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COVER: CDR R.J. Parker, MSC (left) and LCDR J. Malone, MSC, perform a chevron osteotomy at NNMC Bethesda, MD. Life-stage career concerns of Medical Service Corps officers is the subject of MSC Survey Results (Part Three) on page 13. Photo by HM2 James Parmenter, USN.

Civic Action Team Member Becomes Physician's Assistant

On Ponape, visitors bathe in turquoise pools surrounded by tropical orchids while trade winds sweep away the heat of the Pacific sun. Tanned, smiling islanders wander among villages set by quiet lagoons.

Although it sounds like a tropical paradise, the island is not without its drawbacks. "I could have used a doctor, or even four or five of them, when I was there," said HMC Phillip Dozier. "I saw diseases most Americans have never seen or have forgotten about: yellow fever, cholera, dengue fever, leprosy, malaria, and tuberculosis."

Dozier was on the island, one of the

East Carolines in the Trust Territory of the Pacific, as a member of a Navy civic action team. While other team members concentrated on building projects, Dozier treated the islanders at sick call. Usually 85 to 90 patients a day showed up, most requiring an interpreter. "I had no choice but to treat them," Dozier said with a shrug. "I was the only medical representative. We had no doctor."

In June 1981 though, he'll be much better qualified for such an assignment. Currently, Dozier, a chief petty officer, is one of the specially selected corpsmen attending the Navy's second east coast training program for physician's assistants (PAs).

When he graduates, Chief Dozier will be commissioned a chief warrant officer and will have qualified for a bachelor of science degree from George Washington University in Washington, DC.

The concept of physician's assistant was developed 15 years ago by Duke University, but the Navy began using them only six years ago. Until last year's class graduated, all Navy PAs received their training at other service schools or at civilian institutions.

"The job of the PA is exactly what the name implies," Dozier explained. "We're training to assist physicians, not replace them, at a time when the Navy is short of doctors. Though we can act independently on occasion, our primary role is to permit doctors to use their time with the patients more efficiently."

"We're finding the physician's assistant one of the greatest boons to

the allied medical fields," Dr. (LCDR) Robert Hunt, director of the program, added. "They're proving to be a real benefit to the Navy."

During the first 20 weeks of the school, the phase Dozier is in now, instruction is confined to the classroom as students study physiology, anatomy, biochemistry, microbiology, and related subjects. The remaining 32 weeks are spent in stints learning from specialists in the obstetrical-gynecological, surgery, internal medicine, and pediatric clinics at NRMC Portsmouth, VA.

"The school is different from any I've ever attended," Dozier said. "At first, I felt like I was feeling my way through a maze. In other schools I've attended, I was taught to treat a cold by the symptoms. Now we're learning the disease processes, what causes an upper respiratory infection, and what other diseases can cause the same symptoms. It's the most comprehensive training I've ever received."

When he graduates, Dozier will be qualified to diagnose and treat illnesses, perform minor surgery, order and interpret laboratory tests and x-rays, prescribe most drugs, and more. Most of his future assignments will probably be in the family practice clinics where, according to Dr. Hunt, himself a family practitioner, "PAs are having the greatest effect."

"A good PA earns the trust of his patients," Dozier said, "and is always learning and keeping up with medical developments. I hope to be one of the best PAs in the Navy."

Dozier had not planned to be a corpsman when he graduated from



HMC Dozier



HMC Dozier points to an area of concern on an x-ray as he and his classmates learn physician's assistant skills.

Erath, LA, High School in 1969. "I'd read a book on aviation procurement, so I thought I'd be an Air Force storekeeper," he said.

But he joined the Navy instead. "I qualified for and selected the corpsman rating after taking the basic test battery at boot camp," he said. "My family agrees it was one of the best decisions I ever made. My mother always wanted one of her sons to work in medicine."

Before his tour on Ponape, Dozier had also served with a naval construction battalion at Gulfport, MS, on the ammunition ship USS *Suri-bachi*, at the Naval Home in Philadelphia, and at the Bureau of Medicine and Surgery in Washington.

"The most interesting times I've

spent," he said, "were those times I worked without a medical officer, like the time with the construction battalion and on Ponape. Ponape was an experience most corpsmen will never have. I was treating patients with dengue fever (an acute infectious viral disease) at the same time I had it myself."

Being promoted to chief petty officer is generally considered a great accomplishment by most Navymen, but Dozier said, "When a hospital corpsman makes chief, his job becomes mostly administrative. Besides enhancing my career, becoming a PA will permit me to spend eight or nine more years in patient care, which is what I enjoy the most."

Dr. Hunt calls members of the cur-

rent class "the cream of the crop," adding that "members of the first class are already in the field and receiving only outstanding comments."

In his off-duty time Dozier, who is single, plays softball in the summer and coaches the hospital's eight-man tackle football team. Since his mother and two brothers all live in Delcambre, LA, Dozier is hoping for orders to Gulfport or New Orleans when he graduates. "But I'll do whatever the Navy calls upon me to do," he said. "After all, this school is teaching me I can be anything and be good at it. "At times, I even surprise myself," he said with a laugh.

—Story by JO1 Joyce Davenport. Photos by PO1 Carolyn Harris, Navy Public Affairs Center, Norfolk, VA 23511 □

Flag Officers Selected

The Medical Department has five new flag officers, four from the Medical Corps and one from the Dental Corps.

RADM-selectee **Norman V. Cooley, Jr., MC**, Commanding Officer of NRMC Naples, Italy, since 1977, was born 9 Jan 1927 in Santa Monica, CA. Entering the Navy V-12 Program at Occidental College as an apprentice seaman, he graduated with a B.A. in 1946. Dr. Cooley received his M.D. from the medical school of the University of Southern California in 1950.

Dr. Cooley served a rotating internship at Los Angeles County General Hospital. In 1951, he was assigned to Naval Hospital, Corona, CA, and was then ordered to the officer's basic course in naval medicine at the Naval Medical School, Bethesda, MD. Upon completion, he reported to the Physical Qualifications and Medical Records Division, BUMED.



CAPT Cooley

In 1953, Dr. Cooley served aboard USS *Missouri* (BB-63) as assistant medical officer and as Head, Medical Department until that vessel was decommissioned in 1954. He then became a resident in general surgery at Naval Hospital, San Diego, CA. From October 1958 to February 1959, he served as staff surgeon at that facility until ordered to USS *Los Angeles* (CA-135). In 1960, he became Assistant Chief of Surgery at Naval Hospital Yokosuka, Japan. In 1962, Dr. Cooley was assigned as a staff surgeon at Naval Hospital, Oakland, CA, and resigned his commission later that year. He practiced surgery privately from 1962 to 1974, when he reentered the Navy and became Director, Naval Reserve Division, BUMED, with additional duty on the staff of Commander, Navy Recruiting Command.

Dr. Cooley is a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons, and a member of the Association of Military Surgeons of the United States. He holds the American Theater, World War II Victory, and National Defense Service Medals.

RADM-selectee **Quintous E. Crews, Jr., MC**, Commanding Officer of NRMC Long Beach, CA, is a native of Port Arthur, TX. He graduated from the University of Texas at Austin and received his M.D. from the University of Texas School of Medicine, Galveston.

Dr. Crews has had several tours of duty in California, including two years as Medical Officer at the Long Beach Naval Dispensary from 1956-58 and as Chief, Radiology at NRMC San Diego, CA, from 1970-76. He was also a fellow in Therapeutic Radiology at the Los Angeles Tumor Insti-



CAPT Crews

tute in 1960-61. Before assuming his current post in 1978, he was Director of Clinical Services at NNMC Bethesda, MD.

Dr. Crews is a member of eight professional societies, including the American College of Radiology, the California Radiation Therapy Association, the Society of Nuclear Medicine, and the Association of Military Surgeons of the United States. He has held several professional appointments throughout his 25-year Navy career and currently serves as fellow and Navy counselor with the American College of Radiology and as Navy counselor with the Radiological Society of North America. Additionally, Dr. Crews is an Associate Clinical Professor of Radiology at the University of Southern California School of Medicine and an attending physician in the Department of Health Services, Memorial Hospital Medical Center, University of California, Irvine.

RADM-selectee **Robert C. Elliott**, MC, Executive Officer of the Health Sciences Education and Training Command, Bethesda, MD, was born 20 July 1931 in Glen Ridge, NJ. He graduated from New York University College of Medicine in 1953 and earned his M.D. at New York University College of Medicine in 1957. He entered the Navy in 1957 and served an internship at NNMC Bethesda, MD.

Dr. Elliott's assignments have included residencies in internal medicine and pulmonary diseases, Naval Hospital, St. Albans, NY; staff internist and pulmonologist, Naval Hospital Portsmouth, VA; Head, Tuberculosis Section and Director, Pulmonary Diseases, Naval Hospital, St. Albans; and Head, Pulmonary Diseases Branch, NNMC Bethesda, MD.

In 1967, Dr. Elliott returned to the Naval Hospital St. Albans as Assistant Chief of Medicine and Director of the Residency Program in the Veterans Administration Armed Forces Pulmonary Research Board. In 1970, he returned to NNMC Bethesda, to serve as Director, Pulmonary Diseases Section. In 1975, he assumed duties as Deputy Commanding Officer and Director of Clinical Services at NRMC Great Lakes, IL. Following this assignment, he served as Commanding Officer at NRMC Bremerton, WA, from 1977 to June 1980, when he was selected as Chief of Staff to the Surgeon General.

Dr. Elliott is a diplomate of the National Board of Medical Examiners and a member of the American Thoracic Society and the American Academy of Medical Directors. He has served as Assistant Professor Clinical Medicine at Georgetown University School of Medicine, Associate Professor of Medicine at George Washington University School of Medicine, consultant in Pulmonary

Diseases to the National Institutes of Health, Bethesda, MD, and consultant in Bronchoesophagology to the American College of Chest Physicians.

RADM-selectee **Carlton J. McLeod**, DC, Head, Professional Branch, Dental Division, BUMED, was born in Central Falls, RI, on 22 Sept 1930. He graduated from Brown University in 1952, obtained his D.D.S. from the University of Maryland in 1956, and M.S. from Georgetown University in 1967.

Dr. McLeod began active duty under the Senior Dental Student Program in September 1955. Following graduation from dental school, he served his internship at Naval Hospital, St. Albans, NY. Subsequent duty stations were USS *Leyte* (CVS-32); Naval Station, Newport, RI; Naval Station, Roosevelt Roads, Puerto Rico; residency in periodontics at the Naval Dental School, Bethesda, MD; USS *Enterprise* (CVN-65); NRMC Oakland, CA; and Commanding Officer, NRDC Great Lakes, IL.

He is a member of the American Academy of Periodontology, the American Dental Association, and a



CAPT McLeod

fellow of the American College of Dentists.

Dr. McLeod holds the Meritorious Service Medal, Navy Commendation Medal, Navy Unit Citation, Meritorious Unit Citation, National Defense Service Medal, Navy Expeditionary Medal, Vietnam Campaign Medal with two stars, Vietnam Cross of Gallantry with palm cluster, and the Vietnam Service Medal.

RADM-selectee **James A. Zimble**, MC, Commanding Officer of NRMC Orlando, FL, since 1978, was born in Philadelphia, PA, on 12 Oct 1933. He graduated from Franklin and Marshall College with a B.A. and received his M.D. from the University of Pennsylvania School of Medicine in 1959.

Dr. Zimble served a rotating internship from 1959-60 at Naval Hospital, St. Albans, NY. From 1960-61, he attended the Deep Sea Diving School, Naval Gun Factory, Washington, DC; the officer's basic course and the special radiation control and health physics course, Naval Submarine School, New London, CT; and



CAPT Elliott

nuclear power training at the Nuclear Reactor Prototype, West Milton, NY. He was subsequently assigned to USS *John Marshall* (SSBN-611). In 1963, he received Submarine Medical Qualification. Dr. Zimble received residency training in obstetrics and gynecology at Naval Hospital, St. Albans from 1963-66. His subsequent assignments include OB-GYN staff, Naval Hospital, Camp Pendleton, CA, 1966-72; Chief, OB-GYN Service and Director, Clinical Services, Naval Hospital Lemoore, CA, 1972-76; and Director, Clinical Services, NRMCLong Beach, CA, 1976-78.

Dr. Zimble is a diplomate of the American Board of Obstetrics and Gynecology, a fellow of the Association of Military Surgeons of the United States, and a member of the Inter-Agency Institute for Federal Health Care Executives.

He holds the Meritorious Service Medal, Navy Commendation Medal, and the Navy Meritorious Unit Citation. □



CAPT Zimble

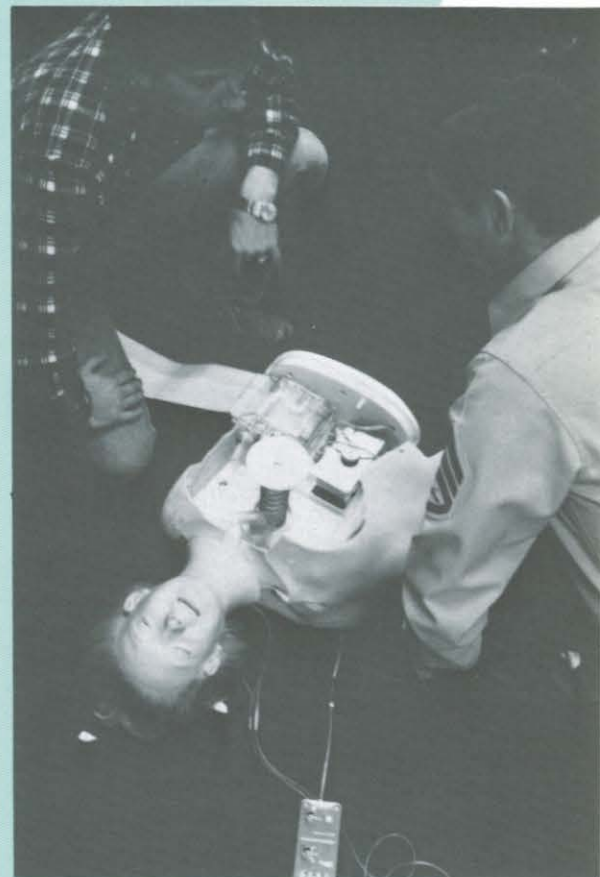
Navy Reservists Teach Lifesaving Techniques

Thanks to the efforts of the doctors, nurses, and hospital corpsmen of Naval Reserve Surgical Team 116, over 55 local community members and nearly 200 naval reservists have been trained in CPR techniques and emergency cardiac care.

The 20-member unit, based at the Naval and Marine Corps Reserve Center, Minneapolis, MN, first began its CPR program in 1975. The program was originally intended only to teach Naval Reserve personnel basic CPR techniques as part of the Navy's regular training program in first aid. However, from this modest original goal, the unit's program has rapidly gained momentum and the unit now offers four types of CPR classes: Basic Heart Saver, Basic Rescuer, Instructor, and Instructor Trainer.

The program has grown beyond training only naval reservists and now includes groups in the civilian community as well as reserve and active duty military personnel from other services.

This expansion began when the Surgical Unit offered CPR instructor training classes four years ago. "Since personnel certified as instructors must teach in order to retain their certification, naval reservists who we certify as instructors must go out and teach in the civilian community," commented LCDR Carole O'Byrne, Surgical Unit Training Officer. "After a while the problem changes from not having enough instructors to meet requests to finding groups who want instruction in CPR techniques," she added. "This doesn't mean that everyone has attended classes, but rather that groups don't realize



LCDR John Eschenbaum (left), explains to would-be instructor how the "Rescue Annie" replicates human heart and lung action.

we're available, and we'd like to see as many people as possible, both military and civilian, trained in CPR techniques."

Each class given by the Surgical Unit is specifically tailored to the needs of the requesting group, from the four-hour Basic Heart Saver, to the 16-hour, two-day long Certified Rescuer and Instructor Trainer classes.

To date, over 30 instructors have been trained by the Surgical Unit and are certified to teach CPR classes.



Soviet Naval Medicine

CAPT R. Paul Caudill, Jr., MC, USN

Merchant Marine Medicine

Part eight in a continuing series

The Soviet merchant marine has its own physicians, both male and female, served aboard ships of various types. The literature described medical support to merchant seamen as moving toward organization to provide optimal care.

Crew and passenger areas aboard merchant ships were said to be divided into living and public areas, and housekeeping, sanitation, and medical spaces. The medical areas were normally composed of an outpatient office, an isolation area, a ward or "hospital" area, specialized spaces for dental treatment and x-ray, and separate sanitation facilities for the medical spaces, including bathroom, washroom, and toilets. Considerable study was given to design of ventilation and air conditioning systems for ships' internal areas. Potable water and ship's piping were also given special study for sanitation and public health purposes. (1)

There was an emphasis on the importance of detailed planning for the support of crews of hydrographic

ships. Each ship required a "concrete operational plan" before a cruise. On the basis of that plan, training for the cruise was carried out under a command-approved annual medical support plan. A significant part of the preparatory effort was said to be short planning meetings of medical officers also attended by leading specialists of supporting medical institutions, who actively participated. Because hydrographic ships carried relatively few medical personnel, crewmembers went ashore for training as operating room nurses. Preparation for the cruise was tailored specifically for the region to be visited. There was heavy emphasis on surgical training, for in one group of hydrographic ship commands, 20 appendectomies had been required in a five-year period. The "cruise report" was described as an effective tool for documenting both problems and successes of medical efforts during cruises. (2)

There was considerable emphasis on scientifically organizing the work of medical personnel afloat. "Cruise reports" frequently appeared in naval medical literature. "Medical logs," apparently written during at-sea periods, were forwarded to the "sanitary and epidemiological stations (SES)" as "cruise reports."

These documents were said to be reflections of the accurate records of illnesses incorporated in personnel health records. Several of the maritime basins (Latvian, Black Sea-Azov, Far Eastern) used expanded medical report forms. Such detailed reporting made it possible to analyze the incidence of disease among ships' personnel. Information included age, occupation, time of service, nosological form, duration and severity of illness, number of cases, and workdays lost. One article strongly stated that incomplete records offered an impediment to full study of the health status of ships' personnel. (3)

One problem was that of maintaining the skills and insuring retention of individuals in sea billets. The small number of cases of significance present in many maritime billet assignments was said to lead to a loss of diagnostic and therapeutic skills and qualification. Therefore, there was much turnover of personnel. In turn, that change led to loss of other unique skills essential to the ship and learned only with experience at sea. There was said to be no adequate civilian medical school training in naval medicine. Nevertheless, there was a need for ships' physicians to be highly qualified in matters of the health of personnel at

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The Soviet Cargo Vessel Pridneprovsk

sea. This left the leadership in something of a quandary. One resolution was to alternate ship and shore duty to increase the qualifications of ships' medical specialists. Shipboard medical care was seen as being too important to be left to novices. There had to be training and education in unique skills. Scientific organization of care aboard ship, they stated, must be accomplished by personnel trained and skilled in such tasks. (4)

Even in the merchant fleet, some saw the need for a "force medical officer" equivalent. Strakhov advocated the appointment of a staff level assistant to the head of merchant shipping to plan and advise for the support of medical matters, and to advise senior staff personnel. (5)

Special Courses. The merchant marine emphasized training ships' doc-

tors through the organization of special courses beginning in 1968. By 1973, physicians learned according to a program first developed in the Soviet Unit by the Odessa Medical Institute and the medical institutions of the Black Sea Marine Health Department.

One such program consisted of three years of training of "intern physicians." The training aimed at "life and labors" aboard ship. From 1968 through 1972, five to eight physicians were trained each year. From 1973 through 1975, the total number of graduates increased to 152. Curricula included practical studies, lectures, hospital institute and joint conferences, and reports from scientific publications. Upon completion of the "internship," physicians had to pass special exami-

nations. Successful completion of examination led to qualification as ship's doctor. (6)

Representatives of the medical services of the merchant marine expressed strong feelings about developing the body of skills needed for the practice of medicine at sea. A retrospective analysis of the work of the marine department of a polyclinic led to the formulation of a list of methods to increase the quality of such medical support. (7)

- A strong feeling existed that newly graduated doctors should receive a special course of training in duties at sea. It should include urgent surgery, traumatology, stomatology, otolaryngology, ophthalmology, dermatology, venereal disease, epidemiology, parasitology, ship hygiene, and

methods of preventive medicine aboard ship.

- Examination was recommended prior to certification for shipboard duty as ship's physician.

- The probation system was recommended for merchant marine physicians.

- Periodic refresher training was recommended in surgery, traumatology, and stomatology, lasting four to six weeks every two years.

- A handbook of marine medicine for ships' doctors was recommended.

- Regular conferences were recommended for the purpose of assisting ships' physicians.

- Physicians at sea were urged to attempt to increase their professional skills through individual study and were expected to report their progress and problems.

In addition to the analysis described above, another author, A.P. Strakhov, felt that the polyclinics and hospitals in marine areas should establish departments of naval medicine to improve therapeutic and prophylactic measures and activities in the fleet. He, too, recommended a specialized center for advanced training for ships' physicians in clinical and preventive medicine responsibilities. Such special training would

make "the specialty of ship physician become more stable and occupy its place in the overall medical nomenclature." The training center should "continue clinical, physiological and hygienic, psychophysiological, and sociological investigations in the fleet." (8)

One problem of concern was the presence of a "rift" in the continuity of care for the fleet. Ships' physicians sent their reports directly to the "sanitary or epidemiological stations of the basis" (SES) allowing orderly examination and review by clinical personnel. There was apparently a division between the sanitary and

Soviet Naval Medicine Stirs Controversy

I would like to inquire as to why articles fawning over "the Soviet naval officer" were published. If the purpose was to provide an objective view of the Soviet navy physician, then an almost verbatim re-rendering of the Soviet "party line" regarding the subject can hardly be illuminating. Soviet "literature" and "articles" are not objective sources since their sole purpose is propaganda. I venture to guess that Captain Caudill did not come across truly critical articles of the system.

If the idea is to show a model for the U.S. Navy to emulate, then having exclusively "mission-oriented" ideologue military doctors is inconsistent with the role of physicians in a democratic society, even in a military context. The quality of medicine in such an environment is going to suffer. In fact, the overall level of medicine in the Soviet Union, propaganda to the contrary, remains abysmally poor. The social status of physicians is low and is reflected in the large proportion of women doctors who are, again propaganda to the contrary, second-class citizens doing "women's work."

I believe, however, that this is just one more breast-beating "look-at-what-the-soviets-are-doing!" article that cries wolf and is thus essentially disingenuous. No more, please!

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It was my intent in preparing this series to draw, from the only literature available to me, a summary view of information accessible at the unclassified level.

There are few specific details available in Soviet literature concerning medical outfitting of newer combatant vessels, of plans for combat readiness in current ships, and of recent at-sea medical manning practices. Neither is there information concerning long-distance evacuation methods and routes.

Dr. Benler's guess regarding the scarcity of articles truly critical of the Soviet system is similar to my findings in extensive readings of their publications; a common theme, however, was an awareness of the need to constantly improve their methods. Interestingly, Soviet authors were willing to criticize individuals who did not meet expected standards. In one descriptive passage, a particularly inept physician was mentioned as an example of how not to perform, an honor that individual might have desired to avoid.

I fully appreciate that Soviet publications are the product of a rigidly controlled system. However, between the lines of their articles can be read something of intent, if not of detail.

Hopefully, readers of Soviet naval medicine will enjoy a glimpse of a system not often visible to us any fashion. I am confident of the insight and discretion of the readers of U.S. Navy Medicine.

CAPT R. Paul Caudill, Jr., MC

epidemiological stations (SES) and the polyclinic and hospital groups. Although the ships' physicians were primarily clinical in orientation, they served under the SES. Therefore, it was recommended that seaport polyclinics work closely with "on board health centers" in rendering medical care to seamen. The polyclinics were also urged to be involved in support of treatment and preventive measures aboard ship. Simultaneously, it was recommended that ships' medical personnel be on the staff of the corresponding SES of the local naval health department, thus bringing all medical support closer together. In the end, the ship's physician would have a clinical specialty with a "maritime leaning" (undefined) and the physician would be competent both as a hygiene officer and as a clinical practitioner working in patient care. (9)

An innovative method of support to ships at sea was the "radio hospital." (10) The International Radio Medical Center was founded in 1935 in Rome by Professor Guido Guida, according to Soviet writers. Through this center, any ship at sea could seek radio assistance. In 1950, the organization gained state subsidy. It provided advice and could coordinate travel of a physician to the site of need. Transmitter relays were said to cover the world.

In the Soviet Union, physicians of the maritime section of the public health service had a similar organization. Radio assistance was available in Russian and English language through port radio stations on 500 kc frequency and with the emergency signal "XXX" and the identifier "Medical Assistance."

In the Black Sea Steamship Company, all medical calls were channeled to the staff of the sanitation and epidemiological station of a department of maritime medical personnel for coordination and operational control. This staff worked with the staff of the Odessa Medical Institute.

In 1971, there were about 500

radiograms annually. Forty-eight percent were said to have required rapid medical response; 10.2 percent required return of the patients to the Soviet Union. The problems were broken down as follows:

Appendectomy	17.7%
Peptic ulcer	3.9%
Nephrolithiasis	3.2%
Trauma	4.7%
Cardiovascular disease	11.1%
Eye disease	4.3%
Female disorders	8.5%
Other illnesses	46.6%

At the time of the publication of the article, work was in progress on electrocardio-telemetry for "ship-to-shore" electrocardiograms, a "potentially very valuable service."

The discussion of operational planning by merchant marine medical personnel suggested a move toward a rational method of operation characterized by planned readiness rather than crisis management. Similar efforts have been accomplished through our own deploying task groups, and the results have been most favorable.

The value of proper records, emphasized by merchant marine medical authorities, is valid and worthy of note. Proper methods have value in diverse sorts of endeavors, from audit of quality of care to establishment of epidemiological baselines.

A most sensitive and pertinent issue discussed in the merchant marine medical literature was that of skill loss and physician turnover. This topic is devastating in its implications to naval medicine. Its reality is a keystone in the problem facing our own naval medical support structure today. To see this issue surface in the Soviet merchant marine medical community is most interesting.

When physicians elected to serve aboard Soviet merchant vessels, they found that there were not enough medical problems to challenge their clinical skills. Although they worked to learn the other skills required of

physicians serving at sea, they felt that their clinical competence was fading. As a result, they left the community. While this allowed them to improve their personal clinical competence, it was devastating to the community afloat in that the much needed special shipboard skills were absent, and each arriving physician had to begin at the bottom of the learning curve. The process and story has a ring of familiarity to it which would be recognized by any physician who has served aboard a small combatant and by many who have served aboard larger ships.

Once again, this time in the merchant marine medical community, special courses were devised for the training of physicians destined to serve aboard ship. Certification of competence for duty as ship's doctor followed completion of qualification examination.

The necessity of close cooperation between shipboard medical personnel and those ashore is a phenomenon common to our own experience. With close cooperation between the shore facility consultant and the shipboard specialist, patient care can be optimal.

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Pharmacy Technician School Prescribes Accuracy and Hard Work

HMC M Curtis A. Crocker, USN

"Technicians Needed," the title of an article in the July 1957 *Medical Technicians Bulletin*, pointed out the increasing shortage of available Navy enlisted specialists, especially pharmacy technicians. Twenty-four years later that same need is evident. Though much has changed in methods and curricula, some things remain constant—the qualities it takes to become a pharmacy technician. The Naval School of Health Sciences, Bethesda Detachment, Portsmouth, VA, adjusted to these changes and now graduates four classes a year.

The course provides hospital corpsmen in pay grades E-3 through E-6, who have a combined GCT/ARI score of 110, with the knowledge and skills required to assist medical and pharmacy officers in the compounding and dispensing of pharmaceutical preparations. "Honesty, responsibility, and articulation are qualities we look for," HMC James Fleck, senior instructor, recently told *U.S. Navy Medicine*.

The staff starts right out impressing the young students, most whom have been in the Navy less than a year, with the importance of trust and accuracy. Some are recent "A" school graduates and most are first-termers. Test scores reveal that many are extremely intelligent and all have the intense desire to serve people.

The instructors seek explanations of the student's choice for the specialty. The responses are varied but sincere, and set the tone for the weeks of discipline and hard work ahead. "I came because it's one of

the toughest HM 'C' schools," said HN Michael Basile. Many feel the course is so demanding that successful graduation means immediate acceptance. Supporting that perception is LCDR Herrmann Banner, MSC, Director of the Pharmacy Technician School. "In a medical facility the pharmacy is the focal point for advice on medications. Graduates leave here and go into the environment. It is reassuring to become part of such an arena."

The passageways and decor of Building 104 still reflect the many field days held since the first pharmacy class in 1957. Classroom doors stand open and from within, one hears the frequent use of words like dosage and toxicology. There are usually two classes in session, one 12 weeks ahead of the other.

The curriculum consists of eight subjects, five of which are considered core because they run almost the entire length of the course.

	Weeks
• Principles of Pharmacology	1-23
• Pharmaceutical Calculations	1-17
• Inorganic & Organic Chemistry	1-10
• Typing	2-12
• Principles of Pharmacy	3-15

One of the remaining courses, Dispensing Laboratory, gives students experience in typing prescriptions, dispensing, and patient communication. In Intravenous (IV) Additives they learn the preparation and use of IV admixtures. Finally, Naval Pharmacy Management teaches organization, regulations, and operation of a naval pharmacy. There are 805 hours of instruction during the 23-week training, which this school offers as well as the Pharmacy Technician

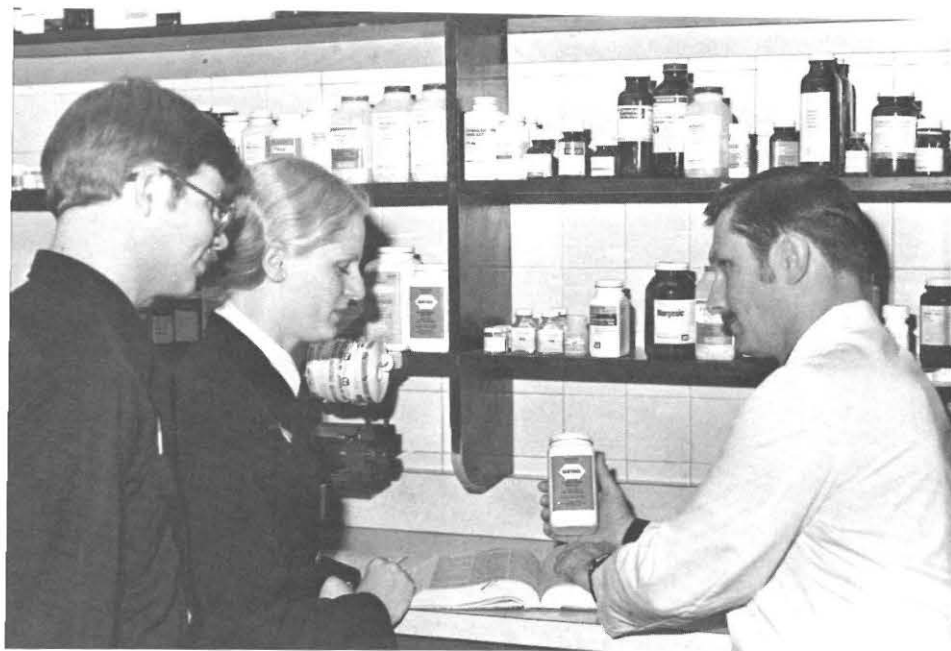
School at NSHS, San Diego, CA.

Some things cannot be taught at the chalkboard. It is important for students to grasp the magnitude of trust and responsibility they need as specialists and each instructor gets it across differently. Chief Fleck uses an occasional sea story to make a point. HM1 Carlos Nunez, the Dispensing Laboratory and Management instructor, stresses his experiences as a student to show skeptical students they can make it. HM2 Mary Fahy, the pharmacology instructor, counsels as she jogs daily with students during lunch. The element of teamwork is very evident in both staff and student populations; everyone works to help someone else.

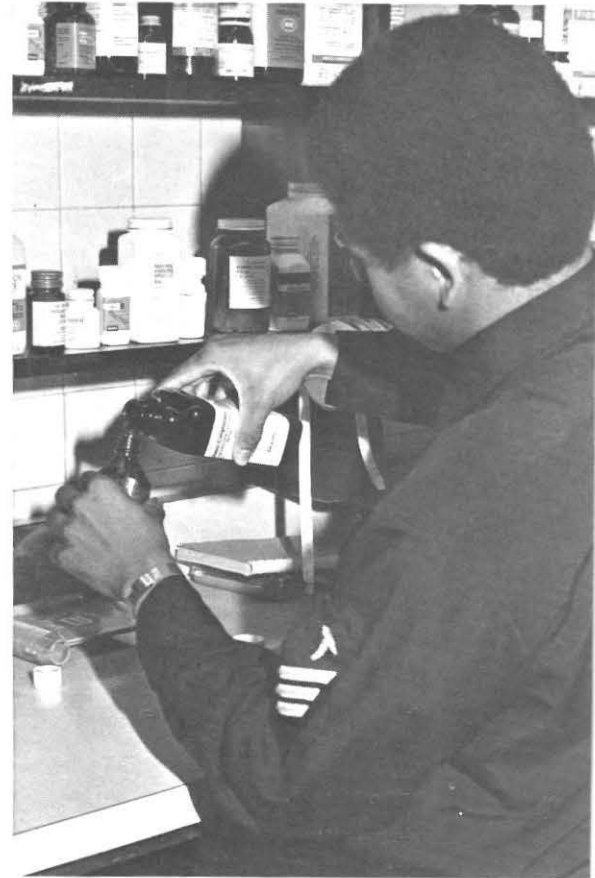
The students also rehearse how to deal with the public. All patients are not courteous. After spending most of the day between x-ray, the laboratory, and the doctor's office, a patient is often tired and frustrated before reaching the pharmacy. This is usually the last stop on a visit to a medical facility and many resent another wait. The technician must handle the situation, insuring accurate medication and prompt and courteous service.

Built into the curriculum is a mandatory physical fitness program, emphasizing organized conditioning. Classes begin at 1500 on Tuesday and Friday, a time when fatigue usually sets in. Calisthenics consume the first 10 to 15 minutes and the rest of the hour the staff and both classes participate in an activity such as softball, volleyball, basketball, jogging, and swimming. HM1 Nunez, the program coordinator, indicated that the physical fitness program has done wonders for the students. "They look forward to it and it keeps them alert in the classroom," he said. HN Lynn

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HMC Fleck instructs pharmacy students HM3 Alan White and HM3 Teresa Cavalho in the use of medication reference material.



HN Perri DeFreece processes a liquid medication prescription order in the model pharmacy.



The use of intravenous admixtures is becoming increasingly vital to the delivery of health care. LTJG Greg Hall, MSC, instructs HN Tom Kimble in the proper use of a reconstituting syringe.

Siebold thought the exercise was a good idea because it provided an approved outlet for tension. "That shows the school cares about us," she pointed out.

During the fourth week, the students stand duty in the pharmacy at NRMCMC Portsmouth, VA. The NRMCMC staff provides many hours of supervised orientation to the unit. By this time they have enough didactic ex-

posure to feel comfortable and gain from the practical experience. Beginning in week 17 until graduation they rotate through all departments of the pharmacy. LCDR Banner stated that not as much compounding is taught during these practical hours because the Navy now buys more pre-packaged products than in past years. The students do learn enough to make several elixirs, waters, and

spirits. "This minimal exposure gives them a feel for compounding," he went on.

Petty Officer Nunez came to the school from the 1st Force Service Support Group, Fleet Marine Force, Pacific. "Pharmacy School was difficult for me so I used a Guard III* option to come back and help others get through," he pointed out. He devotes many off-duty hours to struggling students and this association develops a companionship that endures beyond graduation. He had a key role in starting the physical fitness program and feels this activity is not only healthy but produces other tangible results such as improvement in both morale and attention span in the classroom.

Chief Fleck arrived from the Naval

*Reenlistment Program that guarantees duty station of choice, if available.



In the model Pharmacy, HM3 Alan White counsels HM3 Cavalho in the use of her prescribed medication.

Hospital, Guantanamo Bay, Cuba. He has taught most classes and now coordinates staff activities. Since the school has no career counselor, he and the staff serve this function in addition to embracing the student's other concerns. He shares his experiences in the classroom and brings the students face to face with potential patient problems. Accuracy and attention to detail are things he stresses from the beginning. "It's not like the laboratory or x-ray where a test can be done over. Once the patient leaves with the medication, that's it," he pointed out.

HM1 Dorothy Raab, who teaches what students consider the most difficult class, IV Additives, emphasized that students find it rough because it involves formulas based on the electrolyte balance of the body. She teaches interpretation of doctors' orders and use of equations to determine the medication that must be added to IV solutions to restore deficient electrolytes. "The mathematics



LCDR Judy McCarthy (right), NRMC Portsmouth staff pharmacist, explains the Unit Dose Patient Profile form to HM3 Debra Gallegos.

is new to them; it's not something one learns in high school," she offered. In spite of this, she notices intense interest and effort which helps make the course successful. HM3 Patty Badishe spoke of the tenacity and esprit de corps of the students when she said, "IV Additives was definitely the hardest class and several students fell behind, but we helped each other with a will to make it through and we all did."

LCDR Banner, formerly Assistant Chief Pharmacist at NRMC Portsmouth, feels the ideal student load is 30-36, though that is usually not the case. The course offers specialist training of a high caliber and instills a desire for continued learning. He realizes first-termers look for marketable skills that convert easily in the civilian labor force. In this regard, he is negotiating for affiliation with the Massachusetts College of Pharmacy and Allied Health Sciences. This would give Navy graduates college credits toward a pharmacy assistance license in that State. Another interesting benefit is that some States, led by the State of Washington, already offer licenses to pharmacy technicians. He views these as positive attractions for the young corpsmen in the fleet.

A sense of accomplishment is apparent and one shares a spirit of pride while talking to the students. They are energetic and animated as they stress the study and speak of the necessity of putting their social lives on the back burner for a while. However, most seem to thrive on the discipline. The reasons for choosing pharmacy vary, but one theme runs constant. HM3 Osvaldo Perez put it best, "I respected pharmacy technicians as being a cut above other specialists and I wanted to meet that challenge."

As a final source of contact with the students, the school encourages feedback from field activities regarding their progress. The activity mails questionnaires three to six months after graduation, asking pharmacists to assess performance and adaptation of new technicians. This serves as reinforcement for the staff and substance for necessary adjustments in the curriculum. When staff members call major medical centers to see how their graduates are doing, they usually find that the technicians they taught fit right into their new environments, enjoying the work, and exhibiting the honesty, maturity, and responsibility that are hallmarks of their speciality. □

MSC Survey Results

Life-Stage Career Concerns Among MSC Officers: Dimensions and Occupational Differences

LT Mark C. Butler, MSC, USN
LCDR Paul T. Bruder, MSC, USN

This is the third article in a series resulting from the Medical Service Corps Officer Survey conducted in April-May 1980.

Managers, administrators, and researchers have become increasingly interested in career development, especially as it relates to organizational productivity, turnover, and other personnel functions. (1) For some, careers are viewed as a succession of discrete job placements which, based on an organizationally conceived manpower planning model, attempt to fit individuals into predetermined organizational slots. (2) More recently, interest in understanding the complexities of career development has expanded to include the individual's personal perspective of lifestyle and career concerns. (3) The concept of life or career stages has emerged from this broadened perspective, based on the assumption that individual values, goals, or other career-relevant beliefs are likely to change with time and experience. As such changes occur, they should relate to variations in perception of job satisfaction, job challenge, and opportunities inherent in everyday

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HM2 J. Parmenter, USN

LT Cindy Makovic, MSC, adjusts a phoropter during a patient eye examination.

TABLE 1. Life-Stage Career Concern Measures for Total MSC Sample (N = 1,386)

	Percent Indicating Important or Extremely Important Issue
<i>A. Family Concerns</i>	
• Adapting to growth and changes in my children	66.1
• Meeting other family needs	71.8
• Adapting to growth and changes in my spouse	64.5
• Schools	62.2
• Gaining greater closeness with family and friends	75.9
<i>B. Career Advancement Concerns</i>	
• Achieving my military goals	74.3
• Getting good ratings on my fitness report	69.3
• Getting the billets that help me to get promoted	42.9
• Opportunities for advancement	79.6
<i>C. General Economic Concerns</i>	
• Cost of living in different areas	69.2
• Housing	64.1
• Gaining freedom from economic burdens	76.3
• Medical care	67.1
• Job security	62.4
<i>D. Retirement Concerns</i>	
• Preparing for my second career after retirement	36.8
• Achieving financial security after retirement	82.4
<i>E. Individual Growth Concerns</i>	
• Fulfillment of personal emotional needs	75.7
• Having feelings of integrity about myself	96.0
• Adapting to changes in society	31.7
<i>F. Sponsor, Education, and Training Concerns</i>	
• Obtaining education and training opportunities	67.5
• Having good sponsors or mentors who can guide and assist in my career	52.1
<i>G. Geographic/Community Concerns</i>	
• Part of country	50.5
• Social/recreational opportunities	38.3
• Churches	30.6

work situations—matters which can affect job performance, turnover, and other related career decisions.

Stated briefly, the attitudes and behavior of individuals in organizational settings can be viewed as the product of three interacting considerations: (a) perceptions of the current job situation, (b) future-oriented career considerations, and (c) other aspects of nonwork life. (4,5) In the present instance, these factors were assessed among MSC officers in different career stages and occupational groups. Based on a review of the life-stage career concern literature, items were written to measure concerns about career advancement, family, economic, and geographic/community issues. The items were subsequently administered to all MSC members as part of a larger survey of career values and work environment perceptions. Further details regarding the survey as a whole and more specific characteristics of the sample are outlined in an earlier report. (6)

The statistical method of principal components analysis was used to group officer responses to the life-stage career concern items into the four *a priori* categories of career advancement, family, economic, and geographic/community concerns. From the same analysis, three additional categories of clustered items were derived: retirement, individual growth, and sponsor, education and training concerns. The percentage of officers who rated the various items as either "important" or "very important" issues in each career concern category is shown in Table 1.

Given the seven dimensions or categories of career concern, the first question addressed was how important each dimension was to officers at different career stages. To determine this, the sample was divided into three cohorts: (a) the junior officer group ($n = 673$), whose length of service ranged from 0 to 96 months (≤ 8 years) of experience, (b) the middle officer group ($n = 482$), whose length of experience ranged

from 97 to 156 months (9-13 years), and (c) the senior officer group ($n = 231$), whose length of experience exceeded 157 months (> 13 years). Scores were computed for each of the seven life-stage career concern dimensions by summing individual responses to appropriate items as grouped in Table 1 (higher scores indicate greater concern levels). The comparisons of career stage groups on the seven dimensions of career concerns are shown in Table 2.

Statistically significant differences between the three career stage groups were noted only for the *family concerns*, *retirement concerns*, and *sponsor, education, and training concerns* dimensions. Middle grade officers assigned a significantly higher level of importance to the issue of family than did either junior or senior grade officers. Both middle and senior grade officers expressed greatest concern about retirement issues, while junior officers were more concerned about having a professional sponsor and having oppor-

TABLE 2. Means and Standard Deviations for the Life-Stage Career Concern Measures for Each Career Stage Group

Life-Stage Career Concerns	Career Stage Group					
	Junior Officer		Middle Officer		Senior Officer	
	M	SD	M	SD	M	SD
A. Family Concerns	18.50	4.85	19.55	4.46	18.39	4.55
B. Career Advancement Concerns	15.10	3.27	15.10	3.37	14.71	3.71
C. General Economic Concerns	19.31	3.26	19.27	3.33	18.71	3.93
D. Retirement Concerns	6.76	1.84	7.55	1.59	7.57	1.62
E. Individual Growth Concerns	11.82	1.78	11.61	1.87	11.63	1.91
F. Sponsor, Education, and Training Concerns	7.75	1.63	6.94	1.89	6.16	2.02
G. Geographic/Community Concerns	9.47	2.30	9.37	2.37	9.06	2.39

TABLE 3. Means, Standard Deviations, and F-Tests for the Life-Stage Career Concern Measures by Length of Service Categories for Health Care Administrators (N = 657)

Life-Stage Career Concerns	Length of MSC Service						F(df*)	P**
	≤ 96 Months (n = 360)		97 - 156 Months (n = 167)		≥ 157 Months (n = 130)			
	M	SD	M	SD	M	SD		
A. Family Concerns	19.194	4.485	19.653	4.235	17.831	4.649	6.58	.025
B. Career Advancement Concerns	15.542	3.130	14.683	3.631	14.585	3.561	5.93	.025
C. General Economic Concerns	19.133	3.252	19.120	3.137	18.377	3.860	2.62	NS†
D. Retirement Concerns	7.122	1.743	7.832	1.601	7.262	1.673	10.15	.005
E. Individual Growth Concerns	11.856	1.663	11.910	1.696	11.531	1.877	2.13	NS
F. Sponsor, Education, and Training Concerns	7.561	1.693	6.635	1.986	5.854	1.945	46.10	.001
G. Geographic/Community Concerns	9.247	2.376	9.515	2.219	9.169	2.405	<1.00	NS

*degrees of frequency = 2,654

**probability

†not significant

tunities for continued education and training. These results are not surprising, but illustrate that life or career stages are marked by differences in concern about one's work and life in general. On matters of *career advancement*, *individual growth*, *general economics*, and *geographic/community* issues, the three career stage groups of officers shared (statistically) equivalent levels of concern.

In order to determine occupational differences in life-stage career concerns, the sample was divided into three additional groups according to the procedure described in an earlier report,⁽⁷⁾ namely, (1) Health Care Administrators, (2) Health Science and Technology Specialists (e.g., entomologists, industrial hygienists, aerospace physiologists), and (3) Clinical Care Specialists (e.g., optometrists, clinical psychologists, physical therapists). Tables 3, 4, and 5 contain the results comparing concerns across length of service within

each of the three broad occupational groups.

Within each of the three broad occupational groups, significant differences are noted between the three commissioned service experience levels or career stage groups. The dimensions on which these differences exist are not identical across occupational groups. For example, differences between career stage groups in concern about family issues appear most marked among the health care administration officers. Most of that difference may be attributable to the senior officers of that profession. While just as concerned about family in a general sense, those officers, frequently having prior enlisted experience, tend more often to be older and to be past the early marriage and child-rearing stages of life. Career advancement concerns are differentially important to career stage groups within the three occupational groups, significantly so in two of them; but the pat-

terns of concern about advancement and career progression are not the same. Clinical care specialists, for example, expressed less concern about career advancement matters among the junior officers and more among the middle officers than was expressed by comparable career stage officers of the other occupational groups. Only on issues of retirement and of sponsor, education, and training were statistically significant differences observed between career stages for each of the three occupational groups of officers.

While these results are certainly consistent with the research literature, they further reflect several aspects of life-stage career concerns that may be of additional value to career planning in military settings. Traditional assessments of career issues often are secondary to concerns about individual growth experiences and opportunities for education and professional training.⁽²⁾ However, it would appear that these

TABLE 4. Means, Standard Deviation, and F-Tests for the Life-Stage Career Concern Measures by Length of Service Categories for Clinical Care Specialists (N = 422)

Life-Stage Career Concerns	Length of MSC Service						F(df*)	P**
	≤ 96 Months (n = 274)		97 - 156 Months (n = 95)		≥ 157 Months (n = 53)			
	M	SD	M	SD	M	SD		
A. Family Concerns	18.204	4.958	19.305	4.875	19.849	4.162	3.65	NS†
B. Career Advancement Concerns	14.515	3.507	16.00	3.212	15.170	3.615	6.65	.001
C. General Economic Concerns	19.609	3.175	19.884	3.491	19.321	3.615	<1.00	NS
D. Retirement Concerns	6.536	1.901	7.463	1.563	7.962	1.358	20.11	.001
E. Individual Growth Concerns	11.818	1.868	11.789	2.015	11.604	2.169	<1.00	NS
F. Sponsor, Education, and Training Concerns	7.467	1.727	7.495	1.844	6.491	1.918	7.09	.001
G. Geographic/Community Concerns	9.796	2.179	9.758	2.373	9.717	2.248	<1.00	NS

*degrees of frequency = 2,419

**probability

†not significant

TABLE 5. Means, Standard Deviations, and F-Tests for the Life-Stage Career Concern Measures by Length of Service Categories for Health Science and Technology Specialists (N = 305)

Life-Stage Career Concerns	Length of MSC Service						F(df*)	P**
	≤ 96 Months (n = 178)		97 - 156 Months (n = 70)		≥ 157 Months (n = 57)			
	M	SD	M	SD	M	SD		
A. Family Concerns	18.489	4.990	19.614	4.499	18.211	4.724	1.71	NS†
B. Career Advancement Concerns	15.320	3.103	14.500	3.068	14.544	3.640	2.32	NS
C. General Economic Concerns	19.107	3.632	19.071	3.449	18.930	3.793	<1.00	NS
D. Retirement Concerns	6.916	1.775	7.200	1.575	7.947	1.457	8.19	.005
E. Individual Growth Concerns	11.444	1.966	11.300	1.788	11.509	1.956	<1.00	NS
F. Sponsor, Education, and Training Concerns	8.090	1.541	6.700	1.609	6.351	2.066	32.64	.001
G. Geographic/Community Concerns	9.197	2.368	8.871	2.455	8.193	2.364	3.85	.05

*degrees of frequency = 2,302

**probability

†not significant

two areas might warrant separate consideration within the MSC community as a whole. In still another instance, that regarding retirement issues, the military officer may also be somewhat different from his or her civilian counterpart. It is not too surprising, for example, that the level of concern associated with retirement issues would increase with advancing length of MSC experience. But it is interesting to note the high degree of comparability between middle and senior grade health care administration officers. This reflects that many middle grade officers have a combination of enlisted and commissioned service experience and places them in a retirement-eligible category ahead of their civilian contemporaries, and most officers of the clinical and science professions.

A final life-stage career concern that seems profitable for future investigation lies in the area of individ-

ual growth. The lack of difference noted on this measure within different occupational groups across career stages suggests that comparable importance is attributed to this area among the different groups. The literature on job characteristics and work motivation^(8,9,10) indicates that personal needs and perceived avenues for growth vary for different people and work situations. Future reports will address identification of various individual or work situations, processes, or avenues of attainment of growth needs in different settings, and implications such relationships might have to career planning for MSC officers.

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One of the major purposes for which career planning guidelines are developed is to allow career counselors the benefit of standardized aids and concepts. This does not imply that the counsel afforded



one officer would necessarily be identical to that given another. The old adage that "there are no two individuals exactly alike" is for all practical purposes, scientifically true.

Just as there are certain basic concepts of career progression that serve as standard guides for different individuals, there are also certain individual characteristics that allow individuals to be grouped on the basis of similarities. People can be grouped chronologically according to the period of life or their career stage. Another way to group people is by occupational similarity. In the present article, both techniques were applied to MSC officers in an effort to account for differences between officers in attitudes, orientations, or concerns about

their work, their careers, and their life circumstances in general.

The questions posed and results obtained in the study have a direct effect on the way we counsel MSC officers. Although we tend to "type" officers by their Naval Officer Billet Code (NOBCs), procurement source, or other military personnel administrative label, the real similarities and differences among us are often related to quite another group of factors. The present article supports this.

I hope this series will generate discussion at the local command level, pose questions, and hopefully provide some answers to the critical matters of career counseling and development.

P.D. Nelson
CAPT, MSC, USN



Naval Aerospace Medical Institute, Pensacola

NAMI: Home for Aviation Medicine



LT Larry Schoenberg, MSC, USNR, assists students with oxygen equipment in the altitude simulator (hypobaric chamber).

Once called the U.S. Naval School of Aviation Medicine, the Naval Aerospace Medical Institute (NAMI), headquartered in Pensacola, FL, has been an essential ingredient of naval aviation for 42 years. NAMI's main mission is to support the fleet. To accomplish this, it trains aviation medical personnel, conducts research in aerospace medicine, evaluates aeromedical equipment, and supports the Naval Air Training Command in selecting and training nonmedical aviation personnel.

More specifically, NAMI supplies nonmedical as well as direct medical training to flight surgeons, physiologists, psychologists, and aviation physiology technicians (APTs). Some of the Institute's nonmedical services include all instructors and all classroom space. It maintains the training devices, simulators, ejection seat simulator, low and high pressure



TD2 Caroline Mince acts as assistant engineer during student oxygen indoctrination.

chambers (hypobaric and hyperbaric), and all required personal protective equipment.

The Institute teaches naval aviators, through practical experience, how the body reacts to the sensations of flight. The hypobaric chamber takes students "to altitude" and then demonstrates what a sudden loss of cabin pressure can do to the human body. Naval aviators-to-be learn to recognize the initial physical symptoms in time to take action. This training is cost-effective and safe.

The 9A9 high-altitude decompression chamber seats 18 students and uses a vacuum pump to remove air from the chamber. The decreased pressure allows the student to experience the physiological sensations of hypoxia, the gradual loss of oxygen.

Physiological training goes far

beyond placing students in altitude chambers. NAMI screens all flight students before they enter the program. It conducts physical exams and reviews all health records, insuring that all students are healthy before entering any of the simulators. In cases where the student's health is questionable, in-house flight surgeons and other specialists contact NAMI consultative services. Once accepted as student aviators, trainees are accompanied by a medical observer and a corpsman specially trained to monitor the proceedings.

NAMI's medical personnel, physiologists, psychologists, aviation medicine technicians, (AVTs), and aviation physiology technicians (APTs), undergo as vigorous an education and training period as their students. They spend eight out of 24 weeks in a



CDR Furry instructs TD2 Caroline Mince in operating hypobaric chamber.



HMI Dennis Deming, diving medical technician, readies a patient for recompression treatment.

program experiencing actual flight training, classroom instruction, and health and presimulator screening. They learn equipment maintenance and all health and safety-related aspects of physiological training. In addition, NAMI provides an environment for those in aerospace medicine to practice. A strong basic understanding of applied aviation physi-

ology is a requirement in the Institute's residency program. Another requirement for the residents is to act as on-the-scene flight surgeons for physiological trainees as well as a referral for medical problems.

NAMI is the only physiological training unit with a hyperbaric or a diving recompression chamber. The medical personnel are exposed to

something not available anywhere else—an opportunity to treat decompression sickness. They learn to conduct hyperbaric therapy for treatment of the bends, a condition suffered by divers and swimmers. This significant aspect of NAMI adds credibility and professionalism to its residency program.

The Institute is presently constructing a new physiological training building in order to consolidate its role in direct fleet support and direct air training support missions.

It will soon present an ultra-modern, visual and sensory orientation trainer called the Multi-Station Disorientation Device (MSDD), a nonflying approach to orienting the student to the true visual and disorienting problems that occur during flight. This device, supplied by American Airlines, is the only one of its kind in the entire Navy. The new physiological training building, scheduled to open in June, will house the MSDD. With classroom space occupying the first and second floors, the remaining area will be for office space and equipment maintenance. The MSDD will replace the antiquated style of night vision and sensory illusion training and introduce a far more advanced technique.

One test developed at NAMI, the Barofunction test, is currently used to determine fitness for flight duty under various altitude and pressure changes.

NAMI is a very complex operation that is an integral part of naval aviation. The opportunity to develop skills through practice in simulators is invaluable. Confidence is the main psychological advantage that is gained through this practical experience. CDR Donald E. Furry, MSC, NAMI's Executive Officer and himself an aerospace physiologist, believes that NAMI has become the center of excellence, the basic foundation for physiological trends, the place where everyone starts.

—Story by Melissa B. Rosenbaum. Photos by PH2 T.P. McAuliffe, USN □

Clinical Diagnosis and Treatment of Oral Candidiasis

CDR G.M. Taybos, DC, USN

CDR G.T. Terezhalmay, DC, USN

Candidiasis is an infectious disease process caused by the mycelial form of *Candida albicans*. This organism is a normal inhabitant of the oral cavity, maintaining a symbiotic relationship with *Lactobacillus acidophilus*.

Diagnosis

Candida albicans is an opportunistic organism, and alterations in host homeostasis precede the metamorphosis from commensalism to parasitism. Predisposing systemic factors

include diabetes mellitus, hypoparathyroidism, hypoadrenalism, nutritional deficiencies, cytotoxic drugs, radiotherapy, antibiotics, corticosteroids, pregnancy with secondary infection of the infant, and xerostomia. Poor oral hygiene and the presence of dental prostheses are also predisposing factors. In most instances, candidiasis is a localized infection with a potential for systemic dissemination.

Acute pseudomembranous candi-

diasis is characterized by the presence of white plaques that may be stripped away, leaving a painful, bleeding mucosal surface. This form usually affects the entire oral cavity (Figure 1).

Chronic hyperplastic candidiasis is associated with persistent, white, curd-like plaques that when stripped away do not cause severe pain or bleeding of the oral mucosa. This form may infiltrate the epithelium, and the characteristic coarse lesions may be seen on most oral tissues (Figures 2).

Chronic atrophic candidiasis is an erythematous, burning inflammation of denture-bearing areas. Similar lesions may be seen on the tongue and in association with fixed prostheses (Figure 3).

Angular cheilosis represents the clinical manifestations of a number of etiologic factors. Predisposing conditions may include poor oral hygiene, a decrease in the intermaxillary space, or nutritional deficiencies. More commonly, angular cheilosis represents a mixed infection of *Candida albicans* and coagulase-positive *Staphylococcus aureus* (Figure 4).

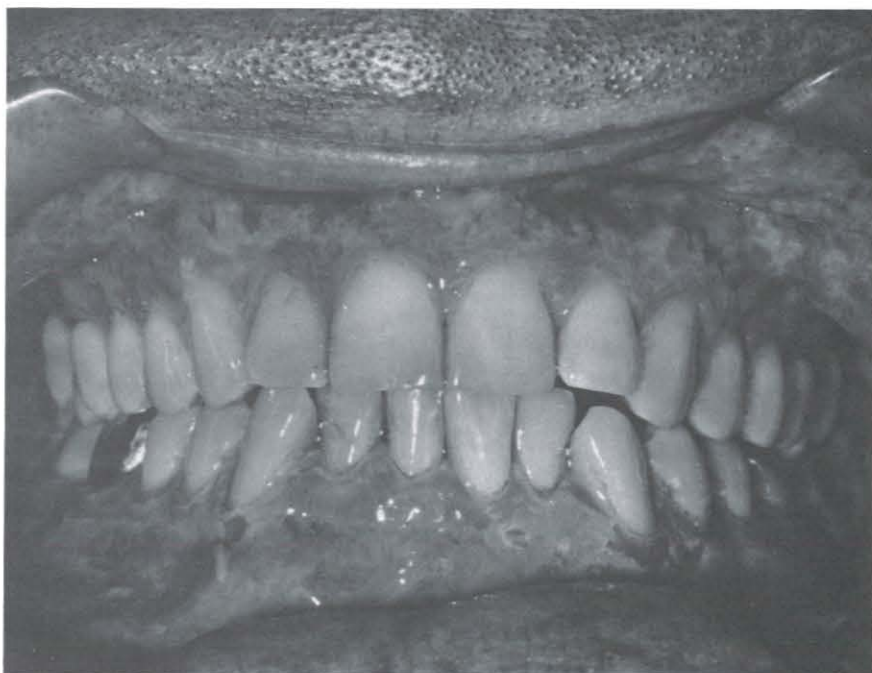


FIGURE 1. Acute pseudomembranous candidiasis associated with the labial mucosa and the gingiva.

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Treatment

Preventive measures such as meticulous oral hygiene, elimination of traumatic factors, and the maintenance of optimally functioning and clean prostheses may prevent or minimize oral candidiasis. These measures should include proper brushing of all oral tissues and all surfaces of prostheses, removing prostheses at regular intervals to allow for normal circulation in the supporting tissues, and periodic evaluation of prostheses for tissue adaptation and the presence of occlusal discrepancies.

Nystatin, used topically, is the antimycotic agent of choice for the treatment of oral candidiasis. (1-7) To reduce the risk of relapse, treatment generally should be continued for at least 48 hours after the elimination of all signs and symptoms associated with the infection. The aqueous suspension is ideal as a holding solution for prostheses when they are removed from the oral cavity. The vaginal tablet, used orally as a lozenge, allows for continued contact with the affected areas and is preferred to oral tablets, which are compounded primarily for the treatment of intestinal candidiasis.

Rx

Nystatin oral suspension, 100,000 units/ml

Disp: 60 ml bottle

Sig: Rinse with one teaspoonful four times a day, and/or soak prostheses overnight.

Rx

Nystatin vaginal tablets, 100,000 units

Disp: 15 (30) tablets

Sig: One tablet four times a day used as a lozenge.

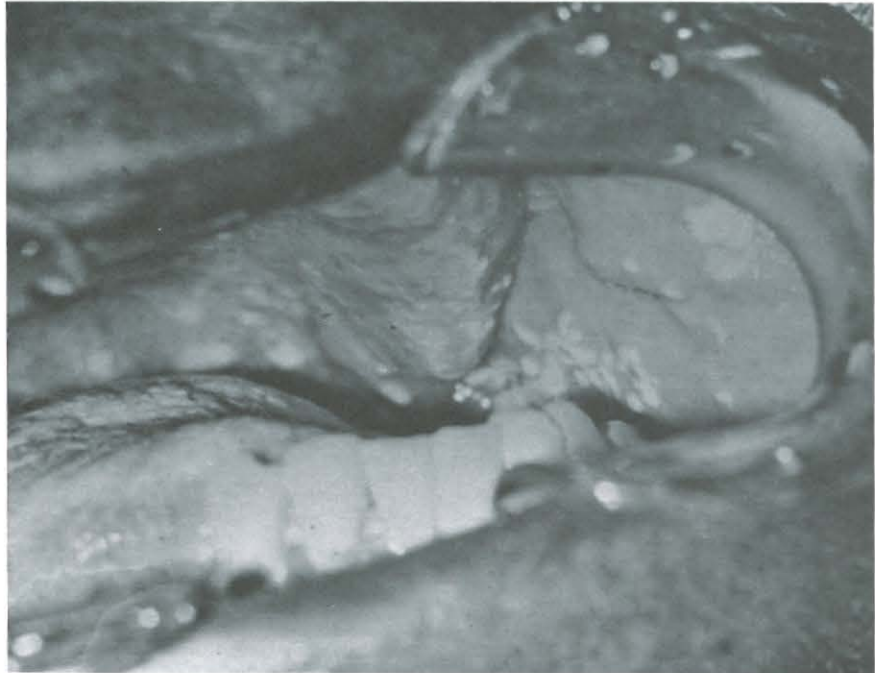


FIGURE 2. Chronic hyperplastic candidiasis associated with the buccal mucosa.



FIGURE 3. Chronic atrophic candidiasis associated with a fixed prosthesis.

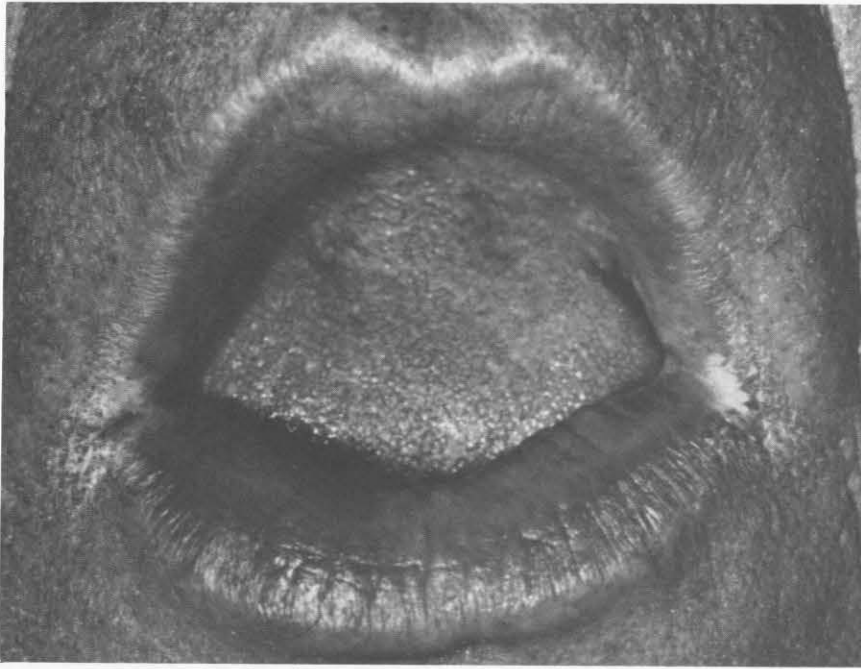


FIGURE 4. Angular cheilosis

Rx
Nystatin oral tablets, 500,000 units
Disp: 100 tablets
Sig: One tablet three times a day used as a lozenge.

Rx
Nystatin ointment, 100,000 units/gm
Disp: 15 (30) gm
Sig: Apply liberally to affected areas three times a day.

Rx
Mycolog Ointment[®], 100,000 units/gm
Disp: 15 (30, 60) gm
Sig: Apply liberally to affected areas three times a day.

Rx
Nystatin topical powder, 100,000 units/gm
Disp: 15 gm
Sig: Apply liberally to tissue side of prostheses three times a day.

Amphotericin B is an agent derived from *Streptomyces nodosus*; its anti-

mycotic activity is the same as that of nystatin. In some instances of oral candidiasis refractory to nystatin, a 10 mg tablet* of amphotericin B four times a day used as a lozenge has been reported successful in eliminating the infection. (3,8-9)

Rx
Amphotericin B ointment, 3 percent
Disp: 20 gm
Sig: Apply liberally to affected areas three times a day.

Rx
Amphotericin B lotion, 3 percent
Disp: 30 ml
Sig: Soak prostheses overnight.

Chlorhexidine, 0.2 percent, rinses or swabbing attained clinical cures when candidiasis in severely compromised patients was refractory to nystatin and amphotericin B. (7,10) Rinsing the oral cavity and disinfecting prostheses also lessened inflammation and significantly reduced the

*Not available in the United States.

number of organisms harbored on the mucosa and the prostheses.

Rx
Chlorhexidine gluconate, 0.5 percent
Disp: 4 oz (1 gal) bottle
Sig: Apply liberally to affected areas by rinsing or swabbing for at least 2 minutes four times a day (Caution: may irritate mucosal tissue.)

Miconazole was reported to be effective for the treatment of chronic mucocutaneous candidiasis in patients with compromised cell-mediated immunity. (11-12) The initial regimen of a 750 mg tablet* three times a day was reduced to a 250 mg tablet* three times a day as clinical improvement was noted. In another study involving patients with leukemia and lymphoma, topical application of miconazole in the oral cavity was reported to be remarkably fast-acting, reliable, and nontoxic. (13)

Rx
Miconazole nitrate cream, 2 percent
Disp: 1 (3, 15) oz
Sig: Apply to affected areas twice daily.

Clotrimazole, 500 mg to 1,000 mg tablets* twice a day, was reported to produce dramatic improvement in a patient with candidiasis refractory to nystatin and only slightly responsive to both oral and IV amphotericin B. (14) In a separate clinical trial, 10 mg and 50 mg troches* 10 times a day used as lozenges elicited good response. (15) *Clotrimazole* is an effective way of treating chronic mucocutaneous candidiasis with a minimum of side effects. (16)

Rx
Clotrimazole vaginal cream, 1 percent
Disp: 45 gm
Sig: Apply to affected areas twice daily.

Rx

Clotrimazole vaginal tablets, 100 mg

Disp: 7 tablets

Sig: One tablet a day used as a lozenge.

Conclusion

Clinicians must maintain a holistic approach to their patients. Keeping in mind the factors predisposing to candidiasis, clinicians must elicit thorough medical and dental histories and request appropriate laboratory studies to substantiate their clinical impressions. Nystatin, topically applied, is the therapeutic agent of choice for the treatment of oral candidiasis. Infections refractory to nystatin may respond successfully to amphotericin B, chlorhexidine, miconazole, and clotrimazole.

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Clinical Notes Revived

This month, *U.S. Navy Medicine* reintroduces Clinical Notes, a once popular and very useful series. Submissions should be no longer than 1,500 words, double-spaced, and if possible, contain references and black-and-white photos. Physicians, dentists, and other practitioners should have manuscripts cleared for professional accuracy prior to submission.

CHAMPUS Rules on Nearsightedness Surgery

The Department of Defense recently issued a statement of policy excluding from CHAMPUS benefits the radial keratotomy surgical procedure to correct nearsightedness on the basis it is still experimental.

The Assistant Secretary of Defense (Health Affairs), John H. Moxley III, MD, stated, "The National Advisory Eye Council (NAEC), the principal advisory body to the National Eye Institute, recently approved a resolution expressing concern about the widespread adoption of this surgical procedure. The NAEC considers the radial keratotomy to be an experimental procedure because of its lack of adequate scientific evaluation in animals and humans."

Available research material reviewed by DOD, as well as other professional experts consulted, supported this conclusion, he said.

Dr. Moxley pointed out that in most cases an ex-

perimental surgical procedure tends to affect very few beneficiaries and therefore benefit decisions are made on a case-by-case basis under the general exclusion. In this instance, because of the high incidence of nearsightedness, which has resulted in numerous beneficiary inquiries, it was determined that a public policy statement on the radial keratotomy was indicated.

CHAMPUS has a general provision which excludes any services and supplies related to experimental procedures or treatment regimens. The purpose of the limitation is to assure that the Program does not encourage treatment that has not been determined to be efficacious or safe.

Any patient denied CHAMPUS benefits because a specific surgical procedure or other treatment regimen is classified as experimental may appeal.

Testicular Self-Examination: An Idea Whose Time Has Come

CDR Kevin J. O'Connell, MC, USN

Germinal cell tumors of the testes are rare, representing 1-2 percent of all cancers in males and 5 percent of all urologic cancers in males. (1,2,3) It represents approximately 15 percent of all malignant tumors in young men between the ages of 20 and 34. (1,3) Excluding lymphomas and leukemias it is the most prevalent tumor in males between ages 25 and 34. Testes tumor exhibit three distinct age peaks, birth to 5, 20-40, and after 60. (4) In the United States the overall frequency of testes tumor in males is 2.1-2.2 percent per 100,000. (2,4) In some populations it rises to 6-7 percent per 100,000 (5) in the 20-40 age group. This group represents the male military population. An illness to a young man not only affects him and his family but has a devastating effect on his unit.

The etiology of testes tumor is unknown but it is generally agreed that an undescended testes has an increased potential for malignancy (6) for which a 30-40 times increase is commonly quoted. However, other authors feel 15 times (4) is more appropriate. This is one of the major reasons for recommending early orchiopexy (before age five) and orchiectomy after puberty for unilateral cryptorchid testes with a normal contralateral testes. There also seems to be unexplained racial and geographic differences in the incidence of testes tumors. (7) Blacks rarely have testes tumors; whites have it more commonly. (1,2,5) There has been a recent suggestion that the incidence of testes tumor is rising (1,2,8,9,10,11) possibly associated with urban industrialization. Some authors (12) have suggested endocrinologic changes including DES in meat and birth control pills. Hormonal imbalances associated with nausea during the first trimester of pregnancy might adversely affect the developing testes and make it more prone to tumor cancer.

Other authors (13) have pointed out that the significant difference in racial and geographic incidences as well as familial clusters might suggest a genetic or hereditary influence. These studies are ongoing and it may be years before the etiology of testes tumors is worked out.

There have been some recent advances in diagnostic and therapeutic techniques including CAT scans, tumor markers, (14) and advanced chemotherapy. (2) The treatment for advanced testes cancer, although promising, is time consuming, dangerous, unpleasant, and expensive. We can significantly reduce this morbidity by early detection of the disease where surgery or radiation might not have to be augmented by chemotherapy.

In the past, various authors (15,16,17) have proposed self-examination of the testes as a means of early detection and increased cure rates. It has been suggested that similar widespread programs in breast cancer possibly reduces the breast cancer mortality rate by 18 to 24 percent. (18,19) Awareness of testes tumor as a significant health problem in young males is lacking. (19) Such programs have been difficult to initiate without the appropriate impetus as was available when breast cancer was discovered in several prominent patients.

The technique of testes self-examination is relatively simple. The only significant difference noted in the reports seems to be in the frequency of the exam. Earley (15) suggests exams biannually and Murry, (16) monthly.

The exam is best performed after a warm shower or bath when the cremasteries are relaxed and the patient's hands are warm (Figure 1). The first examination is performed with an instructor (physician, nurse, physician's assistant) who can demonstrate the normal anatomy of the epididymis, spermatic cord, and the sulcus between the testes and epididymis. The instructor can also insure that the testes is normal initially. Two important points should be emphasized. First, the surface of the testes should be free of any irregularity (Figure 2). Secondly, the sulcus between the testes and epididymis should be

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FIGURE 1. Self-examination of the testes is best done after a warm shower or bath when the cremasteries are relaxed and the patient's hands are warm. (Photos from the film Self-Examination for Testes Tumor, 1975. Reproduced with permission, Eaton Laboratories)

fully palpated with normal testes on one side. Each testes should be examined individually with a two-hand technique (Figure 3), one hand to steady the testes and the dominant hand to gently palpate and explore. Any irregularity in the testes itself should be referred to a urologist. Other problems noted (epididymitis, hernia spermatocele) might be handled by the primary care provider or be referred to a physician. Testes tumors commonly present as epididymitis or hydroceles. When a patient is not responding as expected to therapy or no explanation exists for acute problem, a second opinion may be necessary.

With a concentrated effort in educating the military population, the value of testicular self-examination will spread to the civilian population as well. A similar program at Peter Bent Brigham Hospital(20) in Boston has already yielded dramatic and unexpected results. Two individuals responsible for disseminating information on

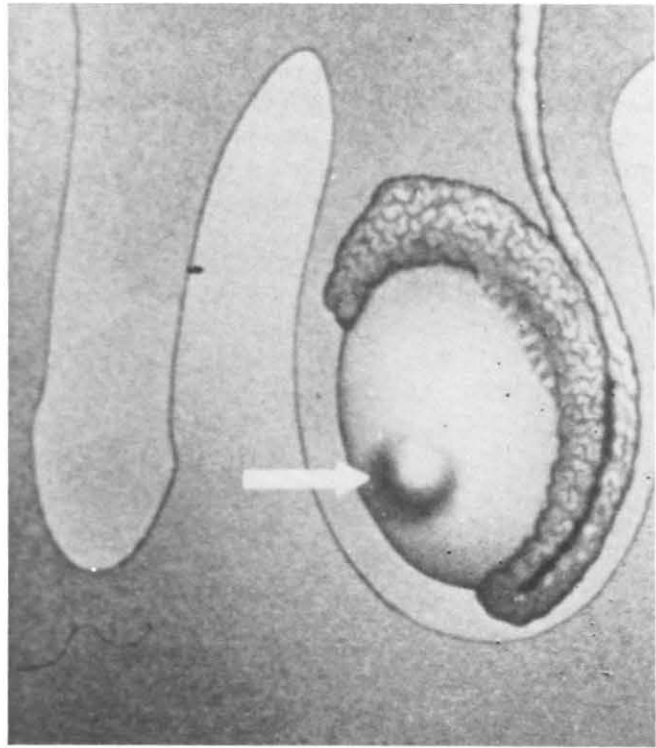


FIGURE 2. It is important to emphasize that the surface of testes should be free of any irregularity.



FIGURE 3. Each testes should be examined individually with a two-hand technique, one hand to steady the testes and the dominant hand to gently palpate and explore.

self-examination discovered that they themselves had testes cancer.

The value of such programs within the Navy is obvious and the potential to significantly reduce the morbidity and mortality of this disease through health education is great.

Some educational resources are:

- *Self-Examination for Testes Tumors*. 1975 Ravera Pearlman Martil, 10-minute 16 mm sound film available from Eaton Laboratories, Professional Products Group, Norwich, NY 13815 or write to: U.S. Army (Film #DAMF8-13069), Audio Visual Support Center, Fort Meade, MD 20755.
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Dental Techs Rescue Comrade



RADM C.E. Gurney III, USN, presents DT2 S.R. Hoefs and DT1 G.L. Bailey with the Navy and Marine Corps Medal.



The Navy and Marine Corps Medal was presented to DT1 Gordon L. Bailey and DT2 Shirley R. Hoefs by RADM C.E. Gurney III, USN, Commander Naval Training Center, Great Lakes, IL, on January 21, 1981.

They were presented this medal for heroism while serving at the Naval Dental Research Institute, Great Lakes, IL.

On 13 Sept 1980, Naval Dental Research Institute staff members were participating in a group recreational river raft trip on the Wolf River north of Oshkosh, Wisconsin. The water temperature was 55° F and the water level was high because of above average rainfall. The river runs smooth for about a mile and then changes to tumbling falls and rapids with very swift currents. DT2 Hoefs and the victim were in the lead raft. DT1 Bailey was in the second raft about 50 to 100 yards behind them. As they were going through the first falls, the victim fell out of the raft and was trapped in a rapid, tumbling "catch basin" of water; tumbling over and over, losing consciousness. Hoefs, without regard to her personal safety, jumped into the water and swam to assist him. She was able to pull the man out of the tumbling water and call for assistance. Bailey immediately came to her assistance. Together they swam the victim to a large rock in calmer waters, where he regained consciousness.

DT1 Bailey and DT2 Hoefs are Dental Research Technicians at the Naval Dental Research Institute, Great Lakes, Illinois. DT1 Bailey is a native of San Jose, California and a veteran of 11 years naval service. DT2 Hoefs is a native of North Bend, Oregon and has served seven and one-half years in the Navy.

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