

# Outlook

Naval Medical Research and Development Command



Volume 4 Issue 3

On the Cutting Edge of Medical Research Today

December 1993

## INSIDE THIS ISSUE

NMRDC's Proposed Reorganization .....	1
Defense Technical Information Center... 2	
Closing The Information Loop With Sponsors.....	4
NMRDC'S Bone Marrow Registry Program .....	6
Please Write Soon! .....	6
Septic Shock Research Program External Advisory Committee - A Continuing Success.....	7
Joint Ethics Regulations Answers Questions Concerning Government Travel .....	8
Should Patent Applications Be Contracted Out? .....	9
NMRDC Starts A Base Enhancement Program .....	10
NMRDC'S FY96 ARI Competition Underway.....	11
<b>NAVY MEDICINE</b> seeks Articles.....	11
Electrical Systems Safety.....	12
UPDATE: U.S. Naval Medical Research Unit No. 3, Cairo, Egypt .....	13
CAPT Patee Receives Award.....	13
Medical R&D Wins Another ATD In Navy's FY95 Competition .....	14
Naval Medical Research Investigators Win Prestigious Weinstein Award .....	14
NMRDC Telephone Directory.....	15
Highlights Of NMRDC Research.....	16
<ul style="list-style-type: none"> <li>• Initial Studies Completed of Probable Hazard to Aviation</li> <li>• Reducing Coronary Heart Disease Risk is the Goal of a Current Nutrition Study</li> <li>• First Female Research Volunteers Report Aboard the Naval Biodynamics Laboratory</li> </ul>	

## NMRDC's PROPOSED REORGANIZATION

by CAPT E.T. Flynn, MC, USN, NMRDC Commanding Officer

The extensive list of base realignment and closures put forth by the Navy in 1993 clearly shows the Navy intends to tighten its belt. In recent months, the Naval Medical Research and Development Command has come under heavy scrutiny as a candidate for potential reductions. Three separate events indicate that the shape of our organization is likely to be very different in the future.

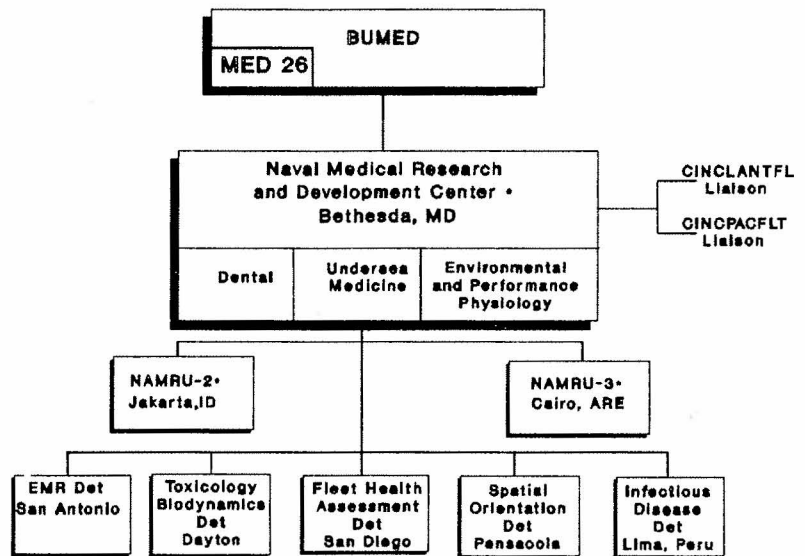
Several months ago, we were ordered to reduce our end-strength by 14 officers and 27 enlisted and to remove all billets in excess of end-strength. Since the billet file was "overwritten", the net loss to the system will be 14 officers and 97 enlisted billets over the next two years. This reduction was not open to negotiation and has been accomplished.

reduce its headquarters' ceiling by 132 positions over the next five years. Since our headquarters counts against the BUMED ceiling, it was recommended that our headquarters be disestablished to aid in achieving this total reduction. Our rebuttal to this proposed action has been accepted for the time being.

Continued on page 3

Recently, BUMED was directed to

### NMRDC Proposed Reorganization



• Commands

The three small boxes under the new Center (NMRI) above indicate functions that will transfer to the new Center; this is not the organizational structure of the Center.

# DEFENSE TECHNICAL INFORMATION CENTER

by Lisa B. Harris, NMRDC Research Administrator

The Defense Technical Information Center (DTIC) is the central point within DoD for acquiring, retrieving, and disseminating scientific and technical information.

DTIC contributes to the management and conduct of DoD research and development efforts by providing a method to access and transfer scientific and technical information. DTIC is an organizational component of the Deputy Director for Acquisition, Policy, and Program Integration.

DTIC takes its direction from DoD Directive 3200.12, DOD Scientific and Technical Information Program (STIP). The principal objectives of STIP are: 1) to increase effectiveness of defense RDT&E programs, 2) to improve military readiness to meet current national security needs, 3) to avoid duplication of RDT&E programs, 4) to maximize the use of resources, and 5) to support DoD policy to protect militarily critical technology. Primary contributors to DTIC are DoD organizations and defense contractors. Submissions include technical reports, which consist of preliminary, periodic, summary and final reports; journal articles; conference minutes; proceedings; studies and analyses; technical memoranda; technical notes; and, theses and dissertations. These materials may be generated by scientists, engineers, managers, students, acquisitions specialists, professors, program managers, and others within governmental, industrial and academic

organizations. DTIC regulation 3900.12-R-1 specifies that the following actions concerning work unit data must be reported: 1) approval of a work unit, 2) approval of a job order by a DoD laboratory, 3) award of a contract or grant, 4) a change to or termination of an in-house work unit, or 5) a significant change in work status. The current mode of input is PCWUIS, a PC-based system for entering data. It is an easily used software package that allows the creation of records and submission of data via floppy disk. PCWUIS has many potential uses, e.g. record validation, file protection, and file management.

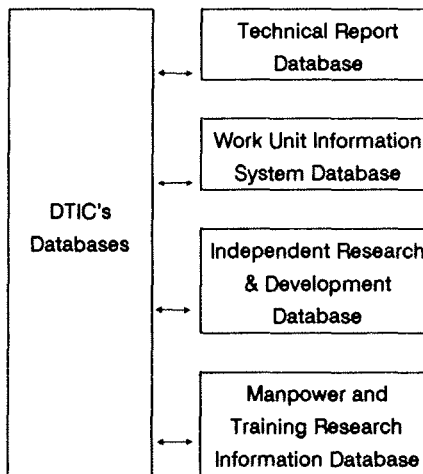
The major databases at DTIC include the:

- **Technical Report (TR) Database**  
Publications prepared by DoD employees, DoD contractors, and colleges and universities under DoD contract.
- **Work Unit Information System (WUIS) Database**  
Information that describes all ongoing and completed research and technology work performed or sponsored by DoD.
- **Independent Research and Development (IR&D) Database**  
Research projects currently in progress in industry. These projects may have future applications to, and compete for DoD contracts. This database contains proprietary information and is exempt from the disclosure provisions of the Freedom of Information Act.
- **Manpower and Training Research Information System (MATRIS) Database**  
Information on planned, ongoing, and completed research dealing with manpower and personnel, human factors, education and training, and simulation and training devices.

The TR and WUIS databases are the two databases at DTIC that most directly affect the performance of Navy RDT&E work.

If you have any questions concerning DTIC contact Ms. Harris, DSN 295-1771 or commercial 301-295-1771.

## DTIC Databases



### NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND

**Commanding Officer**

E.T. Flynn, CAPT, MC, USN  
301-295-0287

**Executive Officer**

J.C. Cecil III, CAPT, DC, USN  
301-295-1825

**Director of Research and Development**

R.C. Carter, CAPT, MSC, USN  
301-295-0883

**Associate Director for Research Management**

C.S. Eiseemann  
301-295-0882

**Research Area Manager (RAMS)**

**Submarine and Diving Medicine**

L. Fenton, LCDR, MC, USN  
301-295-0879

**Aviation Medicine and Human Performance**

T. J. Singer, CDR, MSC, USN  
301-295-0878

**Combat Casualty Care**

P.D. Kent, CDR, MC, USN  
301-295-0880

**Fleet Occupational Health**

P. Knechtges, LCDR, MSC, USN  
301-295-0885

**Infectious Diseases**

C.J. Schlagel, CDR, MSC, USN  
301-295-0881

**Dental Research**

J.C. Cecil III, CAPT, DC, USN  
301-295-1825

**Bone Marrow Registry**

CAPT Robert Hartzman, MC, USN  
301-295-1837

**Intellectual Property Counsel**

A. David Spevack  
301-295-6759

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 official views of, nor endorsed by, the U.S. government, the Department of Defense or the Department of the Navy. Contributions from the field are welcomed and will be published as space permits, subject to editing and possible abridgement. Articles, letters and address changes may be forwarded to Doris Ryan, Outlook Editor, Code 03B, NMRDC, NNMC, Bethesda, MD 20889-5606. E-Mail rdc09d@nmrdc1.nmrdc.nmcc.navy.mil. Phone 301-295-0875 or DSN 295-0875.

---

## NMRDC Proposed Reorganization continued from page 1

As a part of the program review to establish the Navy's FY95 budget, the OPNAV Director for General Programming, N-80, proposed that medical research and development end-strength be reduced by 50% and the budget reduced by \$22M. Our reclama proposed approximately a 20% reduction, including prior cuts, and a budget reduction of \$1.5M. Our case was not helped by an N-81 analysis which rated our fleet medical development program as "excess capacity", or the fact that CINCPACFLT and CINCLANTFLT concurred in this rating.

Ultimately we averted cuts in Program Review 95 because of the small magnitude of our program and extremely favorable timing. However, we have already been notified our programs will be the first to be addressed in the preparation of the Program Objectives Memorandum for FY 1996 (POM 96), a process which is scheduled to begin very shortly.

---

### COs Conference

It was against the backdrop of these three events, that the laboratory commanding officers, scientific directors, and NMRDC Research Area Managers met in Pensacola, FL during the second week in October to finalize the Command Strategic Plan and to develop the best strategy to meet the resource challenges certain to come with POM 96. The underlying theme of the meeting was to develop an organizational structure that would preserve scientific programs and capabilities to the greatest extent possible, while meeting projected resource shortfalls through reductions of overhead and administrative costs. In addition, we wanted to honor our Project Reliance commitments. The organizational realignment we settled on is shown on page 1. The boxes located inside the new Center diagram indicate functions that will transfer to the new Center.

They do not indicate the organizational structure of the new Center. The new organization is essentially the "Central Laboratory" concept which grew out of our three years of strategic planning, but which heretofore had not achieved complete acceptance.

---

### The Essential Features

- The Naval Medical Research Institute (NMRI), Bethesda, MD will become the Naval Medical Research and Development Center, embracing the full spectrum of operational medicine, infectious disease and combat casualty care research.
- NMRDC headquarters, Bethesda, MD will be disestablished and the management functions will be split between BUMED (MED-26) and the new Center.
- The Naval Submarine Medical Research Laboratory (NSMRL), Groton, CT will be disestablished. All scientific programs will be realigned to the new Center.
- The Naval Dental Research Institute (NDRI), Great Lakes, IL will be disestablished. All scientific programs including those of the U.S. Army Institute of Dental Research will be realigned to the new Center.
- The U.S. Naval Medical Research Unit No. 2 (NAMRU-2) Jakarta, Indonesia and the U.S. Naval Medical Research Unit No.3 (NAMRU-3), Cairo, Egypt will remain as commands but report to the new Center.
- The Naval Aerospace Medical Research Laboratory (NAMRL), Pensacola, FL will be reorganized to a detachment concerned only with spatial orientation programs. EMR programs will move to a new detachment at Brooks AFB. All remaining aviation programs including environmental medicine and performance physiology will be realigned to the new Center.
- The Naval Health Research Center (NHRC), San Diego, CA will be reorganized to a detachment concerned only with Fleet health surveillance and health promotion. All environmental medicine and performance physiology programs will be realigned to the new Center.

- The Naval Biodynamics Laboratory (NBDL), New Orleans, LA will be downsized and combined with the existing toxicology detachment at Wright Patterson AFB.
- The Naval Medical Research Institute Detachment (NMRI Det), Lima, Peru will either be disestablished or retained intact depending on the outcome of discussions with the Army.
- Liaison with CINCPACFLT and CINCLANTFLT will be established to ensure program relevance.

---

### The Next Step

We are now in the process of briefing these plans to higher authority in preparation for POM 96. Pending approval, we will make a detailed execution plan to effect the transition to the new organizational structure. I have appointed CAPT Jim Cecil, aided by CDR Jim McDonough, as the central point of contact for this briefing and planning effort.

The uncertainty of change is stressful for all of us. Those who have grown up in the system particularly hate to see a laboratory system that has worked so well be pared down in size. The fiscal reality is, however, that we will not have the resources to run the system as it is and maintain a quality scientific product.

I anticipate that the transition to the new laboratory structure will be gradual over a five year timeframe. The exact timetable for effecting the various component moves, however, is unknown at the present time. I have directed that the execution plan be developed in a way that minimizes disruption of scientific programs and mitigates the adverse impact on our people to the greatest possible extent.

I earnestly solicit your support in making this difficult and painful transition. Working together as a team, we can beat this resource monster and make Navy medical research and development even stronger than it is today!

## CLOSING THE INFORMATION LOOP WITH SPONSORS

by CAPT Robert Carter, MSC, USN, NMRDC Director of Research and Development  
and Dr. James Grissett, Naval Aerospace Medical Research Laboratory, Chief Scientist

The Naval Medical Research and Development Command's (NMRDC) sponsors are very important customers. Successful interactions with them enables the pursuit of research excellence and the development of products to support our other customers - globally deployed sailors and Marines.

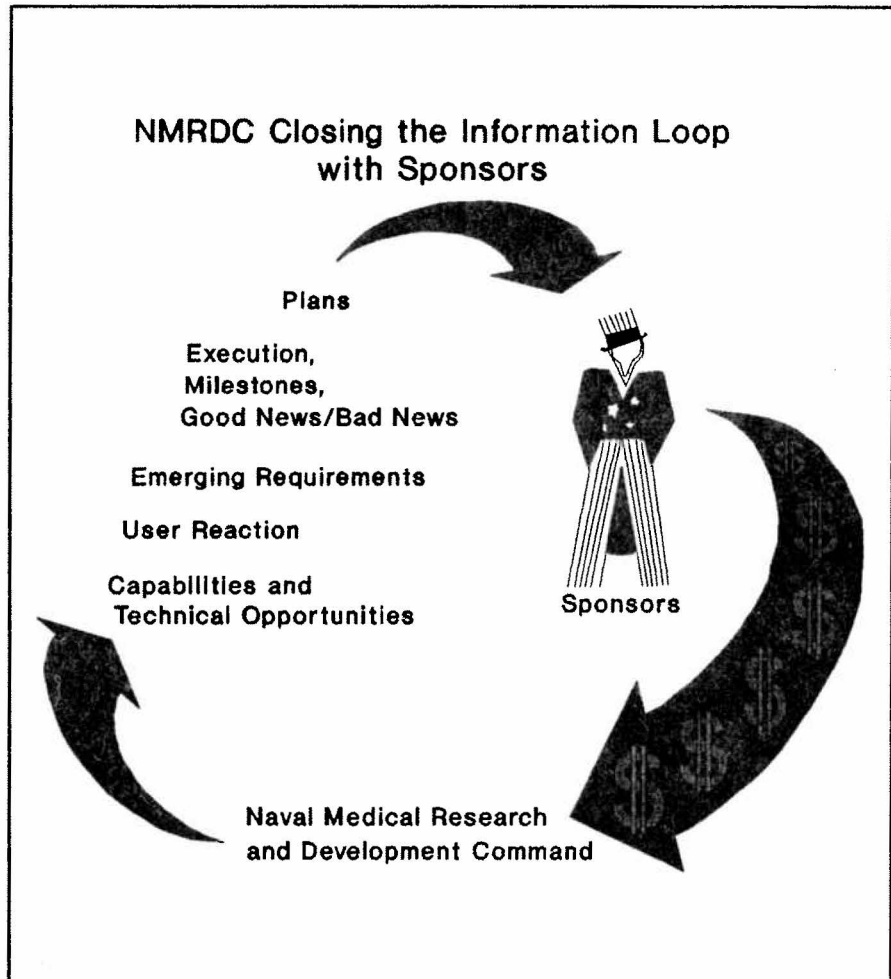
NMRDC has many sponsors, including the Office of Naval Research (ONR) Technology Directorate and Science Directorate; Assistant Chief of Naval Operations (Surface Warfare); Assistant Chief of Naval Operations (Undersea Warfare); Director Air Warfare; Director of Navy Test, Evaluation & Technology Requirements; Deputy Chief of Naval Operations (Logistics); Surgeon General of the Navy and the U. S. Army Medical R&D Command.

Feedback theory suggests that unless we close the information loop with all of our sponsors, we are unlikely to obtain their satisfaction. (Peter J. Denning recently made a carefully reasoned plea for closing the loop with customers in *American Scientist*, August 1993, p. 314-317).

What do we mean by "closing the information loop with sponsors?" There are several kinds of information that sponsors need in order to do their jobs effectively and to feel confident about what NMRDC is doing with the provided resources. Closing the loop means ensuring that information has been provided to sponsors, that the information is understood by the sponsors, and that sponsors are satisfied with the information they receive. We can visualize a separate loop for each kind of information needed by sponsors.

### Plans for Use of Resources

Perhaps the most important and immediate loop is the plans for use of resources. This includes cost, schedule, technical objectives, and milestones. Sponsors vary in the formality of the plans they require, but we



should volunteer and discuss our plans even if a formal document is not requested by the sponsor. The ONR Technology Directorate requires elaborate documentation of plans, for example, while some OPNAV sponsors demand only minimal plans.

When describing plans we should empathize with sponsors by deemphasizing details they may not be concerned with. Points to emphasize are technical risks and NMRDC's plan to overcome them, Congressional interest, dual use, other-Service involvement, extramural involvement, Navy-specific payoffs, aggregate

financial execution plans, risks associated with use of animal or human subjects, and how a project could make the sponsor look good (or bad). Our Advanced Technology Demonstrations (ATD) have been examples of success in this regard.

Recently, Rear Admiral W.P. Houley, Director of Test, Evaluation & Technology requirements, received a briefing on two medical ATDs, Liposome Encapsulated Hemoglobin and Combat Wound Healing and he commended NMRDC's exceptional work. He pointed out

Continued on next page

that NMRDC did a good job of seeking the best advice and the best performers for the tasks assigned and he pointed out how important that was to a sponsor. Rear Admiral Houley also commented that the briefers were not afraid to show areas of failure — technical objectives which could not be achieved within the time constraints of the demonstration — while showing appropriate pride and sense of accomplishment for those objectives which were achieved and exceeded.

---

### **Execution, Milestones, Good and Bad News**

Another loop in information feedback concerns execution of the plan conveyed in the first loop. Early in execution, sponsors will be interested in obligation and expenditure rates, compared to targets. For sponsors, obligations and expenditures are an important first indicator that the research and development has been funded at the proper level. Lagging financial execution suggests over-funding and accelerated execution warns of impending crisis. Later, the sponsors want to know whether we are meeting technical milestones on schedule and on budget. They want to know intermediate findings and progress in areas of high risk and high payoff. They want information which will help them to justify (to the Office of the Navy Comptroller, Secretary of the Navy, Office of the Secretary of Defense, and the Congress) continued expenditure of funds on the research.

---

### **Emerging Requirements**

Emerging requirements are communicated in a third loop which is of increasing importance as we move from basic research to engineering development. A formal statement of what sponsors need is in OPNAVINST 5000.42. In essence, a requirement is a written statement, signed by a flag

officer or equivalent, specifying the goal that must be achieved, and the constraints (time, money, technical, context). Sometimes the sponsor is also the source of the requirement, but typically the requirement comes from some other source and is a reassurance to the sponsor that the research and development investment will have a payoff that is of value to the Navy. Requirements can change over time, as the technical possibilities become clearer, as mission areas change, or as the source of the requirement comes to have a clearer understanding of the use to which our research and development will be put. High-level steering committees or requirements reviews are mechanisms to keep requirements fresh and pertinent. Sponsors will want to know about new and changing requirements and our progress in meeting them.

---

### **End-User Reaction**

A fourth loop which should be closed with the sponsor is end-user reaction to our research and development. This loop answers the question, "What does the operating sailor and Marine think about our prospect or product?" One of the intrinsic rewards of medical research and development is helping people. The sponsor would like to share that reward with us, and to have fleet response as a validity check on our programs. Recent Fleet CINC input about some of our programs illustrates the power of closing this loop. For example, CINCPACFLT is very supportive of U.S. Naval Medical Research Unit No. 2 (NAMRU-2), Jakarta, Indonesia, largely because NAMRU-2 practices closed loop communication.

---

### **Capabilities and Technical Opportunities**

Another loop which needs to be closed with the sponsor is new technical possibilities and

laboratory capabilities. In some cases, sponsors will agree to anticipate requirements or to support research which will radically improve a defense capability, and in the process alter the way the Navy does business. In such cases, it may be unreasonable to expect a formal statement of requirement from someone invested in the present way of doing business.

The risk for sponsors is that the project will be a technical success that may not be accepted or adopted by the operating forces. To induce sponsors to take that risk, they must be convinced of the high payoff possible from the proposed research. Some of our greatest successes, for instance, in military hematology and immunobiology, have anticipated formal requirements.

Current sponsors are enthusiastic about forward-looking work units such as immune-system "switches" and freeze-dried blood because of closed-loop communication about their revolutionary potential.

---

### **Who is Responsible for Closing Loops with the Sponsors?**

All of us are! In each work unit, there should be explicit (loop-by-loop) agreement between the NMRDC Research Area Manager and the performing activity about who will do what to get the sponsors the information they need. These assignments should be made with consideration of geographic advantages, importance of technical expertise and familiarity with the work unit, needs of the chain of command, and a general predisposition to let the laboratory staff focus on doing research. Performers can add tremendously to the interest and effectiveness of information for sponsors by providing pictures and graphics for overhead projection, and tangible samples of interim research products.

## NMRDC'S BONE MARROW REGISTRY PROGRAM SUPPORTS TECHNOLOGICAL AND CLINICAL DEVELOPMENT WITH THE NATIONAL MARROW DONOR PROGRAM

by CAPT Robert Hartzman, MC, USN, Bone Marrow Registry Research Area Manager

**Bone marrow transplantation is a very successful method of treating bone marrow suppression caused by leukemia and other malignancies, radiation, or chemical injury. Prior to the Navy's involvement in the National Marrow Donor Program (NMDP) the only realistic possibility for a marrow donor was being an HLA (tissue type) matched brother or sister and only 30% of needy patients have matched siblings.**

With the experienced personnel and appropriate facilities for bone marrow transplantation research, the Navy was tasked by Congress in 1990 to initiate research addressing tissue typing for patients without related donors and to develop an active Department of Defense (DoD) recruitment program. That was the beginning of the Navy's C.W.

Bill Young Marrow Donor Recruitment and Research Program.

Previous HLA typing technology relied on 30 year old methods to test donor's white blood cells for HLA proteins. New technology, developed by Navy scientists, is revolutionizing the way tissue typing is performed by permitting the direct analysis of an

individual's genetic makeup. Sophisticated research laboratory-based technology to define HLA type by directly analyzing HLA genes from each donor has moved to clinical reality. The DNA for testing is obtained from a tiny sample of each donor's chromosomes, currently from blood cells but potentially from hair follicles or buccal scraping (from the mouth). Polymerase chain reaction technology is used to produce billions of copies of the short segment of DNA which codes the specific structure of that part of the chromosome dictating HLA type. The precise nucleic acid sequence of many of the HLA types have been discovered. Once the specific DNA is amplified, it is probed with short pieces of specific nucleic acid unique for HLA types. The technology is rapidly progressing to increase the number of HLA genes that can be tested and automation is being introduced to increase capacity.

Because of the research and recruiting efforts, NMDP has a database of over 1,000,000 volunteer marrow donors and now there is a better chance of success for patients seeking unrelated donors. Today, samples from 1,000 volunteers are typed each week by the Bone Marrow Registry Program at the Naval Medical Research Institute, Bethesda, MD and NMDP civilian laboratories with technical support from the Navy. And each week a DoD volunteer marrow donor provides marrow for a potentially life saving transplant. (Marrow donor recruitment drives are held on military bases throughout the U.S., for more information call 1-800-MARROW-3).

### PLEASE WRITE SOON!

by CAPT Robert Carter, MSC, USN, NMRDC Director of Research and Development

**When writing about Navy medical research and development, an author advances three of NMRDC's five strategic goals: open communication, R&D quality, and marketing. Publication, especially in peer-reviewed media, is good for Navy medical R&D and it is a source of recognition for the author.**

While headquarters encourages publication, we would like to remind you about concerns that an author should consider. You should assume that your audience knows nothing about Navy medical R&D other than what you tell them. A message we should avoid is that our research lacks military relevance. A recent local newspaper article focused on Navy research focused on a cure for diabetes! This was particularly unfortunate because the same technology has revolutionary military applications which could have been mentioned or even emphasized. Try to convey to your audience a sense of militarily relevant R&D professionalism.

Another area of concern is protection of intellectual property. If you think that your publication might contain patentable material, consult

NMRDC's Intellectual Property Counsel and send a draft of the paper. Intellectual property which has been published for more than a year is not patentable.

Research Area Managers often lament that they had not seen an article before it was sent to the publisher. My experience is that RAMs will give timely, interested and knowledgeable constructive criticism when asked for it. Consider sending drafts of your papers to the Research Area Managers. They will appreciate the courtesy.

Headquarters has received "information copies" of papers sent out for publication with spelling mistakes and other indications of carelessness. Surely, carelessness is not what we want to convey to an audience.

---

## SEPTIC SHOCK RESEARCH PROGRAM EXTERNAL ADVISORY COMMITTEE

### A Continuing Success

by Michael C. Falk, PhD, Head Septic Shock Research Program, Naval Medical Research Institute, Bethesda, MD

**Following a suggestion by the peer review panel made in March of 1992, the Septic Shock Research Program at the Naval Medical Research Institute (NMRI), established an External Advisory Committee. This committee was constituted to meet on a regular basis and provide constructive advice and criticism to help the NMRI program optimize the quality of science and productivity.**

The committee has met several times over the past year adding dimension to the NMRI program. The impeccable credentials, inclusive comments, breadth of knowledge, and generosity of the committee members have provided invaluable guidance to the NMRI scientists and to the NMRDC Research Area Managers as well.

Although the peer review panel's overall concept of an advisory committee was quickly embraced, the details of the committee and its operation were tailored to fit the Septic Shock Research Program. The scientists in the program agreed that if this advisory committee were to work, the members should be composed of the most outstanding scientists in the field of shock research.

We were very fortunate; every scientist that we asked agreed to serve on the committee. The committee is composed of: Dr. Mitchell Fink, Associate Professor Surgery, Harvard Medical School and Chief, Division of Trauma and Surgical Critical Care, Beth Israel Hospital; Dr. Irshad Chaudry, Professor, Department of Surgery and Physiology, and Associate Chairman and Director of Surgical Research, Michigan State University; Dr. Charles Rice, Professor of Surgery, University of Texas, Southwestern Medical Center; Dr. David Morrison, Professor and Chairman, Department of Microbiology, Molecular Genetics and Immunology, University of Kansas Medical School; and Dr. H. Shaw Warren, Associate Professor of Pediatrics, Harvard University Medical School and Massachusetts General Hospital.

Two of the members are past presidents of the Shock Society, three are current board members, two are editors-in-chief of "Shock" and the "Journal of Endotoxin Research", and all are on the editorial boards of the most important journals in the field of sepsis.

Since scientists of this caliber have great demands on their time, the committee meetings are limited in duration to one day with a frequency of two per year. The meetings are scheduled to coincide with the beginning of the fiscal year and just prior to the preparation of the annual reporting documents (WUIS).

Setting up the committee and arranging for the first meeting took about seven months of intense negotiations and many, many telephone calls. The time invested in establishing the committee, the costs (which are billed to the Septic Shock Research Program), and the arrangements for the meetings has had more than ample return.

The meetings have proven to be quite informative, with a lively interchange of ideas and suggestions. The committee reports have helped summarize the research, highlight areas for focus and consolidation, and point to areas to strengthen. The format of the meetings has been an evolving process. Currently, each investigator presents his most recent research in a round-table format. Oftentimes presenters are quickly interrupted for what turns out to be animated discussions.

Compressing all of this large program's research into one, long day has proven to be quite a challenge. To make it work the committee members are

inundated just prior to each meeting with all the current WUIS and proposal addenda, current publications, and brief summaries of each investigator's progress over the past six months. Our Research Area Managers attend all meetings and receive all mailings as well. One of the fundamental advantages of these meetings is the simultaneous briefing of the Research Area Managers along with the committee members who help place the research progress in context.

Although the committee members have uniformly expressed their pleasure at the interchange of ideas, the meetings and their preparations are quite a demand on their time. We expect the members to roll off the committee and be replaced at regular intervals. We hope to strike a balance of maintaining committee continuity while refreshing the committee's intellectual base.

The continued success of this process depends on many factors. The most important factor is the ability to find qualified scientists who are generous with their time and thoughts. In addition, the ongoing frank and comprehensive dialogue necessary to make this work depends on the mutual respect and confidence built between committee members and scientists. Anything that undermines these fragile bonds will defeat the value of the process as a whole.

Clearly, for this process to continue to be valuable to both NMRI scientists and NMRDC Program Area Managers, it must continue as an advisory committee rather than a review board.

---

# JOINT ETHICS REGULATIONS ANSWERS QUESTIONS CONCERNING GOVERNMENT TRAVEL

by A. David Spevack, NMRDC Intellectual Property Counsel

The long promised Joint Ethics Regulations (JER) are now published. In part, they clarify some long standing issues. One issue is frequent flier mileage and travel in general. The basic rule is that if you travel for the Government (on the Government's nickel), anything you receive from the bag of peanuts to frequent flier miles belongs to the Government and should be used for Government purposes (your sustenance with the peanuts cuts down on claims for food).

---

## Frequent Flyer Mileage Credits

The JER specifically addresses frequent flyer mileage credits. "Frequent flyer mileage credits earned as a result of official travel are the property of the Federal Government. They shall not be used except in connection with official travel. Credits are used in connection with official travel either by redeeming them for airline tickets which are used for official travel or by using them for travel upgrades while on official travel (e.g., airline seat upgrades, rental car upgrades, hotel upgrades).

First consideration should be given to the former. When mileage credits for official and personal travel have been commingled in the same account, only those credits or points that clearly can be shown to have been derived from personal travel may be used for future personal travel. All other points in the account belong to the Federal Government."

---

## Incentives for Voluntary Surrender of Flight

You must be careful of not using Government travel improperly. If you give up a seat, you must do it on your own time. The JER provides that, "DoD employees may keep payment or free tickets

received from a carrier for voluntarily giving up a seat on an overbooked flight. DoD employees on official travel may not voluntarily surrender their seats if the resulting delay would interfere with the performance of duties. The delay may not increase the cost to the Federal Government. Therefore, travel vouchers should disclose the voluntary surrender and resulting delays and leave must be taken as appropriate."

---

## Travel Benefits Treated as Gifts to an Individual

The following are examples of benefits treated as gifts.

"DoD employees on official travel may accept benefits such as an airline seat upgrade to first class, a luxury rental car in place of a compact, or a hotel room with a view instead of an interior room, for official use as long as there is no extra charge to the Federal Government to obtain the upgrade subject to the following:

---

## On the Spot Upgrades

"DoD employees may accept an upgrade offered on the spot under circumstances in which such upgrades are generally available to the public or at least to all Federal Government employees or all military members. For example, a travel company may provide upgrades to remedy overbooking or overcrowding, due to a shortage of smaller cars, or simply for customer relation purposes; or upgrades may be offered to all military members in uniform. No upgrade may be accepted, however, if it is provided on the basis of the DoD employee's grade or position. Upgrades resulting from involuntary "bumping" while on official travel may not be used for personal travel.

---

## Use of Upgrade Certificates

(other than those obtained for frequent flyer miles).

"Some travel companies distribute coupons for free travel upgrades as a promotional offer. DoD employees may accept and use such coupons if they are realistically available to the general public (e.g., widely available coupons usable by bearer) or to all Federal Government employees or all military members (e.g., coupons available to any Federal Government employee for official travel). DoD employees may not use coupons provided on the basis of their grade or position.

---

## Gold Card or Similar Memberships

"Certain airlines offer special benefits, including free upgrades, to members of their traveler incentive programs (e.g., Gold Card, Key Club, etc.). Membership in these programs ordinarily is earned by accumulating a large number of travel miles during the current calendar year, or in some cases, memberships may be purchased. DoD employees who obtain eligibility under these circumstances (by purchasing a membership with their personal funds or by accumulating the necessary miles, even by official travel) may accept the membership and resulting benefits, including travel upgrades.

If membership in the program is offered to DoD employees who have not met the usual requirements for membership, however, primarily because of the DoD employee's grade or position, neither the membership nor its benefits may be accepted."

For more information on ethics regulations and travel contact Counsel's office DSN 295-6759 or commercial 301-295-6759.



# SHOULD PATENT APPLICATIONS BE CONTRACTED OUT — What Do You Think?

Under the existing system of filing a patent application, an inventor makes an invention, records the work in a notebook, fills out and sends the Navy's standard invention disclosure form with the proper endorsements through channels to Counsel. Once received, the invention disclosure is placed in a queue to await preparation.

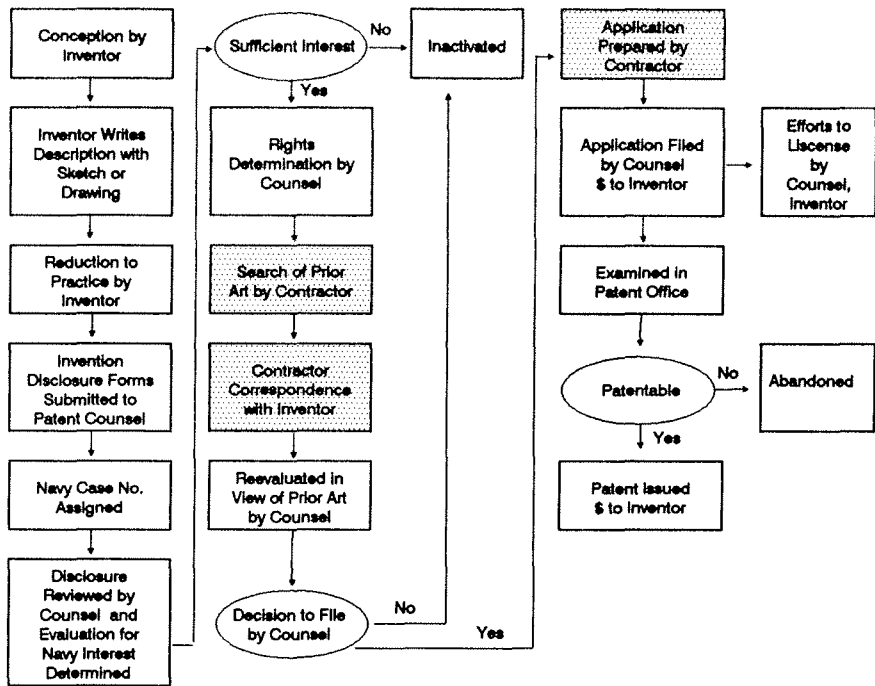
If the process is working smoothly, within four months of receiving the disclosure, Counsel drafts an application with the inventor's assistance. Within six months of the original disclosure the application is filed in the patent office. The Office of Naval Research (ONR) pays the \$700 + filing fee and any other fees, and the Naval Research Laboratory (NRL) provides drawing services.

In reality, it is hard to meet these deadlines and backlogs occur because of the press of higher priorities. Budget cuts restrict services provided by ONR and NRL. How do we continue to be active in technology transfer under these conditions?

To temporarily alleviate the situation, NMRDC contracted out the preparation of the patent disclosures waiting in the queue. With the help of Naval Medical Research Institute (NMRI) and NMRI's contracting officer, Joe Roffano, twelve patent applications are currently being drafted by contractors. The first of the applications to be prepared on contract is already filed in the Patent Office.

Counsel's workload continues to grow, including responding to Office Actions from the Patent and Trademark Office (PTO) on previously filed cases. After examination, the PTO issues an Office Action stating objections to and rejections of the invention. Applicants can respond with arguments and evidence. This exchange is called prosecution, which continues until the

## General Steps in the Proposed Patent Application Process That Includes Contractors



application is allowed to issue as a patent, or is finally rejected. It is certain that a backlog will occur again unless we can continue to contract out. But someone has to pay.

Counsel proposes that the laboratories support using contractors for application preparation. Contracting out still requires Counsel to actively stay in the process and applications prepared by contractors still need extensive review by Counsel and the inventor. Contracting out saves time that Counsel can use to work on CRADAs and other assistance to the laboratories.

How would this work? Under the revised system, the inventor makes the invention, reports the invention through channels with the proper endorsements together with an authorization to Counsel from the Inventor's laboratory to contract out at an expense not to exceed a established amount of money. When Counsel receives

the invention disclosure, the disclosure is sent out for bid.

To provide an estimate of possible cost, in this last round of bids, preparation of mechanical and simple optical/electrical applications were bid at \$3,000 - \$4,500. More complex biochemical or computer applications were bid at \$6,000 - \$8,200. International filings cost between \$17,000 - \$20,000. In addition, we expect that in this or next fiscal year, ONR will ask the laboratories to absorb the costs of maintenance and filing fees.

I realize that such a system will make you think twice about whether the invention should be filed unless it is expected that the invention can actually recoup costs. Is this something we should consider? I think we should. Your comments would be welcome. Contact Counsel at DSN 295-6759 or commercial 301-295-6759.

## NMRDC STARTS A BASE ENHANCEMENT PROGRAM A New Funding Opportunity for 6.1N Basic Research

by Christine Eisemann, NMRDC Associate  
Director for Research Management

In May 1993, NMRDC put out the first call for preproposals to compete for funding in the new Base Enhancement (BE) Program. BEs are 6.1 studies that expand on recently successful basic research (Independent Research, Accelerated Research Initiative, or base work) and, if selected through competitive peer review, become part of the P.E. 61153N base program. This means that 6.1 funds are programmed for the BE line of work and BE investigators have a (relatively) stable line of funding well into the outyears. BEs are very different from Independent Research or Accelerated Research Initiative projects which have a fixed, maximum lifespan. BEs (actually the first work unit of the BE line) are proposed as 3-5 year work units funded in the range of \$100-\$300K per year.

The current BE preproposals were evaluated for Navy need and technical merit (external review); then a call for full research proposals was made. This year, NMRDC received 10 BE preproposals, and selected five studies (box) to advance in the competition.

The driver for creating the BE Program came from the need to maintain vitality and turnover in our 6.1 base program. There was also a need to continue funding promising new approaches emerging from Independent Research or Accelerated Research Initiative studies. The money for BEs is not really new money - it comes from a tax levied on existing 6.1 base work units (not from Accelerated Research Initiatives or newly awarded BEs). This way, base turnover is guaranteed over time, programs can start, grow, dwindle or die based of their performance and success at winning BE support over the years.

### FY95 BE Proposals

#### **Modulation of Host Immunity as a Virulence Factor by Oral Spirochetes Associated with Periodontal Diseases**

**Michael G. Steele, Ph.D., NDRI, Scientific Investigations Department**

Periodontal diseases, which afflict many Navy and Marine Corps personnel, are characterized by periodic quiescent and active phases (during which the disease may quickly progress to a dental emergency). Dental officers need reliable method(s) to identify patients at risk of active disease before operational deployment. This proposal will study the effect of various *Treponema denticola* bacteria on the host immune system *in vitro*, and will identify the virulence factors of disease-causing strains. Identifying the virulence mechanisms will allow the development of reliable diagnostic tests and immunotherapeutic methods, possibly leading to chairside tests for the virulence-associated antigens of virulent *T. denticola*.

#### **Cold-Induced Amnesia: Neurobiological Mechanisms**

**S. T. Ahlers, LCDR, MSC, USN, NMRI, Thermal Stress/Adaptation Program**

Cold stress and heat stress are both known to effect human cognitive performance, although by different neural mechanisms. This proposal will explore the neuronal basis of memory disruption resulting from exposure to both cold and heat stress and will also examine the effects of these stresses on spatial navigation (there is evidence to suggest that the ability to orient oneself also may be impaired by thermal stresses). The information gained in this study will aid in the development of technologies for treating and preventing these cognitive deficits.

#### **Development of Reagents to Induce Immune Tolerance for Organ Xenografts in Large Animal Models**

**D. M. Harlan, CDR, MC, NMRI, Immune Cell Biology Program**

Wounds requiring treatments such as skin grafting or tissue transplantation are often incurred in combat situations. Current transplantation strategies, however, are limited by inadequate donor organ supply and imperfect control of combat graft rejection. A thorough understanding of the immune system, specifically T cell activation, would improve the ability to minimize or prevent transplant rejection. This proposal first will generate the recombinant reagents necessary for T cell activation-costimulation studies and second, test these reagents for the ability to block xenogeneic (pig to rodent) transplant rejection.

#### **Sphingosylphosphorylcholine and Sphingosine-1-Phosphate as Modulators of Wound Healing**

**T. B. Nielsen, Ph.D., NMRI, Wound Repair Enhancement Program**  
**S. Spiegel, Georgetown University**

Recently, the sphingosine derivatives, sphingosine-1-phosphate and sphingosylphosphorylcholine, have been shown to be mitogens for many of the cell types found in a wound site. This proposal aims to elucidate the action of these sphingosine metabolites on cell proliferation, cell migration, extracellular matrix formation, cytokine synthesis, and the rate of wound closure. The investigators postulate that the sphingosine agents will be valuable in wound healing therapies, possibly being incorporated into wound lavage solutions or wound dressings.

#### **Simultaneous and Successive Color Contrast: Investigations of the Blue-Yellow System and Refinement of the Opponent Model**

**Kevin Laxar, Ph.D., NSMRL, Vision Department**

The use of color in military tactical, navigational and engineering visual displays has been increasing at a rapid rate. The selection of colors for these displays, however, is frequently made arbitrarily by the designers, as the relevant theories and data on visual processing are incomplete. This proposal aims first to identify the color contrast mechanisms operating in the central vision and second, determine the spatial effects of colored stimuli in the peripheral vision on colors perceived with central vision. This information will assist design and effectiveness of advanced military human-computer systems.

---

## NMRDC'S FY96 ARI COMPETITION IS WELL UNDERWAY

by Christine Eisemann, NMRDC Associate Director for Research Management

We have just completed the first round of the FY96 Accelerated Research Initiative (ARI) competition. Seventeen preproposals received in July 1993 were judged by in-house managers for Navy need and programmatic aspects and by extramural scientists for technical quality. Three studies (box) were selected to enter the proposal stage, which will accelerate in January 1994 and culminate with the selection of one proposal for FY96 funding in March 1994.

According to the Office of Naval Research, an ARI is "a concentration of resources for a finite time in a promising area of science for the purpose of accelerating research progress and for providing the means for capitalizing on scientific opportunities or responding to a critical Navy requirement in a particular area." ARIs should take advantage of some explicit new technical or scientific opportunity, must explain how research will be accelerated, and must answer the question, "why now?". They are competitively awarded on the basis of recommendations of external peer selection committees composed of scientific and Navy requirements experts. ARIs typically are funded at \$400-\$600K per year for 3-5 years. The next ARI cycle (for FY97 funding) will begin with a call for preproposals in April 1994.

### FY96 ARI Candidates

#### **Effects of Microwave Radiation on Cognitive Performance**

**John A. D'Andrea, Ph.D.**  
NAMRL, Aviation Performance Division

Exposure to microwave radiation is a hazard to personnel aboard Navy ships and knowledge of its effects on human health and performance is essential. This proposal describes the development of a database of microwave exposure and effect information which will be a sound basis for setting human safety standards for current and future radar and directed energy systems. Investigators will measure the ability of Rhesus monkeys to perform complex tasks (short-term memory, learning time, perception, motivation, and color spatial discrimination) following whole-body and partial body exposures to many microwave frequencies.

#### **Enhancement of Cues Required for Creating Three-dimensional Sound Environments**

**Thomas N. Buell, Ph.D.**  
NSMRL, Submarine Systems

Future Navy systems will rely increasingly on virtual environments for training, simulation, mission rehearsal, teleoperation and other Fleet applications. Advancements in the emerging technology of auditory virtual environments requires an understanding of how 3-dimensional synthetic sound should be presented for optimal information processing. This proposal will develop and evaluate signal processing techniques to individualize or to enhance the cues required to synthesize auditory virtual environments. Investigators will analyze auditory localization in such a synthetic environment and will assess the benefits of 3-dimensional auditory displays when operators are required to detect, recognize, or categorize sound events.

#### **Antisense Oligonucleotide-based Anti-inflammatory Agents to Improve Vascular Function in Sepsis**

**Michael Falk, Ph.D.**  
NMRI, Septic Shock Research Program

Sepsis and septic shock continue to be severe problems following traumatic injury and combat wounding. Part of the injury during septic shock is an excessive and prolonged inflammatory response following injury. So far, available treatments have not been able to control the negative effects of this extreme response. The goal of this proposal is to develop a novel therapy for sepsis and septic shock by combining antisense oligonucleotide technology with targeted delivery systems. This approach would theoretically target hyper-responsive cells and tissues, prevent the synthesis of only those proteins that are part of the pathogenic response and result in a downregulation of specific inflammatory events.

---

## NAVY MEDICINE MAGAZINE SEEKS ARTICLES

While many quality articles are submitted to **Navy Medicine** each year, the editorial staff of **Navy Medicine** is constantly looking for greater diversity in content. Because Navy medicine is a dynamic, changing institution, the editorial staff would like the journal to provide an opportunity for the free exchange of ideas and opinions. Subject areas of interest include medical research, medical

history, unusual experiences and professional and clinical articles.

Material is also requested for the Forum section. Forum includes thought-provoking editorials and opinions on whatever an individual thinks is important, i.e., downsizing — how do current military reductions affect Navy medicine; the future - what does the future portend for Navy

medicine (Fleet support, dependent care, etc.) and the individual corps.

For text and illustration guidelines and for more information contact Jan K. Herman, Editor, Bureau of Medicine and Surgery, BUMED-09H, 2300 E Street N.W., Washington, DC 20372-5120, DSN 294-1297, Commercial 202-653-1297.

# ELECTRICAL SYSTEMS SAFETY

by Kip Johnson, NMRDC Staff Assistant for Occupational Safety and Health

Advanced medical research calls for more and more types and numbers of electrical laboratory devices. Quite often, the researcher isn't aware of the increased load the new centrifuge is putting on the laboratory's already overtaxed circuits. The researcher's concern may end with the fact that there are enough outlets available to plug-in new devices.

We must remain aware that the increased use of electrical equipment in the 90's was never anticipated when many of our facilities were constructed in the 40's and 50's (Building 1-H at the Naval Dental Research Institute was constructed in 1911). Electrical hazards may have been created when older systems were modified (many times over) to accompany new demands. A loose ground screw or bad connection could lead to improper grounding and overheated wires. Before ordering and installing new equipment, we are obliged to ensure that there are enough circuits of sufficient capacity to handle the increased demand for more current.

When it is necessary for additional circuits to be added, the circuits should be installed in grounded metal conduits or metal trays by trained electricians. Extension cord use, although highly discouraged, will continue in the laboratory. When used, extension cords must be maintained in good condition, of sufficient size (14 gauge or lower) and protected against pinching, cutting or being walked on.

Most circuits are controlled by breakers located on a common breaker panel. All circuits must be identified so that the power supply may be quickly and easily disconnected. There should be no ambiguity about which breaker needs to be thrown to kill the power of a receptacle.

The location of electrical circuits

## COMMON LABORATORY DEVICES

INSTRUMENT	CURRENT (Amps)	POWER (Watts)
Electronic balance	0.1 - 0.5	12 - 16
Biological safety cabinet	15	1800
Blender	3 - 5	400 - 1800
Centifuge	3 - 30	400 - 6000
Chromatograph	15	1800
Computer (PC)	2 - 4	400 - 600
Freeze dryer	20	4500
Fume hood blower	5 - 15	600 - 1800
Heater/oven	3 - 15	500 - 3000
Heat mantle	0.4 - 5.0	50 - 600
Hot plate	4 - 12	450 - 1400
Kheldahl digester	15 - 35	1800 - 4500
Refrigerator/freezer	2 - 10	250 - 1200
Distiller	8 - 30	1000 - 5000
Sterilizer	12 - 50	1400 - 12000
Vacuum pump	4 - 20	500 - 2500

and equipment in a room should be such that they are unlikely to become wet or subject to excessive condensation or where the operator may be in contact with moisture. Don't place electrical equipment below emergency deluge showers. The installation of weather-proof electrical outlets or ground fault circuit interrupters will reduce the threat of electrical shock.

Good wiring insulation prevents shocks. Care should be taken with all electrical equipment, especially older items and extension cords, to ensure that the integrity of the insulation has been maintained.

Proper grounding of equipment is another requirement to ensure that items are not electrically active. Most devices purchased today come with the three-prong (hot, neutral and ground) plug. Items labeled "double insulated" do not require a separate ground plug. Remember, your ground is only as good as the weakest

connection. Have your equipment tested for ground continuity.

Electrical heating can occur in a number of ways - poor connections, undersized wiring, overloaded circuits, or inadequate ventilation of equipment. If flammables are present, they may ignite. An alligator clip used to connect a ground wire is a good example of a poor connection. Multiple outlets that plug into a single socket may also be a source of local heating. Devices with resistive heating elements such as furnaces, heat guns, hot plates and ovens should be especially configured to protect operators from live circuits. Likewise, volatile solvents should not be used near these devices if the solvent's ignition temperature will be reached.

Review the table (above) of common laboratory devices with their current and power requirements. Some values may surprise you.

---

## UPDATE: U.S. NAVAL MEDICAL RESEARCH UNIT NO. 3, Cairo, Egypt

---

### Executive Officer Received Award

CDR James Campbell, Executive Officer of U.S. Naval Medical Research Unit No. 3 (NAMRU-3), Cairo, Egypt, was awarded the Meritorious Service Medal for establishing the Navy's first in-house, non-medical Molecular Biology Research Program, while serving at the Naval Research Laboratory in Washington, DC. This multi-faceted program conducts research in the areas of novel biomaterials and environmental bioremediation for the Naval platform and systems. In addition, the award recognized his contributions to the development of a biological weapons defense system in support of Desert Storm.

---

### Rift Valley Fever (RVF) Epidemic

An epidemic of RVF is presently occurring throughout Egypt, causing significant morbidity among humans and livestock. NAMRU-3 responded immediately to the outbreak by sending a field epidemiology team led by Dr. Ray Arthur, Head of the Virology Division, to the endemic area. The NAMRU-3 team, consisting of epidemiologists, virologists, entomologists, veterinarians and skilled technical support personnel, as well as staff from NEPMU-7, Naples; USAMRIID, Ft. Detrick, MD; and Ain Shams University, Cairo worked in close cooperation with their Egyptian Ministry of Health and Ministry of Agriculture counterparts to assess rapidly the magnitude of the threat and make control recommendations. NAMRU-3 made the first RVF viral isolations from animal and human tissues and examined a range of potential arthropod vectors to determine the mode of disease transmission.

Currently, NAMRU-3 is aggressively monitoring the outbreak to prevent a repeat of the explosive 1987 RVF epidemic in

Egypt that resulted in over 600 human fatalities. NAMRU-3 has expanded the scope of its operation by calling in collaborators from the World Health Organization; the Centers for Disease Control, Atlanta; and the National Institutes of Health.

---

### Cholera Epidemic in Djibouti

NAMRU-3 was recently requested by the World Health Organization and the Ministry of Health of Djibouti to assist with a cholera epidemic in that country. Djibouti has had over 3000 cholera cases, 50 fatal. A team lead by LCDR Roger Batchelor, MSC, USN, Rapid Diagnostics Branch, and Dr. Guenaël Rodier, Epidemiology Division, with support of LCDR Jim Burans, MSC, USN, from the Naval Medical Research Institute, Bethesda, MD, went to Djibouti to assess the situation and collect and analyze human samples. This team established that 32% of the diarrheal cases seen at cholera treatment centers in Djibouti were the result of infection of *Vibrio cholerae*, serogroup Ogawa, biotype El Tor. For their threat assessment, control recommendations and laboratory

analyses, the NAMRU-3 team was commended by the Djibouti Minister of Health.

---

### Noninvasive Diagnostics

CAPT Robert Esquire, DC, USN, published a study in Annals of the New York Academy of Science's "Saliva as a Diagnostic Fluid", issue of September 1993. The study associates salivary C-reactive protein levels with catecholamine release related to auditory stress. CAPT Esquire is applying techniques from this paper to explore salivary diagnostic methods for Rift Valley Fever and cholera. ELISAs are being developed for detection of immunogenesis in infected individuals and individuals who have received a vaccine.

---

### Intensive Care Unit

With the cooperation of the Egyptian Ministry of Health and funding from the Agency for International Development, the Public Works Department is building an up-to-date Intensive Care Unit for the Abbassia Fever Hospital, next door to NAMRU-3.

---

### **CAPT PATEE RECEIVES THE FLC SOUTHEAST REGIONAL COORDINATOR'S EXCELLENCE AWARD**

CAPT Jerry C. Patee, MSC, USN, Executive Officer at the Naval Aerospace Medical Research Laboratory (NAMRL) in Pensacola, FL received the Federal Laboratory Consortium (FLC) Southeast Regional Coordinator's Excellence Award. CAPT Patee was recognized for his efforts in the implementation of Cooperative Research and Development Agreements (CRADA) at NAMRL and his proactive technology transfer

support at other Federal laboratories. Under his direction, NAMRL has led the way in increasing involvement by other laboratories in technology transfer activities on a regional and national level. NAMRL's innovative CRADAs include technology transfer activities with a pharmaceutical firm, a commercial airline, night vision goggle manufacturers and the virtual reality (interactive motion simulator) industry.

## MEDICAL R&D WINS ANOTHER ATD IN NAVY'S FY95 COMPETITION

The Assistant Secretary of the Navy (Research, Development, and Acquisition) announced the selection of 14 Advanced Technology Demonstration (ATD) projects that will receive funding beginning in FY95. Among the winners was "Tactile Interface to Improve Situational Awareness," by CDR Angus Rupert, MC, USN, Naval Aerospace Medical Research Laboratory (NAMRL), Pensacola, FL.

### Congratulations CDR Rupert!

CDR Rupert's ATD proposes a new approach for easing the problem of spatial disorientation (SD) in the aviation environment. SD occurs when pilots incorrectly perceive the attitude, altitude, or motion of their aircraft relative to the earth - it causes pilots literally to drive their planes into the ground, costing DoD more than \$300M annually in lost aircraft and an immeasurable price in lost lives. With more frequent night operations using night vision goggles, all weather and low level flying, and improved agility aircraft, the SD problem will undoubtedly escalate.

The ATD will attempt to demonstrate that spatial orientation can be continuously maintained by providing information from the aircraft attitude sensor to the pilot through the sense of touch. One can envision a torso harness fitted with multiple electromechanical tactors that continuously update the pilot's awareness of position (this is basically how our brains obtain orientation information in the terrestrial environment).

Such a tactile interface device would be applicable in Naval aircraft and SEAL delivery vehicles, might facilitate target location by sonar and radar operators, and would enhance pilot training in flight simulators. The device could reduce the time pilots currently spend referring to aircraft instruments, increase aviator safety, and support greater mission effectiveness.

This "Tactile Interface" ATD will be funded during FY95-FY97 and will receive \$13.3M total. It is the latest addition to NAMRL's growing *center of excellence* in spatial disorientation research and development (see Outlook, April 1993, for NAMRL's related

Accelerated Research Initiative, "Psychophysical and Neurophysiological Approaches to the Dynamics of Spatial Orientation).

An ATD is an advanced (6.3A) study planned and programmed by N-091. For the FY95 competition, 500 proposals were submitted by Navy SYSCOMS, Office of Naval Research, and private industry. ATDs go through a lengthy evaluation process by

N-091's. Science and Technology Working Group.

ATDs demonstrate the most promising, emerging technologies that are most applicable to current and future Navy requirements. Among the selection and prioritization criteria are Navy needs, warfighting/ affordability payoff, technology maturity and risk, and the potential for transition.

### NAVAL MEDICAL RESEARCH INVESTIGATORS WIN PRESTIGIOUS WEINSTEIN AWARD

by Michelle Stoia, Technical Writer, Naval Health Research Center, San Diego, CA

CAPT Edward C. Oldfield III, MC, USN, Naval Medical Center, San Diego, CA; Guenael R. Rodier, MD, DTM, Naval Medical Research Unit No. 3, Cairo, Egypt; and CDR Gregory C. Gray, MC, USN, Naval Health Research Center, San Diego, CA; were jointly awarded the prestigious Louis Weinstein Award. The annual award is given for the best clinical article published in Clinical Infectious Diseases (CID), the clinical journal of the Infectious Diseases Society of America. This award is selected through a rigorous peer-review process by the Editorial Board of CID.

The award-winning paper, titled, "The Endemic Infectious Diseases of Somalia", focused on the communicable diseases common to Somalia. The winners were announced during the Infectious Disease Society of America meeting on 16 October 1993.

The article, sponsored by the Chief, Bureau of Medicine and Surgery, Washington, DC, Clinical Investigation Program,

was researched and written following a request from Sydney M. Finegold, CID editor. Finegold turned to CAPT Oldfield, who previously published in CID, because of his extensive personal experience in Somalia and the northeastern Africa region.

The article noted the importance of the development of sophisticated diagnostic laboratories in the Somali region. These facilities, staffed by Army and Navy medical personnel, are key to disease identification, control, and prevention. Written to coincide with the United Nations relief effort, Operation Restore Hope, the article provided much-needed information on conditions in the area. With nearly 26,000 troops deployed, Operation Restore Hope is considered the largest military humanitarian relief effort conducted in recent history.

The Louis Weinstein Award, donated by SmithKline Beecham, provides a cash prize and a plaque to the authors of the winning paper.

## Telephone Directory

### Naval Medical Research and Development Command, Bethesda, MD 20889-5606

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

CODE	NAME	TITLE	OFFICE	TELEPHONE
00	E.T. Flynn, CAPT, MC, USN	Commanding Officer	12132	295-0287
09	J.C. Cecil, III, CAPT, DC, USN	Executive Officer	12135	295-1825
00A	K.M. Pedersen, HMCM, USN	Command Master Chief	12124	295-1868
00B/04E	W.M. Parsons, CAPT, MSC, USN	U.S. Army Program Liaison Special Asst. for Overseas Labs Affairs		DSN-343-7567
00C	A. McCullen, LTC, VC, USA	Special Asst. for Veterinary Medicine	10125	295-1785
00CC/44	A. David Spevack, ESQ	Intellectual Property Counsel	10144	295-6759
44S	Allison O'Dell	Secretary to Code 00CC/44	10141	295-6760
00S/22	Kip Johnson	Staff Asst. for Occupational Safety and Health/Safety Mgr. - NMRI	NMRI	295-0001/2
01	S. L. Hayes, LCDR, MSC, USN	Director of Finance/Comptroller	10155	295-0886
01A	Jane Hoover	Mgmt. Asst. to Code 01	10156	295-0323
01B/11	A.E. (Ed) Edwards	Asst. Director of Finance/Comptroller	10152	295-5978
111	Judy Hartig	Budget Analyst	10135	295-0888
12	J. Barnes, III, LT, MSC, USN	Director for Fac. & Equip. Mgmt.		295-0302
13	Philip Cheng	Engineering Technician	10124	295-1140
132	A.W. Wilson, HM1, USN	Supply and Logistics	10121	295-2151
02	J.C. McDonough, CDR, MSC, USN	Director for Administration	12125	295-1499
020	Mary Alice Tartler	Secretary to Code 00	12136	295-0360
02A	Deborah Pilkerton	Mgmt. Asst. to Code 02	12144	295-2152
02C	C. Rosario, HM3, USN	Correspondence Control	12141	295-2163
21	B. Salire, LT, MSC, USN	Director Manpower/Efficiency Review	12146	295-2150
211	Renee Singleton	Mgmt. Asst. to Code 21	12147	295-1454
23	Joan Speake-Ponow	Staff Asst. for Internal Review	12122	295-1579
03B	Doris Ryan	Command Editor/PAO	12155	295-0875
04	R.C. Carter, CAPT, MSC, USN	Director of Research and Development	11132	295-0883
41/413	T. Singer, CDR, MSC, USN	RAM, Aviation Medicine/Human Performance	11145	295-0878
41A	Maureen Young	Management Analyst to Code 41	11148	295-0876
411	L. Fenton, LCDR, MC, USNR	RAM, Submarine and Diving Medicine	11144	295-0879
412	P. Knechtges, LCDR, MSC, USN	RAM, Fleet Occupational Health	11141	295-0885
42	Christine Eisemann	Associate Director for Research Management	11126	295-0882
421	Beth Harris	Research Administrator	11127	295-1771
42S	Kristine Fowler	Secretary to Code 04	11121	295-0325
43	C. J. Schlagel, CDR, MSC, USN	RAM, Infectious Diseases	11123	295-0881
45	P.D. Kent, CDR, MC, USN	RAM, Combat Casualty Care	11152	295-0880
45A	Kathy Kaliveas	Management Analyst to Code 45	11153	295-2247
451	S. Weinberg, CAPT, MSC, USN	Asst. RAM, Combat Casualty Care	11151	295-1131
452	P. Michael Curran, Ph.D.	Asst. RAM, Combat Casualty Care	11151	295-1131

The Naval Medical Research and Development Command telephone is serviced by a voice mail system. For quickest response, dial the number of the party you wish to contact. If you are unable to reach the party, stay on the line and you will be automatically assisted with your call. You will always be able to leave a message on the staff member's voice mail box. For after hours emergencies, please call the Naval Medical Research Institute Quarterdeck at 301-295-0283.

---

## HIGHLIGHTS OF NMRDC RESEARCH

---

### INITIAL STUDIES COMPLETED OF PROBABLE HAZARD TO AVIATION: PUSH-PULL EFFECT

Researchers from the Naval Aerospace Medical Research Laboratory (NAMRL), Pensacola, FL released initial findings that clearly demonstrate significantly reduced positive G tolerance in some individuals immediately following zero or negative G acceleration stress (Push-Pull Effect). The study was made possible by the unique capability of the Coriolis Acceleration Platform (CAP) device used to combine angular and linear acceleration of human subjects. CAP is the only device in the DoD inventory available to study chronic exposure to altered G environments. Prior to this study using male and female USN volunteers, the importance and incidences of exposure to negative G acceleration stress in aviation had been discussed by aviation professionals including aerobatic and high performance pilots. These initial findings indicate that some military aircrew risk in-flight incapacitation due to the Push-Pull Effect. Because operational situations exist that demand positive G and negative G light maneuvering of current military aircraft, this reduced tolerance could lead to a more rapid onset of G-induced loss of consciousness or other forms of incapacitation. Further operational research by NAMRL will be aimed at assessing the risks to aircrew, understanding the relevant physiology, and developing appropriate protective strategies. Educational efforts directed toward aviators and flight surgeons are underway within the Navy and Marine Corps aviation community aimed at increasing awareness of this potential hazard. For more information contact CDR T. Singer, MSC, USN, NMRDC Research Area Manager, Aviation Medicine and Human Performance DSN 295-0878 or commercial 301-295-0878.

---

### REDUCING CORONARY HEART DISEASE RISK IS THE GOAL OF A CURRENT NUTRITION STUDY

Researchers at the Naval Submarine Medical Research Laboratory, Groton, CT and over 600 volunteer crew members of five Trident submarines are involved in a nutrition study combining the unique operational environment of submarines with the goal of substantially reducing coronary heart disease (CHD) risk. Navy shipboard conditions such as confinement, lack of exercise equipment, and the lack of time to exercise are barriers to increasing cardiovascular health in the operational Navy; these conditions are even more severe aboard submarines. Past studies have indicated a trend toward hypercholesterolemia in submariners. The volunteer crew members received nutrition education prior to deployment. In addition, the food service personnel are providing submarine crew members with nutritionally sound meals which are lower in fat, cholesterol, and calories than the traditional submarine fare. A variety of nutritionally

sound choices are offered while maintaining acceptability and palatability. Researchers are monitoring changes in the total cholesterol, high density lipoprotein cholesterol, low density lipoprotein cholesterol, triglycerides, blood pressure, percent body fat and weight of each volunteer. A reduction of CHD risk factors should lead to improved cardiovascular health and physical readiness while decreasing lifetime medical expenditures and incidences of death and illness associated with CHD. For more information contact LCDR Leslie Fenton, MC, USNR, NMRDC Research Area Manager for Diving and Submarine Medicine, DSN 295-2610 or commercial 301-295-2610.

---

### THE FIRST FEMALE RESEARCH VOLUNTEERS REPORT ABOARD THE NAVAL BIODYNAMICS LABORATORY

Five female human research volunteers reported for an 18 month tour of duty at the Naval Biodynamics Laboratory (NBDL), New Orleans, LA. These women join their male counterparts in helping researchers study the effects of impact acceleration and ship motion on Navy and Marine Corps personnel. Current impact studies investigate potential injuries from the effects of indirect forces on the head and neck. These studies include the use of a 700 foot horizontal accelerator and a 36 foot vertical accelerator. The horizontal accelerator is used to obtain data on the human response to simulated crashes and the vertical accelerator allows a realistic investigation of the biomechanical effects of forces similar to those produced by an aircraft ejection seat. The vertical accelerator is also used to simulate forces encountered aboard Navy ships during underwater explosions. Volunteers are initially exposed to low levels of acceleration which are increased in increments of a single "G" within a well-established safety range. Before, during, and after each test, a data acquisition system is used to collect and analyze inertial and physiological measurements. The ship motion simulator (SMS) and a tri-axial tilt/rotation chair with a visual effects device also are used to study the effects of motion on physical and mental performance. NBDL's ship motion simulator (SMS) is capable of creating ship motion in conditions up to sea state 5 with three degrees of freedom: heave, pitch, and roll. For more information contact CDR T. Singer, MSC, USN, NMRDC Research Area Manager for Aviation Medicine and Human Performance, DSN 295-0878 or commercial 301-295-0878.

---

### SUBMISSION TO HIGHLIGHTS

Investigators who would like to submit research summaries to HIGHLIGHTS can write for guidelines and publication deadlines: NMRDC Code 03B, NNMC, Bethesda, MD 20889-5606, or call DSN 295-0875 or Commercial 301-295-0875