Outlook

Naval Medical Research and Development Command

Volume 4 Issue 2 | *On the Cutting Edge of Medical Research Today* | *August 1993*

INSIDE THIS ISSUE

PEER REVIEW CONTINUES

by Christine Eisemann, NMRDC Associate Director for Research Management

On 28-29 April 1993, the Naval Medical Research and Development Command held an external scientific review of work units in the Thermal Stress Research program. Generally falling in the category of Cold Pathophysiology, these work units focus on the physiological effects of exposure to acute or non-freezing cold and on methods of rewarming following hypothermia. To ensure proper programmatic context for the reviewers, work units in all three techbase funding categories (6.1 basic, 6.2 applied, and 6.3A advanced development) were included in the review.

The Purpose of the Review

The purpose of the review was to get an impartial and critical assessment of our cold pathophysiology efforts from a group of well-established scientists with current experience in this research area. We hoped to gain their best collective scientific judgment regarding each work unit presented, so that each could be enhanced, modified, and/or redirected to optimize program productivity. We asked that discussions be collegial, yet frank, and that reviewers' criticisms be both fair and constructive.

Planning the Review Process

Setting up the review took about nine months. During this time, we established the review committee, prepared documentation, and briefed all participants on the game plan, start to finish. We wanted no surprises that could skew the validity of the results or cause discomfort with the process.

Reviewers were selected from those nominated by investigators (reviewees), NMRDC Research Areas Managers, and the review panel chairman, Dr. Melvin Fregly, University of Florida (Dr. Fregly had been nominated by multiple managers and reviewees). We hoped that creating the panel in this way would create a review group acceptable to all involved. In this case, it unquestionably led to a panel of impeccable reviewers who complemented each other in expertise and were able to work through the process in a truly team-spirited way.

The Review Process

The reviewers had two months before the review to study the work unit documentation. Each work unit was assigned two primary reviewers and each panel member was primary reviewer for two - three work units. All reviewers, however, were provided complete documentation packages for every work unit so that each could contribute maximally to the panel's critique.

On the day of the review, each investigator presented his work unit for 20 to 40 minutes followed by 10 minutes of panel questioning. During each afternoon, investigators met for one hour with their primary reviewers to discuss the work further and to clarify any remaining issues. These were informal and congenial sessions in the investigators' lab, around the conference table, or at a picnic table outside.

Cont. pg. 4

SOFTWARE PIRACY

by LCDR M.E. Dobson, NMRDC Director for Facilities & Equipment Management

Software piracy, the illegal copying of software or the abuse of software licensing agreements, is a serious problem and costs U.S. software publishers millions of dollars of lost revenue annually.

Most software piracy is not the work of professional criminals but ordinary computer users. A recent DOD Inspector General (IG) audit report noted that 51 percent of 1000 IBM-PC compatible computers in 22 activities had illegally installed software. These abuses were uncovered despite advance notice of the audit being given.

Copied and Shared Software

One major issue contributing to the problem of software piracy is the ease with which PC software can be copied and shared along with the lack of understanding of the laws and regulations involved. In the rush to get the job done we often take steps for expediency that we shouldn't. Some examples of piracy of this type are: 1) letting a friend or colleague copy your disks so they can use a program; 2) loading copies of software on more than one machine that you own, unless explicitly authorized by the terms of the license agreement; 3) loading copies of software you have at home on your work machine and vice versa; 4) allowing more users of software located on a Local Area Network server than the license allows; and, 5) loading more copies of software onto machines than you purchased because you didn't really know how many you needed.

Apparent Piracy

Apparent piracy is when the copy of the software is actually legitimate. These cases arise when the copy is properly installed but it is not possible to prove that it is legal. This happens when site licenses are used as a cost saving measure. One or two sets of master disks are purchased along with a larger number of users manuals and an even larger number of user licenses. No record is maintained on how many copies are installed on which computers, so it is impossible to prove which copy is legitimate.

Preventing Software Piracy

DOD and Navy regulations state that only legally obtained software shall be used on government computers. All of the activities visited in the DOD IG audit mentioned above had inadequate documentation of purchases and inadequate means of auditing compliance with licensing agreements. We have seen similar conditions at various NMRDC activities during our Command Inspection Program visits. It is important to comply with these regulations and Federal laws with respect to software copyrights and licensing.

There are various ways to prevent software piracy. The most important is education. A discussion of copyrights and licensing do's and don'ts should be part of all ADP security training. Periodic reminders in the Plan of the Day or other in-house publications will keep users aware of their responsibilities. Spot checks of random systems by the ADP System Security Officer (ADPSSO) or ADP Security Officer will help to identify possible violations.

Cont Pg. 3

Outlook is published three times a year by the Naval Medical Research and Development Command (NMRDC), NNMC, Bethesda, MD, 20889-5606. Views and opinions are not necessarily the offical views of, nor endorsed by, the U.S. government, the Department of Defense or the Department of the Navy. Contributions from the field are welcome and will be published as space permits, subject to editing and possible abridgment. Articles, letters and address changes may be forwarded to Code 09D, NMRDC, NNMC, Bethesda, MD 20889-5606. E-Mail rdc09d@nmrdc1.nmrdc.nnmc.navy.mil. Phone 301-295-0875 or DSN 295-0875.

VIEW FROM THE TOWER

by CAPT Edward T. Flynn, NMRDC Commanding Officer

As you all know from reading the newspaper, the environment within DOD is becoming increasingly chaotic as we make last minute adjustments to the FY94 budget and face the stark reality of the FY95 budget. The Navy is downsizing and it is very likely we will downsize with it. Here is where we stand on three key issues.

The Budget

Barring congressional intervention, the total NMRDC budget will decline in FY94 and the outyears. The full extent of the budget reduction is not yet known.

Program Budget Decision (PBD) 755 reduced the 6.2 exploratory development program by 24%. The other budget lines have faced reduction pressures of up to 25%, but no decisions have yet been made. A 20-25% reduction across the board is not out of the question.

Although we are heavily invested in dual use programs and have the best rate of domestic technology transfer in the DOD, all positives in the Clinton Administration, we are likely to downsize because science and technology money as a whole is moving out of the Uniformed Services to other agencies.

Personnel

As a part of an overall reduction in Navy personnel, we will have to eliminate 14 officer and 16 enlisted billets from our workforce in FY94. We opposed this action vigorously, but were unable to prevail. The cuts will force the closure of the NAMRU-2 Det in Manila, PI, and the NDRI Det in San Antonio, TX. Fortunately, no further cuts in military personnel appear to be on the horizon. Retention of the civilian workforce will depend heavily on our ability to forestall the budget cuts and attract new resource sponsors. We are vigorously pursuing both of these approaches.

Laboratory Consolidation

The collocation or consolidation of research programs under Project Reliance is heavily supported by the Uniformed Services. Although the DOD IG declared that MILCON projects at NMRI and NDRI to support the blood and dental collocations were not needed, current plans for collocating blood, infectious diseases, dental, and electromagnetic radiation research are currently on track. The Navy has taken strong exception to the IG's position and the matter will have to go to a resolution process at the upper levels of DOD.

The prospect that a single Defense Biomedical Research Agency might be created to consolidate all medical research appears to have faded, but it is likely that more Project Reliance initiatives will be created as all three Services face severe budgetary pressures. We need to seek out these initiatives.

It is said that in the midst of difficulty there is always opportunity. At the Commanding Officer's conference in October we will be vigorously looking for these opportunities and will finalize our strategic plan for getting there.

SOFTWARE PIRACY Cont. from pg. 2

Proper Documentation

Proper documentation is a must. All systems must have a list of installed software. This list must include the publisher's serial number, if there is one, or the Command minor property number. If multiple licenses are granted for a single set of diskettes then a numeric suffix of increasing value should be added to the serial number for each license installed. A record including where and how many licenses have been installed should be separately maintained for each multiply licensed package. The list of installed software should be kept by the ADPSSO for that system and updated by the Terminal Area Security Officer whenever software is added or deleted from a system. In addition, copies of all purchase documents which indicate multiple licenses were purchased for a package need to be kept with the master list of installed copies for that package. The use of license monitoring software for network installed packages is highly recommended. Not only will these tools keep you legal but may even save you money by permitting you to buy fewer copies of licenses than the actual number of users. This works because it is rare that a particular software package is in use by all possible users simultaneously. The monitoring software keeps track of the number of copies currently running and either prevents more copies than licensed from running or sends a warning message to a logfile and the network administrator. Thus, you only need to purchase enough licenses to meet your average use requirements. The actual ratio of licenses to potential users is determined by the popularity of the package. Word processors may require licenses for 75 percent or more of the potential users while graphics packages may only require licenses for 25 percent of potential users.

Check your workstation. Can you prove you are allowed to have all packages installed? If not, get the documentation you need or purchase a legal copy. Let's all strive for 100 percent compliance during the next inspection.

PEER REVIEW Cont. from pg. 4

We wanted to ensure that the review format provided a number of different environments where reviewers and investigators could comfortably discuss any issue that would bear on the reviewers' opinions of the work.

Panel Recommendations

The panel recommended some changes to our Cold Physiology program, including a call for long-term funding support for two Accelerated Research Initiatives scheduled to complete in FY94 (Dr. Thomas' and LCDR Ahlers').

This kind of input is invaluable to NMRDC in justifying new or continued investments in such projects to the resource sponsors (It also points to how peer review can benefit investigators as well!).

The panel also recommended co-location of the NMRI and NAMRL cold pathophysiology projects and establishing an advisory committee to identify areas in cold physiology providing the greatest benefit both to the Navy and to the population at large. This committee would help maintain continuity in the program and would provide advice to the Research Area Managers regarding how a particular funding request fits into the Navy's program. (Note: A similar advisory committee has been working very successfully following last year's Septic Shock external review).

The panel members found our review format unusual, but very effective. They especially liked the hour spent one-on-one with each investigator, finding it invaluable for clearing up problems that were not covered in the formal presentation. They thought a two-day meeting was optimal, as people get "burned out" when such focused sessions last too long. Panel members were in agreement with previous reviews and said that our documentation should be more in the NIH-style (this is a main driver for moving towards the "research proposal" and away from our old "addendum" format).

PROJECTS REVIEWED

6.1 Accelerated Research Initiative Projects

Pathophysiology of Non-Freezing Cold Injury, Dr. John Thomas, NMRI

Biochemical Response to Cold-Induced Vascular Ischemia of Non-Freezing Cold Injury, Dr. H. Michael Neisler, NAMRL

Cellular and Tissue Damage During Non-Freezing Cold Injury and Frostbite, Dr. Kelvin Brockbank, Cryolife, Inc.

Cold-Induced Amnesia: Neurobiological Mechanisms , LCDR Stephen Ahlers, NMRI

6.1 Basic Research Projects

Biochemical and Circulatory Response to Acute Cold Exposure, Mr. Scott Meyer, NAMRL

The Effects of Myocardial Ischemia and Hypothermia Upon the Defibrillation Threshold: Correlation with Myocardial pH and High Energy Phosphate Concentration, Dr. David Martin and Dr. C. Robert Valeri, Naval Blood Research Laboratory (NBRL)

6.2 Exploratory Development Project

The Significance of Hypothermia-Induced Changes in Myocardial Tissue pH: Relationship to Function in the Isolated Heart Model, Dr. Skuir Khuri and Dr. C. Robert Valeri, NBRL

6.3 Advanced Development Projects

Optimal Rewarming Following Hypothermia: A Novel "Reverse Perspiration Approach", Mr. Francesco Pompei and Dr. C. Robert Valeri, NBRL

The Effects of Cold and Cold-Injury on Transcapillary Fluid Exchange in the Extremities, Dr. Matthew Wolf, University of South Carolina

The success of the Cold Pathophysiology review was due to a lot of time and effort invested by the investigators, panel members, and headquarters personnel.

Was It Worth All the Work?

Yes, if we are really serious about the business of developing and maintaining the highest quality R&D program possible. In the short time since the review, we have already seen evidence of increased networking and collaboration among the participating scientists. The benefits of external peer review continue to be reinforced.

The Review Panel Members

The Review Panel Members were Melvin J. Fregly, PhD (Chairman), University of Florida; Joseph M. Moerschbaecher, PhD, Louisiana State University; Clark M. Blatteis, PhD, University of Tennessee; W. J. Mills, MD, University of Alaska; Evelyn Satinoff, PhD, University of Illinois; Daniel I. Sessler, MD, University of California, San Francisco; and John Horowitz, PhD, University of California, Davis.

NMRDC COMMANDING OFFICER GETS CRADA AUTHORITY

by A. David Spevack, NMRDC Intellectual Property Counsel

A Cooperative Research and Development Agreement (CRADA) is an agreement between a non-Federal party and a Federal Government party to coordinate and accomplish a research project in which Government technology, including unique capabilities, are transferred to the non-Federal party. These have been discussed before in other issues of OUTLOOK and are discussed in detail in NAVMEDRSCHDEVCOMINST 5700.1.

Until recently, each CRADA had to be submitted for review to the Office of the Chief of Naval Research with a request for authorization to execute the agreement. Because of questions raised by the commanders of the major laboratories the Chief of Naval Research decided to give blanket authority to six select individuals to authorize what has been termed the "Standard CRADA". Captain E. T. Flynn, MC, USN, NMRDC Commanding Officer, is one of the six.

The Standard CRADA format is meant to be an alternate, not a replacement, to the format that we have been using up to now.

The Standard CRADA is a fixed boiler-plate format. We have no authority to change any of the language. The collaborators are responsible for drafting the Object and Summary paragraphs and the Work Statement for the Standard CRADA.

The Criteria for Use of the Standard CRADA Authorized by NMRDC

- Only one non-Navy partner, not a consortium.
- The non-Navy partner must be a U.S. company, not a venture capitalist, and not foreign-owned, controlled or influenced (FOCI).
- The non-Navy partner may provide funds to Navy partner, but not to exceed $500,000 over the life of the CRADA.
- Total Navy funded expenditure in direct support of CRADA activities is $500,000 or less over the life of the CRADA.
- The CRADA duration is three years or fewer.
- The CRADA includes no characteristics or aspects requiring policy review.

Once a CRADA has been negotiated and drafted at a subordinate command, it should be reviewed by the principal investigator's commanding officer and, if found to be within the mission and work levels of the command, the CRADA should be submitted to NMRDC for final review by counsel and the subject Research Area Manager, and execution by the Commanding Officer, NMRDC.

If for any reason, the collaborating party wants to modify the CRADA, the CRADA will be submitted in accordance with NAVMEDRSCHDEVCOMINST 5700.1 through the Office of the Chief of Naval Research for review and authorization.

Criteria for Use of the Original CRADA Authorized by ONR

- Unlimited number of partners.
- Partners can be FOCI companies.
- No duration limit.
- No money limit.
- Terms negotiable.

A disk or paper copy of the Standard CRADA can be obtained from NMRDC Code 44S (commercial 301-295-6759 or DNS 295-6759). Assistance for preparing a work statement can be coordinated with a consultation with the collaborator and counsel.

Both counsel and the NMRDC Research Area Managers are willing to assist in the negotiation and drafting of new CRADAs. If you have any questions, feel free to contact counsel's office (commercial 301-295-6759 or DSN 295-6759).

PATENT EXAMINER EDUCATION PROGRAM

The United States Patent and Trademark Office, in Washington DC, is seeking individuals and organizations to present technical seminars in Washington, DC.

Seminars would typically be of two hours duration and provide examiners with information on current technical development and issues in the field of interest. Biotechnology, medical devices and diagnostics, and pharmaceuticals are among the technologies for which seminars are being sought.

Since 1982, contributions from industry have sponsored the Examiner Education Program, which provides examiners with first hand knowledge of the creation and development of new technology. The Patent and Trademark Office can provide classroom space, audio/visual equipment, copying services and a nominal fee to cover expenses.

The Patent and Trademark Office will not provide travel or lodging expenses associated with the presentation of a seminar. Individuals who are interested in participating in this effort to keep examiners up to date in their knowledge of current technology are requested to contact CAPT R.C. Carter, MSC, USN, NMRDC Director of Research and Development, DSN 295-0883 or commercial 301-295-0883.

NMRDC's CRADAs (Completed and Current)

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 (commercial 301-295-6759 or DSN 295-6759).

Naval Aerospace Medical Research Laboratory
University of Illinois (Completed)

Goal: To develop data and information about the effects of fatigue and sleep deprivation on human capabilities concerning information processing.

The University was able to complete the research concerning fatigue effects utilizing equipment and test subjects at the Naval Aerospace Medical Research Laboratory, while the laboratory was able to complete its own separate research projects utilizing computer services from the University.

U. S. Naval Medical Research Unit No. 3
Merck and Company, Inc. (Completed)

Goal: To research, develop and evaluate Merck's formalin inactivated alum-adjuvanted Hepatitis A vaccine, and to perform a clinical research study.

The Navy successfully evaluated the vaccine's capacity to inhibit the activity or infectivity of Hepatitis A in US military populations.

Naval Dental Research Institute Det Bethesda
Colla-Tec, Inc. (Completed)

Goal: To compare the clinical attachment gain in mandibular class II molar furcation defects by guided tissue regeneration utilizing either a resorbable collagen membrane or a non-resorbable polytetrafluoroethylene membrane.

The collaborator provided materials and advice; the Navy provided data and results. The research supported the education and training of dentists in the service of the Navy, and improved periodontal patient care for all forces of the United States.

Naval Dental Research Institute Det Bethesda
LifeNet (Completed)

Goal: To compare the amount of bone formed using two different particle sizes of demineralized freeze-dried bone allograft. The collaborator provided materials and advice; the Navy provided data and results.

The research supported the education and training of dentists in the service of the Navy, and improved periodontal patient care for all forces of the United States.

Naval Dental Research Institute Det Bethesda
Calcitek, Inc. (Completed)

Goal: To evaluate bone regeneration around hydroxyapatite-coated dental implants placed in fresh extraction sockets both with or without decalcified freeze-dried bone allograft (DFDBA) placed in the residual socket, and to compare such results with bone regeneration and crestal bone resorption around plasma-sprayed titanium dental implants placed in extraction sockets following grafting of the residual socket with DFDBA at the time of implant placement.

The collaborator provided materials and advice; the Navy provided data and results. The research supported the education and training of dentists in the service of the Navy, and improved patient care for all forces of the United States.

Naval Medical Research Institute
Futrex, Incorporated (Completed)

Goal: To investigate the feasibility of a non-invasive instrument that uses transdermal near-infrared spectroscopy for monitoring percent body fat and total water. The research resolved the correlation between percent body fat as determined by hydrostatic underwater weighing and as determined by the Futrex instrument.

The research determined the correlation between total body water as measured by the deuterated water method and as measured by the Futrex instrument. The Government tested the efficacy and helped to calibrate a new piece of equipment developed by a local small business.

Naval Aerospace Medical Research Laboratory
Maxwell Safety Products, Ltd. (Completed)

Goal: To provide Maxwell with data, not otherwise obtainable by a small business, to present to OSHA and the FCC in order to gain approval, endorsement and permission regarding the use of NAPTEX® Radio-Frequency Radiation protective suits in industry and to provide the Navy with this data for its internal use. Tests were sufficient for the collaborator to obtain OSHA license and to start a business employing people in new jobs.

Naval Medical Research Institute
Pharmingen (Current)

Goal: To make the products of the DS1 cell line available to the interested public. The DS1 cell line produces a monoclonal antibody specific for mouse IgM antibody of the a allotype and other useful products.

The collaborator is manufacturing and marketing several analytic monoclonal antibody tests to the scientific community produced from the hybridoma supplied to them as a result of the CRADA.

Naval Medical Research Institute
U. S. Army Medical Research and Development Command
Enlricerche (Current)

Goal: To investigate, develop and optimize agents used in the prevention or treatment of **P. falciparum** malaria. Work began between Navy and Eniricerche on 15 December 1992. Army joined the collaboration on 27 January 1993.

This collaboration is going very well, with good results shown in the use of materials derived from Eniricerche's contributions.

U. S. Naval Medical Research Unit No. 3
The Bioanthropology Foundation (Current)

Goal: To develop and study information on the biology, distribution and risk factors associated with poisonous snakes indigenous to Egypt.

The Commanding Officer of the U. S. Naval Medical Research Unit No. 3 noted that the first question asked during Operation Desert Storm was not about general diseases or the like, but related directly to encountering scorpions and poisonous snakes. The research and assistance under this collaboration will help accurately answer that question for North Africa in the future.

Naval Medical Research Institute
[Company name confidential] (Current)

Goal: To investigate, develop, and optimize agents used in biochemical, tissue culture and animal model systems to evaluate their capacity to inhibit the activity or infectivity of dengue virus, **P. falciparum**, or other selected pathogens.

Under this CRADA the company has supplied the Government with valuable biological materials not otherwise available. The Government is continuing research projects in the area of both dengue fever virus and malaria, using antisense materials. New materials and information developed by the Government is returned to the corporation for their own projects and commercialization.

Naval Medical Research Institute
Genelabs Technologies, Inc.(Current)

Goal: To study and develop information about the epidemiology, immunology, and molecular biology of the Hepatitis E virus.

At least one patent application has been filed by the collaborator under this CRADA, naming a Navy co-inventor. Under this ongoing collaborative research, a test for better identifying Hepatitis E has been developed and successfully used by the Navy in the Desert Storm operation area. Materials developed by the Navy have been turned over to the company for commercial development. Work is going forward in collaboration with CDC and the company to develop a Hepatitis E vaccine.

Naval Medical Research Institute
Repligen Corporation (Current)

Goal: To develop improved techniques to modify and regulate lymphokine gene expression in order to enhance the recovery of a damaged immune system or to improve the response to vaccines.

A transgenic mouse has been developed that may be a useful tool in research of diabetes. The basic underlying research related to CD28 and CD4 is protected by patent applications filed by the University of Michigan. The research is showing interesting and useful results which may develop into a highly valuable commercial product to be developed by Repligen. Additional applications are being prepared and another, related CRADA may develop.

Naval Aerospace Medical Research Laboratory
Otis Elevator Company (Current)

Goal To investigate the physiological responses to a variety of acceleration profiles encountered in high speed, large displacement elevators.

This is an ongoing collaboration in which personnel at the Naval Aerospace Medical Research Laboratory are using equipment at Otis to develop acceleration profiles.

Naval Medical Research Institute
Genetic MediSyn Corporation (Current)

Goals: To design and investigate the protective effects of antisense molecules against the inflammation associated with septic shock in cell cultures, animals, and human subjects.

Several patent applications have been filed as a result of this collaborative research, naming both corporate and Government co-inventors.

Naval Medical Research Institute
Integrated Diagnostics, Inc.(Current)

Goal: To develop new rickettsial assays for the serodiagnosis of various species of rickettsiae in clinical specimens, and to investigate and test the sensitivity and specificity of these assays.

The collaborators have extended this research for a second year. Under this CRADA, the Navy is transferring technology and helping a small business create an ability in the described research area. Additional, related CRADAs and projects are developing.

Naval Aerospace Medical Research Laboratory
Electronic Health Technologies, Inc. (Current)

Goals: To investigate the potential usefulness of a medical device that would be used to increase the flow rates of blood and lymphatic fluid in the extremities by combined use of mild hyperthermia and deep-layered muscle contraction in an effort to accelerate wound healing rates by virtue of localized increased oxygen perfusion.

An invention disclosure naming both the Government and corporate co-inventors has been received. Under the CRADA, the corporation has taken a device developed by Dr. Richard Olsen at the Naval Aerospace Medical Research Laboratory and is adapting and testing it for the treatment of diabetes. Preliminary tests are indicating better results with the RF arm and leg warmers than the standard hypothermia techniques. The corporation is about to go into extensive medical tests with a variation of the device.

Naval Health Research Center
Symtonic (Current)

Goals: To investigate the value of the electromagnetic sleep induction device (LEET) for facilitating sleep in subjects who must work after shifting time zones, or are moved from the day to the night shift. The relative and combined value of LEET and timed bright light exposure for shifting the sleep/wake cycle and improving quality of sleep and performance are to be determined.

Naval Biodynamics Laboratory
Snell Memorial Foundation (Current)

Goal: To analyze human dynamic responses to impact acceleration and to determine the correlation of these responses with injury potential. The results of these analyses are expected to be applicable to the design, construction and validation of mathematical models of human impact responses.

This is an ongoing collaboration in which the Government makes available its records of tests to the use of a recognized testing and rating laboratory for motorcycle and other helmets. The data are being used to develop better standards for testing these helmets.

Naval Aerospace Medical Research Laboratory
An airline [Company name confidential] (Current)

Goal: The Navy and the airline will exchange data and information concerning the performance of pilots who have served with the Navy and the airline. The Navy will iinterpret and analyze these data, develop a profile of success-related pilot test performance results and cognitive skills/personality attributes, and advise the airline on the application of pilot profiles for future selection. The results of these data and information exchange will be applicable to the future screening and selection policies of both the airline and the Navy.

NAMRU-2 RECEIVES CONGRATULATIONS

CAPT F. Stephen Wignall, Commanding Officer of U.S. Naval Medical Research Unit No. 2 (NAMRU-2), Jakarta, Indonesia, recently received congratulations from Admiral C.R. Larson, Commander in Chief, U.S. Pacific Command for organizing and hosting the 1993 Asia Pacific Military Medical Meeting.

1993 Asia Pacific Military Medical Meeting

The conference was highly successful, both in terms of medical content and attendance. This year the scope of the conference was expanded to include coalition humanitarian assistance and disaster relief issues in the Pacific. As such, this year's conference contributed much to the understanding of medical issues and the networking essential for an effective coalition effort for humanitarian assistance, disaster mitigation, and disaster relief.

CINC Initiatives Fund Medical Projects

Admiral Larson also noted NAMRU-2's enthusiastic and professional participation in the CINC Initiatives Fund medical projects in The Lao Peoples' Democratic Republic and Vietnam (see page 10). These projects are extremely important in safeguarding the health of Joint Task Force Full Accounting and in improving relations with these nations.

Background on NAMRU-2

NAMRU-2 began activities in 1968 when the Indonesian Ministry of Health (MOH) requested assistance in controlling a plague epidemic. The success of that collaborative effort resulted in the MOH's invitation for NAMRU-2, then located in Taipei, Taiwan, to remain in Jakarta for the purpose of developing research activities of mutual interest to Indonesia and the U.S. Navy. In 1986, a building including research laboratories, insectaries and dormitories, was constructed on the grounds of the provincial hospital in Jayapura, Irian Jaya, to accommodate the demands of an expanded malaria program. The NAMRU-2 was officially established in Indonesia when laboratory space was provided by the MOH in 1970.

The geographic location of NAMRU-2 offers researchers access to a 3,500 mile archipelago astride the equator in Southeast Asia. Distinctly Asian diseases occur on the western islands of the archipelago and diseases more typical of the South Pacific region occur on the eastern islands, especially on Irian Jaya. Almost all infectious diseases of military importance can be found within the Indonesian archipelago: malaria, dengue fever, typhoid, cholera, leptospirosis, filariasis and Japanese encephalitis as well as other hemorrhagic fevers, enteric pathogens, viruses and parasites. NAMRU-2 's facilities (20,000 sq. ft. of laboratory space) include fully equipped and functional virology, microbiology, parasitology, entomology, immunology and clinical laboratories. There are extensive microcomputer resources for data processing and biostatistical applications.

Studies include:

- Malaria pathogenesis, epidemiology, prevention and treatment
- Vector transmission studies
- In vitro filaria cultivation
- Field site development to test malarial and enteric disease vaccines and anti-malarial drugs
- World Health Organization sponsored live attenuated cholera vaccine trial
- Hepatitis epidemiology
- Dengue pathogenesis and epidemiology
- Japanese encephalitis epidemiology
- Epidemiology of retroviral infections
- Correlation of HIV genetic variability and disease natural history

ETHICS UPDATE

Ethics Instruction

The Office of Government Ethics issued a standard ethics instruction applicable to all Government employees. By specific order, the DOD and the Commanders of the Army, Navy and Air Force have made the ethics instruction applicable to all personnel.

All DoD personnel are required to receive an hour of ethics training. The ethics training for personnel not filing an SF 450 (Confidential Financial Disclosure Report) will be delivered by a qualified instructor. For those who do file an SF 450, a lawyer with ethics experience will conduct the training. On 7 JUN 93, an arrangement was made to have the ethics training delivered by a highly experienced attorney from the Office of General Counsel. NMRDC had this training session videotaped and will distribute the tapes to the laboratories for use in their training. NMRDC Counsel also has additional films available to further clarify specific points raised during NMRDC's training. **Do not miss this training - it must be reflected in your personnel file that you have received ethics training.** If you have any questions regarding training, or ethics in general, please contact counsel.

Answering Questions About Ethics

NMRDC Counsel is not an "ethics counselor" as defined by the ethics training, however, Counsel does act as a channel for any ethical questions directed to the Command's ethics counselor, the Staff Judge Advocate for BUMED. NMRDC dictates that all requests for a determination of ethics be submitted through the Commanding Officer of your command to the Commanding Officer, NMRDC.

Cont. on page 9

STANDARD ACCOUNTING AND REPORTING SYSTEM - FIELD LEVEL (STARS/FL)

On 2 JAN 1992, the Comptroller of the Navy (CON) briefed senior level Navy financial managers on the implementation of Defense Management Review Decision (DMRD 910), "Consolidation of DOD Accounting and Finance Operations", effective 1 OCT 1992.

DMRD 910 consolidated the Army, Navy, Air Force and DOD component accounting and finance centers and associated Authorization Accounting Activities (AAA) and Financial Information Processing Centers (FPIC) into the Defense Finance and Accounting Service (DFAS). Under DFAS, there are four Defense Accounting Offices (DAO) - Arlington, VA; Charleston, SC; Great Lakes, IL; and Oakland, CA.

DFAS directed DAO, Arlington, to establish a STARS Steering Committee Working Group to consolidate three existing systems, IDARMS, IDA IIBE, and UADPS "G Series" into one system taking advantage of the latest data processing technology available. The new accounting system is the Standard Accounting and Reporting System - Field Level (STARS/FL).

All NMRDC's CONUS research activities are serviced by DAO, Charleston, SC, and Charleston is presently converting from the IDA IIBE accounting system to STARS/FL.

THE BENEFITS OF THE STARS/FL CONSOLIDATION

- Reduce the number of Navy general fund field level accounting systems from three to two and standardize processes and procedures.
- Reduce the number of data processing installation sites supporting IDARMS/IDA IIBE and UADPS "G series" from three to one supporting STARS/FL. This consolidation will save several million dollars annually.
- Reduce the number of bill paying systems from four to one and implement electronic data interchange in the resultant system to enable electronic processing and payment of vendor bills. This effort will significantly reduce the resources required to process and pay vendor bills.
- Implement vertical integration between STARS/FL and STARS. This effort will reduce the time lag for obligation and expenditure reporting between the field and STARS from the current 30 to 60 days to 24 hours.
- Implement a relational data base management system that will provide users a flexible management inquiry capability. This system will enable users to generate special reports and do "what if" drills using STARS/FL data.
- Implement an automated function that will provide user's manuals, DFAS policies and instructions and other types of reference information previously published in hard copy. This will not only reduce the cost of information, but also will improve timeliness.

ETHICS Cont. from pg. 8

NMRDC Counsel will review each request and submit the request to the Staff Judge Advocate, BUMED. NMRDC Counsel has received training in questions of Government ethics, and can often provide a reasonable estimate of the probable opinion. If you have any questions, or require assistance in framing an ethics question, NMRDC counsel is available.

Coming Ethical Attractions

NMRDC is involved in many areas that have serious ethical questions and considerations. NMRDC is planning a panel discussion on the ethical problems faced in CRADAs, patent licensing and medical research. These panel discussions will be videotaped and distributed to laboratories for their use.

Ethics and government positions

The NMRDC family is a research organization where advances in science and new facts are developed regularly. This information has financial value. Under the current ethics codes, applicable to all federal employees, contractors, and visiting scientists, it is considered a misuse of position to "leak" information for personal gain before the information is officially released. To parody an old World War II saying, loose lips sink ....the scientific credit for Command publications and possible patient royalties for Navy.

CAPT CONTRERAS HONORED

CAPT Thomas J. Contreras, MSC, USN, Executive Officer at the Naval Health Research Center, San Diego, CA was selected to receive the 1993 National Image Meritorious Service Award. CAPT Contreras was selected because he "exemplifies those ideals of service, dedication and leadership the Image award recognizes," according to Image, Inc.

Each year during the national convention, Image salutes Hispanics in the military. The highlight of the convention is the presentation of the award to two members from each service. RADM Todd Fisher, Chief of the Medical Service Corps, attended the awards banquet on behalf of the Surgeon General.

CAPT JAMES C. CECIL, III, DC, USN
NMRDC's NEW EXECUTIVE OFFICER

CAPT James C. Cecil, III, DC, USN reported aboard NMRDC in March 1993 as the new Executive Officer.

A native of Louisville, Kentucky, CAPT Cecil received his Bachelor of Arts (BA) degree from Bellarmine College, Louisville, KY and received his Doctor of Dental Medicine (DMD) degree from the University of Kentucky, College of Dentistry, Lexington, KY. His postdoctoral education was completed at the University of Michigan, Ann Arbor, where he received a Masters in Public Health degree.

CAPT Cecil participated in the Naval Reserve while practicing family dentistry in Lancaster, KY. In 1973, he was recalled to active duty and assigned to the Naval Dental Clinic, Great Lakes, IL. Following his postdoctoral studies CAPT Cecil joined the staff of Naval Dental Research Institute, Great Lakes, IL as a dental research officer (epidemiology).

CAPT Cecil returned to clinical practice and operational dentistry in 1982 as Preventive Dentistry Officer at Naval Dental Clinic, Norfolk, VA. From December 1984 until transfer in June 1985, CAPT Cecil was Assistant Chief of Staff for Dentistry (Acting) at Naval Medical Command, Mid-Atlantic Region, Norfolk, VA. From June 1985 until August 1987, he was assigned to the Quality Assurance Division at Naval Medical Command, Washington, DC and in the Dental Care Operations Division at Naval Medical Command from August 1987 to March 1988. CAPT Cecil completed a tour as Deputy Director for Dental Inspections and Evaluation, Health Care Review Div., Office of the Naval Inspector General, Washington, DC, previous to his assignment as Commanding Officer, Naval Dental Research Institute, Great Lakes, IL.

CAPT Cecil is a Fellow, International College of Dentists; an active member of the American Dental Association, the American and International Associations for Dental Research, American Association of Public Health Dentistry, American Public Health Association, and the Association of Military Surgeons of the United States. He is active in several community organizations and is a member of the Honorable Order of Kentucky Colonels.

CAPT Cecil's military awards include the Navy Meritorious Service Medal (three awards), the Navy Commendation Medal, and the National Defense Service Medal (two awards).

CAPT Cecil is married to the former Betty Sue Cave of Campbellsville, KY; they are the proud parents of Daniel Curtis Cecil and Courtney Ann Cecil.

CAPT James C. Cecil, III, DC, USN
NMRDC's new Executive Officer

NAMRU-2 EXPANDS RESEARCH IN INDO-CHINA

The U.S. Naval Medical Research Unit No. 2 (NAMRU-2) recently seized the opportunity provided by the U.S. State Department and coordinated by CAPT Larry Laughlin (Uniformed Services University of Health Sciences, Bethesda, MD) to expand research efforts into Indo-China. NAMRU-2 developed a collaboration with and received support from USCINCPAC ADM Larson via his Surgeon, Admiral David Frost for expanding regional disease surveillance efforts into Vietnam and the Lao Peoples' Democratic Republic.

Vietnam

In Vietnam, NAMRU-2 investigators are cooperating with the National Institutes of Hygiene and Epidemiology in studying the epidemiology of hepatitis, malaria, and tuberculosis. Hepatitis E occurs in epidemic forms and has the potential to seriously impact military operations where crowding and environmental sanitary degradation are common. No prophylactic or treatment therapies currently are available, and mortality is associated with severe acute disease, particularly in pregnant women. NAMRU-2 is providing training in field applied epidemiology and establishing a diagnostic capability at host collaborating institutes. Surveillance for multi-resistant Mycobacterium tuberculosis is being established with the National Institute of Tuberculosis. There is also a large-scale community-based project with the Institute of Malariology, Parasitology and Epidemiology to study malaria attack rates and seasonal variation.

The Lao Peoples' Democratic Republic

As in Vietnam, NAMRU-2 is working with the National Institutes of Hygiene and Epidemiology In The Lao Peoples' Democratic Republic to study Hepatitis E and blood mediated viral diseases. This project will serve as a model for establishing epidemiological and diagnostic capabilities with the host country's Ministry of Public Health.

NAVY DENTAL RESEARCHER IS EVALUATING ADVANCES IN 3-D IMAGING FOR SURGICAL TREATMENT PLANNING AND ORAL DIAGNOSIS

Recent computer hardware and software advances have made 3-dimensional visualization technology available on the clinical desktop workstation. CAPT A. Charles Richardson, DC, USN, Officer-in-Charge of the Naval Dental Research Institute Detachment, Bethesda, MD is working with other researchers, surgeons, and clinicians at the National Naval Medical Center, Bethesda, MD to determine the potential applicability of this technology for future surgical treatment planning and oral pathology at Navy treatment facilities.

In the near future it may be possible for a Navy orthopedic surgeon to study a problem with a patient's shoulder, to prepare for surgery, and to monitor progress after surgery by viewing a desktop computer generated 3-dimensional image of the subsurface anatomy of the shoulder. On a computer monitor, the surgeon will view the shoulder from any angle, rotate the image as desired, and graphically enhance the image or "dissect" the image to study the results.

According to CAPT Richardson, Rotating, active 3-dimensional computer reconstructions of clinical image data produces anatomical insights which are difficult to attain when viewing static 2-dimensional radiographs.

The goal is to see how much extra clinically-relevant information can be extracted from the same radiographic exposures routinely ordered for medical/dental diagnosis. No additional radiation or patient involvement is required to make 3-D images, since all image data are retrieved from archived magnetic tapes.

CAPT Richardson has created active 3-dimensional images using clinical image data from computer-assisted tomography (CT Scanner) in selected case studies with broad medical applications. These 3-dimensional images include a iliac crest (hip bone) graft to the mandible (jaw bone), the evaluation of pathological lesion position, dental implant planning, and several fracture-repair applications in orthopedic surgery.

The Process

A CT Scanner passes X-rays through a patient's body at different angles and a computer constructs cross-sectional images of the tissue under examination and stores the information on a 9-track tape for routine printing in radiology.

Later, from the tape archive, the 9-track tape is carried to a computer graphics workstation. The raw CT image data are then translated into 16-bit raster data, then mapped into 8-bit images. Converting CT Scanner images to enhanced 3-dimensional rotations takes approximately two hours with the current computer hardware. The results are clinical images ready for interactive manipulation by researchers, surgeons and clinicians. Computer "dissection" of patient images and volume substraction routines can show hidden problems after bony structures are disarticulated on the screen. Images can be rendered either with soft tissue intact or with soft tissue removed.

CAPT STEPHEN L. HOFFMAN, MC, USN RECEIVED THE LEGION OF MERIT

A widely recognized leader in the field of malaria research, CAPT Stephen L. Hoffman, MC, USN has been honored by the Navy with the Legion of Merit award. CAPT Hoffman, director of the Malaria Program, Naval Medical Research Institute, Bethesda, MD, received the award from CAPT Robert Walter, DC, NMRI's Commanding Officer.

CAPT Hoffman has patiently and systematically conducted research on tropical infectious disease threats to the operating forces. His application of advanced biotechnology concepts resulted in new vaccines now undergoing clinical trials.

CAPT Hoffman was assigned to the Malaria program in 1984 and became Director in 1987. Under his outstanding leadership the program is recognized as one of the pre-eminent infectious diseases research programs in the world with an annual budget of $1.8 million and a staff of 25 Navy officers, enlisted personnel, civilian scientists and technicians. CAPT Hoffman and his research team have made steady, significant progress toward reducing the dramatic mission aborting potential of what many consider to be the single most important infectious disease threat to the operating forces, malaria.

CAPT Stephen L. Hoffman, MC, USN received the Legion of Merit for his work in malaria research. (photo taken by J. Aronson).

SAFETY IN LABORATORY DESIGN

by Kip Johnson, NMRDC Staff Asst. for Occupational Safety and Health

With the Base Realignment and Closure Act upon us, many activities are being asked to do more with less. A great number of existing laboratory spaces will be taking on even more sophisticated research projects requiring new and more advanced equipment. Should your activity be fortunate enough to acquire construction funding to build new laboratories or renovate old ones, allow the Safety Officer to be a part of the facilities planning committee to review the proposed construction plans and to implement the safe laboratory design features discussed below.

Although it might be anticipated that architects and engineers would be thoroughly familiar with safety and health requirements, experience has shown that this is not necessarily so, especially where requirements involve safety concepts other than those relating to fire or the strength of materials. Since relatively few laboratories are built, compared to the number of other types of buildings, few firms are really well prepared to design them for maximum safety, especially in terms of environmental air quality and laboratory hazards.

To combat costly post-construction modifications, there is a growing trend to construct "generic" laboratory spaces that are easily adaptable to different types (biological, chemical, etc.) of research programs. Many research activities are having great success in designing relatively small laboratories (4 people working simultaneously), with connections to adjacent spaces to permit growth. Shown in Figure 1 is a standard laboratory module with a design that provides a significant number of safety features.

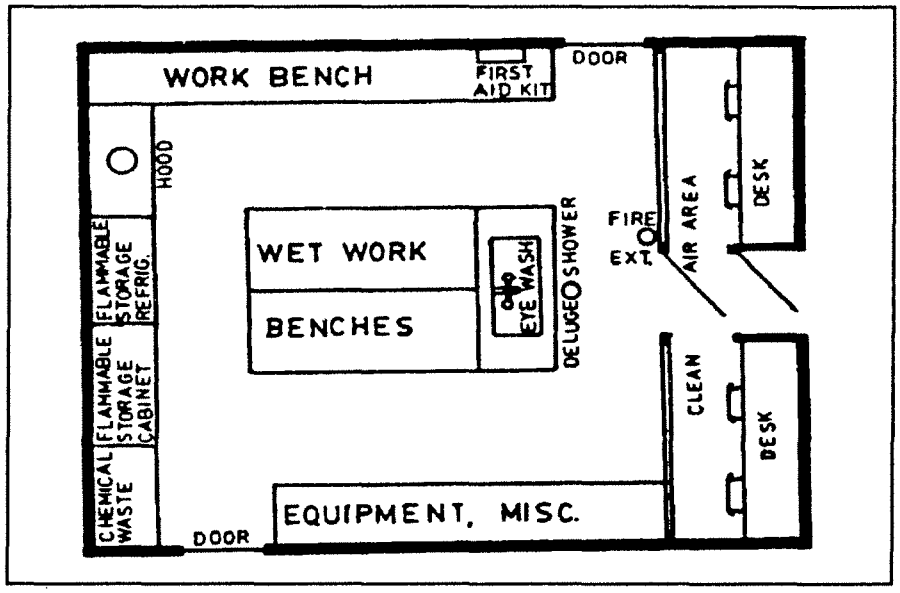

Figure 1
A standard laboratory module designed to provide a significant number of safety features.

Exits

The module shows two side exits along with a corridor exit. A side exit can be an optional door to an adjacent lab if the space is needed, or it can be constructed as a breakaway emergency exit. In either mode, there are always at least two exits from the laboratory. No matter where you are working in the laboratory, you are a relatively short distance from an exit. Laboratories greater than 1000 sq. ft. require two exits. If work is expected to be conducted after routine hours, the exits must be marked with illuminated exit signs.

Emergency Equipment

The placement of all emergency equipment (e.g. eye wash, deluge shower and fire extinguisher) is centrally located. This permits quick access and makes it easy to remember where the equipment is located in an emergency.

High Hazard Areas

The areas in this module most likely to be the site of a serious or violent accident are at the back of the laboratory, away from the main corridor entrance and are separated from stored flammable materials and other reagents.

Low Hazard Areas

The desk areas of the laboratory are separated from the work areas by a barrier (transparent if possible) which isolates the employees from the possible effects of an accident or exposure to laboratory airborne pollutants.

Compressed Gas Cylinder Storage

Gas cylinders should be effectively chained to the wall in the miscellaneous equipment area. Never chain cylinders where they could fall across an exit opening.

Ventilation

Laboratories are normally maintained at a negative pressure with respect to the corridor. When chemical fume hoods or biological safety cabinets are operating, the pressure difference is even greater. This will allow the air in the desk areas of the module to be as clean as the corridor air. With the door to the desk area closed, this area will then be an acceptable space to eat, drink and meet visitors.

UPDATE: U.S. NAVY MEDICAL RESEARCH UNIT NO.3 CAIRO, EGYPT

RESEARCH

Multi-National Forces and Observers

Research continues with the Multi-National Forces and Observers (MFO) in Sinai on infectious disease threats (particularly leishmaniasis), vectors, and repellant efficacy. NAMRU-3 provides clinical training in infectious diseases, microbiology, parasitology and entomology to MFO physicians and laboratory technicians.

Research in Zambia

NAMRU-3 is currently conducting research in Zambia on Shigella (and other agents of diarrheal disease) in order to compete for DOD or NIH funding for clinical trials of vaccines for S. flexneri 2b and S. dysenteriae. Research on multi-drug resistant tuberculosis (with assessment of HIV infection, cytosin analysis, etc.) continues. The potential for collaboration on Anopheles mosquito surveys is also being addressed. Zambia is of interest because of (1) a recent (1991-1992) U.S. military exercise there, (2) a recent (1991-1992) nationwide epidemic of shigellosis and the current cholera epidemic, (3) the presence of interested collaborators (Univ. of Texas Zambia Laboratory, Japan International Cooperative Agency, Zambia University School of Medicine Teaching Hospital, USAID, etc.), (4) an adequate, well-supported infrastructure, and (5) relative political stability.

Research in Djibouti

Work continues in Djibouti involving research on HIV, Tuberculosis, sexually transmitted diseases, disease vectors, and fever outbreaks. Since 1985, NAMRU-3 has closely studied the increasing HIV incidence and the increasing incidence of multi-drug resistant tuberculosis. Researchers are also studying a recent outbreak of jaundice (62% hepatitis E positive) and a recent outbreak of dengue type 2. Much of the work in Djibouti is related to NAMRU-3's status as a World Health Organization (WHO) collaborator for AIDS, Eastern Mediterranean region.

Consultant Assistance in Ethiopia

During a recent febrile epidemic in Ethiopia, NAMRU-3 provided consultant assistance at the request of the WHO and the Ethiopian Ministry of Health to rule out an arboviral etiology among febrile patients, many parasitemic from falciparum malaria but with very atypical symptoms. This epidemic resolved before adequate evidence of etiology could be obtained, but the director of the Ethiopian National Research Institute (which includes the currently functioning laboratory of the former NAMRU-5) is very interested in future, close collaboration.

Collaboration with NEHC

NAMRU-3 continues to collaborate with Naval Environmental Health Center (NEHC) on the vector-borne disease status of troops still stationed in Kuwait and Saudi Arabia. The results of this work were presented at the last NEHC workshop.

Research in Senegal and Rwanda

A study on acute viral hepatitis (particularly hepatitis C, hepatitis E) is ongoing in Senegal, and prospects for a similar study, as well as for a multi-drug resistant tuberculosis study, has been initiated in Rwanda, where the prevalence of HIV infection is among the highest in the world.

Research in Egypt

In Egypt NAMRU-3 is conducting numerous basic science and clinical medicine studies, involving patients and samples from fever hospitals, as well as conducting field diarrhea studies in Alexandria, travelers' diarrhea studies at tourist sites, and arboviral disease studies at Bilbeis.

The Schistosomiasis Topical Anti-Penetrant study has been completed in Fayoum, and it is hoped that a previous, similar study (stage 2) near Alexandria will resume after a one year hiatus taken to evaluate data and determine future Army interest and funding prospects. Schistosomiasis vaccine research is funded by USAID for two more years.

TROPICAL MEDICINE TRAINING AND RESEARCH EXPERIENCE

Two unique features of NAMRU-3 are the geographical location and the proximity to Egypt's largest fever hospital which contains several research and treatment wards managed by NAMRU-3, including wards for typhoid fever, meningitis, and fever of unknown origin. A pediatric intensive care unit will be added soon.

These features make NAMRU-3 a popular choice of students and fellows from Egyptian and U.S. institutions for overseas elective infectious disease and tropical medicine training, experience, and field projects. All NAMRU-3 active duty physicians and scientists currently have adjunct faculty appointments at USUHS and several are visiting lecturers at Egyptian universities.

PERSONNEL

NAMRU-3 is very fortunate to have onboard a new Executive Officer, CDR Jim Campbell (from NRL). Recent scientist arrivals include LCDR Al Churilla and LT Buhair Oyofo, both microbiologists (from NMRI).

FACILITY UPGRADES

NAMRU-3 occupies 27 buildings on a 3.5 acre compound. Over the past few years NAMRU-3 has undergone considerable upgrades, both new construction and refurbishing, allowing this 47 year old institution to not only remain state-of-the-art, but to become a more safe, efficient environmentally friendly and aesthetically pleasing place to conduct its missions.

UPDATE: NAVAL BIODYNAMICS LABORATORY, NEW ORLEANS, LA

First Female Research Volunteers

The first female "Human Research Volunteers" reported for duty after being recruited at the Apprenticeship Training School, RTC, Orlando, FL. These five women will join their male counterparts in helping researchers study the effects of G forces and ship motion on Navy and Marine Corps personnel. SR Scarlett A. Fisher, SA Tina L. Eakin, SR Claudia Vargas, SN Monica V. White and SN Andrea L. Griffin will be strapped into the horizontal accelerator sled to participate in impact acceleration studies. Head/neck response data will be closely compared to data from male volunteers. NBDL is a unique Navy command having the only billets for "dedicated" human research volunteers, whose standard tour length is 18 months.

Dr. Norman S. Gilbert Departs

Dr. Norman S. Gilbert, senior NBDL physician, departed the laboratory to become senior consultant at the Veterans Administration Medical Center, New Orleans, LA. For 17 years, Dr. Gilbert's close association with the research volunteers has been fundamental to the success of many research programs. His expertise in internal medicine has played an important role in helping to interpret the effects of impact acceleration on spinal cord injuries.

Foreign Naval Attachès Visit NBDL

NBDL was chosen as one of only two military activities in the New Orleans area to host a visit for forty Foreign Naval Attaches as part of the Chief of Naval Operations'/ Commandant's Spring tour. These senior Captain and Flag level visitors were from navies as disparate as Gabon and Indonesia. Events for the visitors included observing test firing of the horizontal and vertical accelerators, the Ship Motion Simulator in action, and program briefings.

NBDL Commanding Officer, CDR R.W. Rendin, MSC, USN with one of the first female volunteers, SA Scarlet A. Fisher, USN.

Abstracts Presented at the Aerospace Medical Association

NBDL was well represented at the Aerospace Medical Association's annual meeting held in Toronto, Canada, with six abstracts selected for presentation.

- **"An Artificial Neural Network for Detecting Abnormal Evoked Potentials During Impact Acceleration"**, D.L. Matson, Ph.D., and J.V. Urbas, Ph.D.
- **"Relationship Between Added Head Mass and Cervical Strain Following +Gz Impact Acceleration"**, CDR T.G. Anderson, MC, USN
- **"Incidence of Cardiac Dysrhythmias in Human Research Volunteers Following Impact Acceleration"**, N.S. Gilbert, M.D., and CDR T.G. Anderson, MC, USN.
- **"Response of the Human Cervical Zone to -Gx Impact Acceleration"**, R.C. Grunsten, M.D., A.M. Prell, and CDR T.G. Anderson, MC, USN.
- **"An Innovative Technique for Conducting a Site Survey of an Aircraft Accident"**, W.H. Muzzy, III, and CDR T.G. Anderson, MC, USN.
- **"Photo Documentation of Impact Acceleration Experiments Involving Manikins and Human Research Volunteers"**, A. M. Prell, and CDR T.G. Anderson, MC, USN.

Advanced Marine Technology Center

NBDL is about to embark in a collaborative research effort with a local college of Naval Architecture and Marine Engineering for the establishment of an Advanced Marine Technology Center. This $5M effort will conduct research, technology transfer, and development of engineering advances that will be of benefit to the Navy and to the marine and shipbuilding industry.

Shipboard Human Performance

Additional funding from NATO countries has been received for NBDL to finish research on the effect of ship motion on cognitive performance. This collaboration with NATO began with a motion induced interruption study using the Navy's only Ship Motion Simulator located at NBDL. The Ship Motion Simulator was recently reconfigured to accommodate seated subjects performing cognitive tasks on computer terminals. These studies are yielding data on performance decrements due to ship motions in heavy seas. Results have already proved valuable and have been used to help generate specifications for replacing the U.S. Coast Guard's 80-foot motor lifeboat.

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY, PENSACOLA, FL NAMED LAB OF THE MONTH BY FLC

As a result of the Naval Aerospace Medical Research Laboratory's (NAMRL) proactive leadership in the technology transfer arena, the laboratory was formally recognized (out of 500 federal laboratories) as the "Laboratory of the Month" by the Federal Laboratory Consortium for Technology Transfer (FLC).

According to FLC representatives, this honor was a direct result of NAMRL's ongoing activities. The specific activities that led to this recognition includes:

- NAMRL's being instrumental in developing the Gulf Coast Alliance for Technology Transfer (GCATT) Consortium (OUTLOOK April 1993)
- NAMRL's Cooperative Research and Development Agreements (OUTLOOK April 1993)
- NAMRL's implementation of nationwide advertising in federal and commercial technology transfer newsletters and reports.

NAMRL actively supports the Federal Technology Transfer Act of 1986 designed to promote and strengthen technology transfer nationwide in order to enhance U.S. competitiveness.

NAMRL employs a workforce of approximately 100 staff members. The people of the laboratory represent a variety of scientific disciplines and include specialists in psychology, physiology, neuroscience, biophysics, biomedical engineering, optics, audiology, electrical engineering, mathematics, biology, and ophthalmology. They are supported by experienced biological and physical science technicians, capable Navy hospital corps personnel, and a skilled administrative and fiscal staff.

Laboratory researchers are nationally and internationally recognized in the fields of aviation medicine and environmental safety. The laboratory's research efforts are frequently enhanced by visiting scientists, university faculty (11 universities represented last year), and postdoctoral fellows (over 30 in the past decade). The laboratory works closely with industry, academia, the Army, Air Force, DOD, NASA, and other government agencies to provide effective use of resources and technologies.

UPDATE: NAVAL DENTAL RESEARCH INSTITUTE, GREAT LAKES, IL AAALAC ACCREDITED

The laboratory animal facility of the Naval Dental Research Institute (NDRI) underwent a formal site visit by the American Associated for the Accreditation of Laboratory Animal Care (AAALAC). The purpose of this visit was to ensure that a high quality animal care and use program was being maintained by NDRI. NDRI has been a member of AAALAC since 1981. The site visit was conducted by Marilyn J. Brown, D.V.M. and Kathleen L. Smiler, D.V.M. They found the animal care and use program of NDRI to be in full compliance with existing AAALAC guidelines and will recommend to AAALAC's Council of Accreditation that NDRI maintain continued full accreditation. In addition, the site visitors noted exceptional efforts by both the animal facility staff in the areas of facility sanitation and husbandry and the Institutional Animal Care and Use Committee in helping to maintain such a high quality program.

SWEDISH SURGEON GENERAL VISITS NAVAL BIODYNAMICS LABORATORY, NEW ORLEANS, LA

The Naval Biodynamics Laboratory (NBDL) hosted a visit by the Royal Swedish Navy's Surgeon General, Captain Peter Herlitz. Captain Herlitz was accompanied by Dr. Hans Christer Ornhagen, Director of the Swedish Naval Medical Division, and Captain Bjorn Ljunggre, Swedish Naval Attachè in Washington, DC. The visit was arranged subsequent to a request from the Royal Swedish Navy for a brief on U.S. Navy seasickness research.

Following a welcome aboard by NBDL's Commanding Officer, CDR Robert W. Rendin, the Swedish party was given a briefing on laboratory research and a tour, complete with dynamic demonstrations of NBDL's impact acceleration devices and the Ship Motion Simulator. Captain Herlitz and Dr. Ornhagen discussed current research programs in Sweden. A lively exchange ensued on the topic of motion sickness. Dr. Thomas Dobie, developer of the Cognitive-Behavioral Anti-Motion Sickness Training Program at NBDL participated in the dialogue.

CHANGE OF COMMAND AT NAVAL DENTAL RESEARCH INSTITUTE, GREAT LAKES, IL

CAPT Stephen A. Ralls, DC, USN relieved CAPT James C. Cecil III, DC, USN as Commanding Officer of the Naval Dental Research Institute (NDRI) on 17 March 1993. CAPT Ralls reported from his position as Dental Corp Plans Officer, Bureau of Medicine and Surgery, Washington, DC. CAPT Cecil reported as Executive Officer to Naval Medical Research and Development Command in Bethesda, MD.

NMRI-DET RESEARCHERS BEGIN CHOLERA VACCINE FIELD TRIAL IN PERU

Historically, diarrheal diseases have been a major cause of wartime morbidity in deployed military personnel. Cholera is a severe, dehydrating form of diarrhea caused by Vibrio cholera. A safe, effective vaccine against cholera would offer a valuable preventive treatment for troops deployed in developing countries where cholera is endemic, and would be a considerable improvement to the parenteral vaccine currently available. Peru was the first country in South America to be affected by cholera on a large scale in more than a century. In the spring of 1991, an outbreak at a Peruvian military base affected three-quarters of 600 recruits and more than 120 were hospitalized. Factors of limited sanitation, lack of potable water, lack of access to medical care, and devastating poverty have all compounded the spread of the disease (although the cholera outbreak in Latin America is less than two years old, there have been over a half million illness reports, 50,000 hospitalizations, and over 2,000 deaths).

Navy researchers at the Naval Medical Research Institute Detachment (NMRI- DET) Lima, Peru have started a Phase III field trial of a cholera vaccine consisting of a killed whole cell preparation containing a recombinant B subunit of the cholera toxin. Walter Reed Army Institute of Research, Washington, DC is a collaborating institution and the Investigational New Drug (IND) sponsor is the U.S. Army Surgeon General. After completing a Phase II trial to evaluate safety and immunogenicity in Peruvian marine recruits in February 1992, NMRI-DET undertook the long and arduous task of preparing a field site to immunize volunteers for the efficacy study. This 30-month study, involving 60,000 Peruvians over the age of 2 years, is being conducted in collaboration with Cayetano Heredia University, Lima, Peru.

The trial is being conducted in a large socioeconomically disadvantaged urban community of Lima known as Independencia. A pilot study was completed recently to evaluate all phases of the project including the laboratory, data center and field operations. The large trial is scheduled to begin with immunizations in August, a one year follow-up, and a boosting dose of either the vaccine or E. coli K12 placebo after one year. A cholera center has been built in the community of Independencia and the follow-up will consist of case detection with subsequent active surveillance of families.

This vaccine is concurrently being evaluated for efficacy against enterotoxigenic E. coli due to the cross-protective potential of the toxin B subunit. For more information contact CDR C.J. Schlagel, MSC, USN, NMRDC Research Area Manager for Infectious Diseases, commercial 301-295-0881 or DSN 295-0881.

RESEARCHERS STUDY THE MOLECULAR AND CELLULAR MECHANISMS REGULATING INFLAMMATION

Navy personnel engaged in combat or hazardous operations can suffer from traumatic injuries and infections resulting in adult respiratory distress syndrome, multiple organ failure in sepsis, and impaired wound healing. In an effort to develop a therapeutic strategy for controlling the intensity of local inflammation, researchers in the Septic Shock Treatment Program at the Naval Medical Research Institute, Bethesda, MD are investigating the molecular and cellular mechanisms regulating inflammatory reactions. Using immunofluorescence, immunoelectron microscopy and radioimmunoassay, researchers are studying the effects of cytokines, growth factors, and two known mediators of inflammatory reactions (lipopolysaccharide and thrombin) on the expression of cell adhesion molecules and cytoskeletal reorganization in endothelial cells, monocytes, and macrophages. The objectives of this research are to define the cellular mechanisms that regulate inflammation and to develop a pharmacologic and/or immunologic means for modulating the intensity of inflammation. For more information contact Ms. Christine Eisemann, NMRDC Associate Director for Research Management, DSN 295-0882 or commercial 301-295-0082.

PATENT ISSUED ON NEW MEMBRANE-BASED RAPID DOT IMMUNOASSAY TEST KIT DEVELOPED FOR USE IN THE FIELD

A patent (#5,200,312) was issued on a new membrane-based immunoassay and on the method of use which was developed by researchers at the Naval Medical Research Institute, Bethesda, MD. The new rapid dot immunoassay test, developed for use in the field, can be performed easily and quickly without the use of special equipment. The kit contains a chemically stable "test strip" comprised of a hydrophobic membrane to detect one or several antigens or antibodies. Known antigens or antibodies which will form complexes with the antigens or antibodies to be assayed are spot filtered with pressure through the membrane. The membrane, either by itself or attached to a base material, is incubated with a test fluid. The resulting antibody-antigen complex is incubated directly or after an intermediate anti-antibody incubation with enzyme conjugated immunoglobulin and exposed to substrate which produces a colored insoluble product if the test target is present. The test kit includes the proper test strip, wetting solution, washing solution, buffer/surfactant solution, buffer solution, enzyme conjugated immunoglobulin solution, and substrate as well as containers for carrying out the dilutions and incubations. For more information contact Mr. A. David Spevack, NMRDC Intellectual Property Counsel, commercial 301-295-6759 or DSN 295-6759.