Gulf War veterans have a higher illness and mortality rate than nondeployed personnel. The military populations (active duty and reserve) included in these studies will be followed for at least five years to detect possible latent manifestations of Gulf War-related illnesses.

Some of the causative agents NHRC researchers will consider include exposure to chemical and biological warfare weapons and exposure to war materials, industrial accidents, pollutants, vaccination(s), post-traumatic stress syndrome, and use of medications.

In the first of the three studies, NHRC investigators will follow up

on NEPMU-2's initial study of Navy Construction Battalion personnel by interviewing, sampling blood, and distributing questionnaires to 2,250 SEABEES, 1,500 of whom are Gulf War veterans, to determine the prevalence of symptoms that may be related to Gulf War hazards or other stressors. Additional data collected will include potential environmental, clinical, occupational, geographical, temporal and demographic risk factors. The aim is to identify illnesses that may be more common in Gulf War veterans and to identify possible risk factors.

The second study will be a comparison of post-war hospitalizations among approximately 350,000 active duty military personnel who participated in the Gulf War and

700,000 similar military personnel who did not deploy to the Persian Gulf. This study is designed to determine if military personnel deployed during the Gulf War are as healthy as their counterparts who remained at home, by using military hospital records and early 1990 physical fitness test scores.

The populations identified in the second study will also be used in the third study, which will compare health factors of children born to Gulf War veterans to those of other active duty, non-Gulf War veterans. The goal will be to determine if differences exist between the two groups in terms of premature birth, birth defects and prenatal death.

UPDATE: NAVAL BIODYNAMICS LABORATORY, NEW ORLEANS, LA

Partnership in Education

Human Research Volunteers (HRVs) from NBDL have volunteered their time and effort to the Henry C. Schaumburg Elementary School students for the past several years. In appreciation of their dedicated work the HRVs were recognized with Certificates of Appreciation from the New Orleans Public School System for their participation in the Partnership in Education Program. In addition, the HRVs are active participants in the Louisiana Special Olympics.

Motion Sickness Research

NBDL has constructed a mobile laboratory that houses a motion sickness desensitization chair that can be transported to the fleet in order to conduct validation studies. Also, a Restricted Environmental

Stimulation Tank is under construction to facilitate development of a sensory event-related potentials test of susceptibility to motion sickness. A test protocol has been prepared to permit using female subjects and to meet the requirements of the revised NMRDC instruction for the Ship Motion Simulator (SMS) experimental runs employing cognitive and psychomotor test batteries.

Human Factors Research

An NBDL human factors investigation and inspection of a Coast Guard 47-ft Lifeboat resulted in extensive modifications and instrumentation enhancements to the craft. The SMS was utilized to determine the required modifications that have increased the safety of the Lifeboat as well as reductions in motion-induced difficulties that can degrade performance.

NAMRU-2 JAKARTA RENDERS ASSISTANCE TO CIVILIAN MARINER

While the primary mission of NMRDC's OCONUS laboratories is to perform basic and applied research on infectious diseases of military importance, it is essential to realize that these laboratories represent an invaluable Navy medical asset in a broader sense. The commitment of laboratory personnel to respond to a variety of requests for medical assistance from deployed DoD units serve to emphasize the important operational role played by the OCONUS laboratories.

A recent example was the assistance rendered by CAPT F. Stephen Wignall, MC, USN, Commanding Officer of NAMRU-2, Jakarta, Indonesia, to a civilian mariner from the USNS Ericsson. While in port in Bali, Indonesia, the unfortunate mariner was admitted to a local hospital with intracranial bleeding. A concerned hospital corpsman from one of the USS ships accompanying the Ericsson, requested assistance from the U.S. Defense Attache's Office in Jakarta. Alerted by the embassy, CAPT Wignall immediately contacted the attending corpsman and local

physicians for information regarding the patient's condition. With the concurrence of consulting U.S. military neurosurgeon, CAPT Wignall arranged for a civilian MEDVAC team from Jakarta to move the patient to Mount Elizabeth Hospital in Singapore, where the required neurosurgery was successfully performed. CAPT Wignall was preparing to accompany the stricken mariner from Bali to Singapore prior to finding a qualified civilian medical attendant.

CAPT Shaver of the Ericsson noted that, "CAPT Wignall was our

point of contact. He monitored the patient's progress and arranged for a civilian MEDVAC team to move the patient from Sanglan Hospital in Bali to Mount Elizabeth Hospital in Singapore. Without CAPT Wignall's personal attention and professional expertise the MEDVAC would have been delayed and the subsequent successful neurosurgery performed at Mount Elizabeth Hospital may have had an entirely different outcome."

This was a routine response for CAPT Wignall and NAMRU-2.

OFFICE OF SPECIAL COUNSEL GUIDELINES FOR FEDERAL EMPLOYEES COVERED UNDER THE NEW HATCH ACT AMENDMENT

The following list contains examples of both permissible and prohibited activities for covered employees. The office of Special Counsel is responsible for investigating reports or complaints concerning Hatch Act violations. The new amendment took effect February 3, 1994. For additional information call A. D. Spevack, NMRDC Intellectual Property Counsel, 301-295-6759 or DSN 295-6759.

UNDER THE AMENDED HATCH ACT COVERED FEDERAL EMPLOYEES:

- | | |
|--|--|
| <input type="checkbox"/> May be candidates for public office in nonpartisan elections | <input checked="" type="checkbox"/> May not use their official authority or influence to interfere with an election |
| <input type="checkbox"/> May register and vote as they choose | <input checked="" type="checkbox"/> May not solicit, accept or receive political contributions unless both individuals are members of the same federal labor organization or employee organization and the one solicited is not a subordinate employee |
| <input type="checkbox"/> May assist in voter registration drives | <input checked="" type="checkbox"/> May not knowingly solicit or discourage the political activity of any person who has business before the agency. |
| <input type="checkbox"/> May express opinions about candidates and issues | <input checked="" type="checkbox"/> May not engage in political activity while on duty |
| <input type="checkbox"/> May contribute money to political organizations | <input checked="" type="checkbox"/> May not engage in political activity while wearing an official uniform |
| <input type="checkbox"/> May attend political fundraising functions | <input checked="" type="checkbox"/> May not engage in political activity while using a government vehicle |
| <input type="checkbox"/> May attend and be active at political rallies and meetings | <input checked="" type="checkbox"/> May not be candidates for public office in partisan elections |
| <input type="checkbox"/> May join and be an active member of a political party or club | <input checked="" type="checkbox"/> May not wear political buttons on duty |
| <input type="checkbox"/> May sign nominating petitions | |
| <input type="checkbox"/> May campaign for or against referendum questions, constitutional amendments, municipal ordinances | |
| <input type="checkbox"/> May campaign for or against candidates in partisan elections | |
| <input type="checkbox"/> May make campaign speeches for candidates in partisan elections | |

THE NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND

8901 WISCONSIN AVENUE, BETHESDA, MD 20889-5606

Commercial 301-295-XXXX DSN: 295-XXXX, FAX 12th Floor DSN 295-4033 FAX 10th Floor DSN 295-1022

Command Duty Officer 301-295-0283

CODE	NAME	TITLE	PHONE
00	CAPT T. N. JONES, MSC, USN	COMMANDING OFFICER	0287
09	CAPT R.G. HIBBS, MC, USN	EXECUTIVE OFFICER	1825
00A	HCMC C. MCWILLIAMS, USN	COMMAND MASTER CHIEF	1868
00B/04E	CAPT D. EHRHARDT, MSC, USN	U.S. ARMY PROGRAM LIAISON/	DSN 343-7567
00C	LTC. J. BLEY, VC, USA	SPECIAL ASST FOR VETERINARY MEDICINE	0875
00CC/44	MR. A.D. SPEVACK, ESQ	OFFICE OF PATENT ATTORNEY	6759
44S	MS. A. O'DELL	SECRETARY TO CODE 00CC/44	6760
00S/22	MR. K. JOHNSON	STAFF ASST FOR OCCUPATIONAL SAFETY AND HEALTH/SAFETY MGR-NMRI	0001/2
01	LCDR S.L. HAYES, MSC, USN	DIRECTOR OF FINANCE/COMPTRROLLER	0886
01A	MS. J. HOOVER	MGMT ASST TO CODE 01	0323
01B/11	MR. A. EDWARDS	ASST DIRECTOR FOR FINANCE/COMPTRROLLER	5978
01S	VACANT	SECRETARY TO 01	1558
111	MS. J. HARTIG	BUDGET ANALYST	0888
112	MR. J. ARONBERG	BUDGET ANALYST	2145
12	LT. J. BARNES, III, MSC, USN	DIRECTOR AUTOMATED INFORMATION SYSTEMS DIV	1785
121	MR. R. KAMMULA	AIS SYSTEMS TECHNICIAN	1558
13	MR. P. CHENG	ENGINEERING TECHNICIAN	1140
132	HM2 JACKSON	SUPPLY AND LOGISTICS	2151
02	CDR J.C. MCDONOUGH, MSC, USN	DIRECTOR FOR ADMINISTRATION	1499
020	MS. M.A. TARTLER	SECRETARY TO CODE 00	0360
02A	MS. D.R. PILKERTON	MGMT ASST TO CODE 02	2152
02C	HM3 PEREZ	CORRESPONDENCE CONTROL	2163
21	LT B. SALJRE, MSC, USN	DIRECTOR MANPOWER/EFFICIENCY REVIEW	2150
211	MS. R. SINGLETON	MGMT ASST TO CODE 21	0302
23	MS. J. SPEAKE-PONOW	STAFF ASST FOR INTERNAL REVIEW	1579
03B	MS. D. RYAN	DEPUTY DIRECTOR EXTERNAL INFORMATION	0815
04	CAPT R. CARTER, MSC, USN	DIRECTOR OF RESEARCH AND DEVELOPMENT	0883
04B	VACANT	SPECIAL ASST. FOR USE OF HUMAN SUBJECTS IN RESEARCH	
41/413	CAPT (SEL) T.J. SINGER, MSC, USN	RAM, AVIATION MEDICINE/HUMAN PERFORMANCE	0878
41A	MS. M. YOUNG	MANAGEMENT ANALYST TO CODE 41	0876
411	CDR (SEL) L. FENTON, MC, USNR	RAM, SUBMARINE AND DIVING MEDICINE	0879
412	LCDR P. KNECHTGES, MSC, USN	RAM, FLEET OCCUPATIONAL HEALTH	0885
42	VACANT	ASSOCIATE DIRECTOR FOR RESEARCH MANAGEMENT	0882
421	MS. L.B. HARRIS	RESEARCH ADMINISTRATOR	1771
42S	MS. M. GILBERTSON	SECRETARY TO CODE 04	0325
43	CDR C. SCHLAGEL, MSC, USN	RAM, INFECTIOUS DISEASES	0881
45	CDR P.D. KENT, MC, USN	RAM, COMBAT CASUALTY CARE	0880
45A	MS. K. KALIVEAS	MGMT ANALYST FOR CODE 45	2247
451	CAPT S. WEINBERG, MSC, USN	ASST RAM, COMBAT CASUALTY CARE	0354
452	MR. R. WOLF	ASST RAM, COMBAT CASUALTY CARE	1131

HIGHLIGHTS OF NMRDC RESEARCH

LIPOSOME ENCAPSULATED HEMOGLOBIN An Artificial Oxygen Carrying Fluid for Combat Casualty Care

The Navy has had a long-standing requirement for red blood cell storage and transfusion capability as part of resuscitation protocols aboard ships and at forward echelons of combat medical care. Fresh donated blood must be refrigerated, requires crossmatching to minimize the ever present risk of transfusion reactions, and can transmit diseases such as hepatitis, malaria, and AIDS. Liposome encapsulated hemoglobin (LEH), a promising blood substitute, is being developed by a team of Navy, academic, and industrial laboratories. LEH is hemoglobin (oxygen carrying protein) encased in microscopic lipid droplets with walls similar to cell membranes. Current efforts focus on demonstrations of LEH efficacy (oxygen delivery), safety (immune response and vasoactivity), and ability to manufacture the product on a large scale. LEH is formulated to be freeze-dried. Freeze-drying offers prolonged shelf life, reduced weight and volume, cost savings during storage and transport, and negligible processing prior to administration. The goal of this research effort is to generate the necessary scientific and manufacturing data required for application to the FDA for initiation of human trials by the turn of the century. For more information contact CDR P.D. Kent, MC, USN NMRDC Research Area Manager for Combat Casualty Care, DSN 295-0880 or Commercial 301-295-0880.

ENTEROTOXIGENIC ESCHERICHIA COLI VACCINES

During Operation Desert Shield, 57% of personnel in ground units stationed in northeastern Saudi Arabia experienced more than one episode of diarrhea after three months deployment; 20% of those affected lost duty time. Enterotoxigenic *Escherichia coli* (ETEC) accounted for 30-60% of all diagnosed cases. Researchers in the Infectious Diseases Department, Naval Medical Research Institute (NMRI), Bethesda, MD are working with researchers at the NMRDC OCONUS laboratories in Egypt and Indonesia to develop the test sites needed to evaluate the efficacy of a first generation combination killed whole cell-toxoid vaccine (a mixture of *E. coli* colonization factor antigens and the B subunit

of the cholera enterotoxin) to determine the suitability of this product for FDA licensure and general use within the fleet and FMF. It is anticipated that ETEC vaccine studies will begin in Egypt in FY95 and shipboard vaccine trials could tentatively begin in late FY95 or early FY96. In more basic ETEC studies, NMRI researchers have carried out pioneering research aimed at further defining the full range of virulence factors associated with the pathogenicity of ETEC. To date, two new enterotoxins and a new adherence factor have been identified. It is anticipated that this work will help to improve the protective efficacy of second generation ETEC vaccine candidates. For more information contact CDR C. J. Schlagel, MSC, USN, NMRDC Research Area Manager for Infectious Diseases, DSN 295-0881 or Commercial 301-295-0881.

DIAGNOSTIC KIT FOR BW AGENTS A Simple Device for Rapid Field Identification of Pathogens

Scientists in the Biological Defense Research Program at the Naval Medical Research Institute, Bethesda, MD, are successfully developing a field deployable system for the identification of Biological Warfare (BW) agents. This system utilizes hand held, flow through screening immunoassays, which take 15 minutes to perform and are similar to pregnancy tests, for identifying a range of infectious BW agents and toxins in clinical and environmental samples. This unique BW agent identification system will also utilize field deployed, laboratory based immunoassays and PCR assays linked to a sophisticated, semiautomated, electrochemiluminescent biosensor for the confirmatory identification of BW agents in samples. Biosensor linked immunoassays can be performed in 15 minutes and are up to 1,000 times more sensitive than hand held screening assays. Biosensor linked PCR assays can be performed in the field in under 45 minutes. This approach utilizing far forward deployed hand held screening assays and laboratory based, rapid confirmatory assays for the identification of BW agents is the most comprehensive, specific and sensitive system yet developed. For more information contact CDR C. J. Schlagel, MSC, USN, NMRDC Research Area Manager, Infectious Diseases DSN 295-0881 or Commercial 301-295-0881.

Naval Medical Research and Development Command Vision

- We will be an unparalleled provider of biomedical research products and services to the Navy
- We will be recognized by senior Navy leadership and the operational forces as a vital and integral Navy asset both during peace and war
- We will maintain a world-class scientific program and will be regarded by the national and international biomedical research communities as a vital international resource setting the standard for excellence in biomedical research
- We will each be empowered members of our multi-disciplinary biomedical research team and will continually strive to enhance our value to the Navy and our contributions to the health care of our Nation