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December 1982

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COVER: HMC Tom Gray is assigned to the fast attack submarine USS *Cincinnati*. Heading a submarine's medical department and keeping its crew healthy is a unique and multifaceted job. A candid interview with corpsmen who wear the silver dolphins appears on page 28. Photo by the Editor.

The Surgeon General's 14th Annual Specialties Advisory Conference and Committees' Meeting

The conference was held 13-17 Sept 1982 in Bethesda, MD. Following is an abridged selection of the remarks and presentations of specified individuals. Their comments do not necessarily reflect official views of the Navy Department or the naval service at large. —Ed.

Surgeon General's Keynote Address

VADM J. William Cox, MC, USN
Surgeon General of the Navy

I would like to welcome all of you, particularly the blue suiters who are directors of the graduate medical education programs. I single out the blue suiters because you hold the future of our organization very firmly in your hands. If you drop the ball, the rest of us have no reason for existing. We began several years ago to reemphasize the critical importance not only of maintaining expertise in our respective professional fields but also being able, willing, trained, and ready to carry out those functions in what I have chosen to term an adverse or hostile environment. Whether it be on the desert floor, in the snow-covered mountains, on the sea, or in fixed facilities in CONUS, we must be ready and your trainees must be ready to execute their professional skills in a timely and effective manner anywhere in the world.

I am happy to report that over the past 2 years we have gone from a token number of trainees at the Combat Casualty Care Course (C-4) to 400 trainees in 1982 and a quota of 800 in 1984 and in the out years. In 1983 the course will be open to personnel other than physicians, including the Reserves and selected members of the Nurse Corps, the Medical Service Corps, and the Dental Corps.

We have also made progress in cold weather medicine training in cooperation with the Minnesota National Guard. This will continue until we can institutionalize our own activity in the high Sierras at the Marine Corps Mountain Warfare Combat Training Center. The desert warfare training endeavors are included in our program objective memorandum for 1984.

And of course, you know that just this past month the cadre for manning the rapid deployment medical facility presently on loan from the Army and aboard a ship in Diego Garcia has been accomplished. We will continue this training so the personnel will be ready when the Marine Corps enhanced capability rapidly deployable medical facility comes on board and is pre-positioned in the summer of 1983.

In terms of training, we used to have a saying when we went to neurology at Philadelphia General Hospital some years back that neurologic training there was see one, do one, teach one. With our MMART (Mobile Medical Augmentation Readiness Teams) deployments in diverse circumstances, many of our personnel are having real world experiences, i.e., covering the Marine contingent during the PLO evacuation of Beirut, clearing Haiphong Harbor, and deployed to support a Marine contingent afloat in the Indian Ocean. They are gaining experience in logistics, in seeing to it that personnel, equipment, and supplies are married at the proper place to carry out those professional responsibilities in hostile environments. I do not expect the tempo of MMART deployments to decrease; in fact, I would anticipate a modest increase.

I think I would be remiss if I did not take the opportunity to single out and say a heartfelt thank you and well done to our general surgeons, anesthesiologists, orthopedic surgeons, and those in other surgical specialties who have gone the extra mile in the very grueling schedules of deployments to cover operating forces while making adjustments to the schedule of peacetime operation in fixed facilities. I know that the relatively small, special, additional incentive pay is not all that

Photos by HM1 Dave Diamond

VADM Cox

much in terms of the needs for the family and the education of the offspring, but at least it is a token gesture of recognition for the special role that these individuals have played over the last several years in meeting our operational commitments.

With the leadership of RADM Steve Barchet and the outstanding corporate memory and effectiveness of Mr. Jim Radcliffe and their respective staffs, we came out of the deliberations of the program objective memorandum "free for all" in reasonably good shape for FY84 and the out years with very substantial growths in program personnel. We were delighted and surprised when the Secretary of the Navy himself reviewed our projected increases and said, "Not good enough," and added for FY84 and FY85 roughly 130 physicians, 200 nurses, 350 MSC officers, and 2,200 corpsmen. This is achievable, executable growth and will go a long way toward alleviating the chronic shortage of support personnel that we have suffered over these many years.

Now for the main reason for this conference—the careful selection of first-year graduate medical education trainees, residents, and fellows. I have good news. There are 450 applications for first-year GME positions and 770 applications for residency positions. You can pick the cream of the crop—those that have demonstrated their high probability of achieving dual professionalism both as naval officers and physicians. You will have in that a high percentage of individuals who were graduate medical education trainees directly serving with the operating forces or at facilities in immediate support of those forces. Eighty-six percent of last year's group moved in that direction. I personally think one of the healthiest decisions made some years back was to tell the sponsored students in our civilian medical schools who were applying for Navy sponsorship under the Health Profession Scholarship Act that we are a seagoing outfit. We have responsibilities in operational medical support distributed throughout the world ashore and afloat and you can expect and should look forward to learning and practicing in that environment. With the number of applicants you have and with the quality of those applicants you should not gamble. You should pick the ones with the greatest potential for successful performance.

The next topic is a little cold-blooded but nevertheless extremely important. No one found lacking should reach a senior-year resident status or third-year resident status. Your primary responsibility is to pick the ones with potential. Secondly, you must monitor and carefully assess performance from day one in your programs so those that were mistakenly selected can be dealt with early on. It is nearly impossible for me to explain to the Secretary of the Navy how in the fourth quarter of his last year an individual was suddenly found wanting and incapable of completing a residency training program.

Another topic that I will address in more detail at the closed session with the training chiefs is the quality assurance risk/management course. I will only say here that the guidelines and the requirements are there. It needs your attention and the attention and dedication of every member of your staff.

You have read my messages on substance abuse. You know I mean it. The use of illicit substances by any member of the medical profession in the Navy is antithetical. It will not be tolerated. And it must not be ignored. We are a population at high risk because of accessibility and the tensions of day-to-day activities in the medical profession.

The conservative estimate by the American Medical Association is 1 to 2 percent of the physician population are addicted. If that percentage holds and we have 35,000, give or take a few, it means we have a significant number and we are not finding them. We need to protect the integrity and the reputation of your service, your hospital, the Navy, and the profession at large. The word is very simple. If you are on the stuff, get off. If you can't without help, volunteer for help. We have rehabilitation programs. Failure to get off drugs or to seek help will mean the full disciplinary route.

One last topic I would like to cover has to do with this concept of dual professionalism. You do not have access in these deliberations to the Naval Military Personnel Command (NMPC) records of the individuals you are considering. But you can judge the letters of recommendation and other documents you are privy to and choose carefully. There will be an NMPC review and if the military professionalism does not stack up with your predictions, the candidates will be deselected at the NMPC level. So we are going to start off with people who have the academic potential and have demonstrated that they are, in fact, part of that unique component in society that can carry out these responsibilities effectively, consistently, and with pride and professionalism.

In closing, I want to emphasize strongly pride and professionalism. The tools are there to make them a

requirement and to see that they are exercised.

The quality assurance program is a cannot fail endeavor. I am accountable, your commanding officers are accountable, you are accountable. It requires a full-court press by all members of the medical staff. Continue to support the other facet of education and training so we can maintain our readiness posture and enjoy, as time goes on, the gradual growth and the turn around of our ability to match tasking with resources. Have a good meeting.

Medical Staff Credentials

LCDR John K. Henebery, JAGC, USN
Staff Judge Advocate, Naval Medical Command, National Capital Region, Bethesda

Within the military medical departments, recent developments have placed increasing emphasis on the medical staff credentialing process. This trend parallels recent experiences in the civilian health care industry. The challenge of the credentialing process is found in attempting to balance the conflicting responsibilities the hospital owes to its patients against those owed to its medical staff. On the one hand, patients are entitled to protection from substandard practitioners. It is the hospital's obligation to monitor the quality of care rendered and to act promptly to curtail the practice of the impaired provider. Yet, on the other hand, the practitioner's access to hospital facilities has long since been recognized as a constitutionally protected property interest. Accordingly, a practitioner may not be denied the right to practice medicine by a hospital unless first afforded certain basic due process rights.

To reconcile these competing interests, a twin burden has been placed on hospitals during the medical staff credentialing process. The hospital must provide practitioners both substantive and procedural due process protections. In lay terms, there is a burden of reasonableness and a burden of fairness.

Burden of Reasonableness

There is a two-pronged test for reasonableness in the credentialing process. First, are the governing medical staff by-laws inherently irrational or unreasonable? Discussion of this element begins with a consideration of what constitutes medical staff by-laws in military medical facilities. In many of our institutions there is no single set of guidelines which are identifiable as the by-laws. Instead, a rather ethereal amalgamation of instructions, recruiting regulations, and hospital policy statements, written and unwritten, prevail. This latter practice simply will not pass constitutional muster. It is imperative that those institutions which have not already done so consolidate the various rules and regulations into a single cohesive manual identified as the medical staff by-laws. This manual should then be made available to each practitioner and should be read cover to cover.

To be considered rational and reasonable, the rules set forth in the by-laws must pertain to the orderly management of the hospital or the improvement of the quality of patient care. Thus, it is appropriate to require practitioner participation in hospital committee activities, to require that the practitioner demonstrate his ability to work harmoniously with other members of the health care team, and to practice medicine ethically and consistent with the standards of care for his or her specialty or subspecialty. It may be very difficult in areas such as these to articulate more precise measures of fitness for medical staff privileges. There are numerous subjectives which resist codification. Fortunately, courts will permit and, in fact, often encourage, more general standards. As stated in one case: "Detailed descriptions of prohibited conduct is concededly impossible, perhaps even undesirable, in view of rapidly shifting standards of medical excellence . . ."*

The second prong for the test of reasonableness in the credentialing process addresses whether the by-laws have been applied in an arbitrary or capricious manner. As noted above, by-laws are, of necessity, often stated in vague and nebulous terms. This creates the potential for abuse of these provisions. As a protection against such abuse, careful scrutiny is given to credentials decisions. Are they arrived at fairly? Are they driven by a rationale compatible with hospital responsibility? Are they unencumbered by irrelevant considerations?

The key to meeting this second prong of reasonableness is careful, thorough documentation. It is critical that general allegations of substandard ability or performance be buttressed by at least some specific examples. Counseling sessions should also be recorded. The responsibility for documentation rests with every member of the medical staff, all department chairmen, and the Credentials Review Committee.

Burden of Fairness

Procedural due process in a constitutional sense is very simply fundamental fairness under all the facts and circumstances. It pertains to the credentialing process at three critical junctures—the initial clinical privileges application, the annual renewal of clinical privileges, and the denial, revocation, or limitation of clinical privileges.

At the time of arrival at the hospital and initial application for credentials, the burden of fairness requires at a minimum that the practitioner be advised of the mechanism of the credentialing process. Additionally, an up-to-date copy of the medical staff by-laws should be provided. It is not unreasonable to require a practitioner

*_North Broward Hosp. District_ vs. _Mizell_, 148 80.2d 1 at 5 (FL, 1962).

to read the by-laws and agree to abide by their terms as a condition of medical staff membership.

Chapter 14 of BUMED's Health Care Quality Assurance/Risk Management Manual spells out the initial application process. It is important that the practitioner be advised during the preparation of the application of institutional limitations on medical practice. As an obvious example, it would be inappropriate to request open-heart surgical privileges at a facility which does not have the support staff or equipment to perform such operations. Appropriate input at this point will avoid certain confusion over whether a denial of the requested privilege is to be considered adverse action.

After receiving an application, a verification of the contents should be undertaken. This involves confirmation of reported educational or training achievements and past work experience. It is also extremely important to verify the practitioner's references.

Upon completion of the verification process, the chairman of the practitioner's department should be solicited for his recommendation. The chairman may base his input on a review of the verified application packet and his or her own observations of the practitioner. The chairman's endorsement to the credentials committee should not only state a recommendation but also the reasons supporting the recommendation.

The annual renewal of clinical privileges follows a track nearly identical to that of the initial application. A significant difference occurs during verification of the renewal application. Rather than vertifying external information concerning the practitioner, it is now appropriate to focus on his or her performance within the hospital. This requires a close interface with the various quality assurance subcommittees. They should be contacted and any information they have concerning the practitioner should be obtained.

LCDR Henebery

Procedural due process protections have been most closely associated with adverse action on credentials applications. Adverse action may be either a denial of requested privileges (unless the denial is based upon the practitioner's misunderstanding of the application form or application process) or a limitation or revocation of previously granted privileges. In such cases, the minimum requirements of procedural due process have been articulated as entitling the practitioner to:

- Written notice of the reasons for denial, limitation, or revocation of privileges. This notice must be sufficiently specific to permit the practitioner to answer any allegations. Furthermore, the notice must be given far enough in advance to permit adequate time for preparation for any hearing.
- An opportunity for a timely hearing after such notice.
- A relatively impartial hearing body. The Credentials Review Committee need not be devoid of all prior knowledge of the case. The test is one of good faith objectivity.
- An opportunity to produce evidence and witnesses and to refute adverse evidence. Although such hearings are inherently adversarial to some degree, they should be conducted in a relatively informal fashion. Rules of evidence do not apply and any relevant information should be received and considered. Witnesses may but need not testify under oath. As a general rule, practitioners are not entitled by law to representation by an attorney at such hearings. As a matter of policy, however, if the practitioner requests the presence of counsel, it should be permitted.
- A finding by the hearing body based upon substantial, creditable, factual evidence. To assist in this responsibility, it is strongly recommended that at least a summarized transcript of all hearings be prepared. In some cases, verbatim transcripts may be more appropriate.
- A written notice of the hearing body's recommended decision together with the reasons for the decision.
- An opportunity to appeal the decision. The provisions of Chapter 14 of the *Quality Assurance Manual* provide for the Credentials Review Committee decision to be reviewed and approved by the hospital's commanding officer. The practitioner is entitled to meet with the commanding officer before that decision is made.

Conclusion

The credentials process in the military must be handled professionally, diligently, and with dispatch. Undue delay in processing an application may itself violate due process.

The importance being attached to credentialing is made manifest by two recent developments. First is the promulgation of the Carlucci memorandum dealing with the dissemination of adverse information on medical officers which requires the following action. In any case in which a medical officer's practice privileges are suspended, limited, or withdrawn, a command review will be conducted to determine if the officer should be removed from active duty. If the medical officer is not separated and

subsequently seeks training at a civilian organization, that organization should be notified of the adverse action that was taken. When the medical officer is ordered to practice or receive medical training in a military or civilian facility other than that at which his credentials file is maintained, the gaining facility will be fully informed of the officer's qualifications, including disclosure of adverse action. If the medical officer is separated from active duty as a direct consequence of the adverse action, the Federation of State Medical Boards of the United States, state licensure authorities, and other appropriate licensure authorities will be so notified. These initiatives are presently being reconciled with conflicting policy directives concerning the Privacy Act. They will shortly be implemented, and, therefore, underscore the significance of the credentialing function.

The second recent development concerns the promulgation of SEZNAN Instruction 7220.75A addressing special pays for Medical Corps officers. The Uniformed Services Health Professionals Special Pay Act of 1980 (Public Law No. 96-284) establishes four categories of special pay. Two of the categories, Additional Special Pay and Incentive Special Pay, are only due physicians who demonstrate adequate levels of professional performance. Those physicians who fall below the standards of practice may be denied these categories of pay and, in some cases, it may even be appropriate to seek to recoup monies already paid. Clearly, a denial, limitation, or revocation of privileges may evidence substandard performance and lead to termination and recoupment of large sums of money.

In view of the tremendous significance of credentialing and the increasing intricacies of the credentialing process, all medical facilities are urged to seek the advice of their local Navy attorneys. Every credentials committee should designate a JAGC officer as an *ad hoc* member to provide advice and guidance on the potential legal complications that can arise.

Quality Assurance

LT L.E. Post, MSC, USN
Quality Assurance Division
BUMED (MED 272)

It is 1 year since BUMEDINST 6320.62 came out. Initially, the *Health Care Quality Assurance/Risk Management (QA/RM) Manual* was regarded as intimidating, confusing, and a burden for the field activities. However, in the past 12 months a great deal has occurred which proves Quality Assurance (QA) is more than a "flash-in-the-pan" or simply a buzzword. The message is: Quality Assurance is here to stay. If you don't believe this, ask someone from a hospital where the command's failure to address QA adequately has run it afoul of the Joint Commission on Accreditation of Hospitals (JCAH). The consequences have been sobering. Although this is an unfortunate way to get the point across, it forcefully demonstrates that commands and the personnel within them have been informed. QA is a standard by which all accredited health care facilities will be measured. Failure to adhere to BUMED's *Health Care Quality Assurance/Risk Management Manual* and the JCAH's *Accreditation Manual for Hospitals* can cost a command its accredited status.

As Medical Department managers, you should all become familiar with material contained in the *Accreditation Manual* and the *QA/RM Manual,* particularly where they offer guidance involving your own specialty area. The manuals are essential tools since you will certainly become acquainted at some time with the patient care monitoring activities called for by the JCAH standards.

Self-evaluation is not new. Hospitals have traditionally conducted surgical case, drug utilization, medical records, and morbidity and mortality reviews to assure correct levels of performance within given functional areas. What is new is the conceptual improvement QA provides. The results of isolated reviews are systematically channeled to the QA/RM Committee for consideration, evaluation, and integration to construct a macro view of patient care and health care delivery within the command. This process supports sound management practice.

When the component parts report all is going well, no special action is required. Should deviations from the accepted norm be observed, attention can be drawn to the trouble spot. This borrows from a concept called management by exception. It works when the main players consciously examine the health services they provide and use their own criteria or standard of care to measure themselves and their performance. When problems are discovered, the same individuals are automatically involved in studying the issue at hand and in developing a workable solution or improvement to the delivery system.

During Calendar Year 81, the implementation year of the Joint

LT Post

Commission's QA Standard, 16 Navy hospitals were surveyed for accreditation. I want to acquaint you with the most frequent QA-related recommendations made at these facilities. The areas where we need to redouble our efforts are presented here in descending frequency order.

1. Use Written Criteria /Problem-Focused Approach to Resolve Problems, Evaluate Solutions:
- The medical and health care staff shall develop criteria for use in quality assessment activities.
- Approaches to Quality Assurance must focus on the resolution of known or suspected problems.
- Realistic priorities should be set for the assessment and resolution of important problems.
- Written criteria shall relate to essential or critical aspects of patient care to assess problems.
- Following the institution of corrective action, there must be a mechanism for assuring that problems have been eliminated or reduced.

2. Conduct Monthly Departmental Meetings to Review Patient Care and Treatment:
- The monthly review of the care and treatment of patients must include recommendations, conclusions, and action instituted from the review performed and this should be documented in the minutes of meetings.
- Representative care provided by all clinical departments/disciplines must be evaluated.

3. Conduct Surgical Case Review/ Tissue Committee Function:
- Surgical case review (tissue committee function) shall be performed on a monthly basis and include procedures where no specimen was removed.
- Minutes shall reflect results of the review and followup action.

4. Conduct Review of Quality and Appropriateness of Care for Special Care Units:
- Reviews and evaluations must occur on a regular basis and be documented.

5. Conduct Antibiotic Usage Review:
- Review must be documented, and written criteria should be used in the review.

6. Conduct Blood Utilization/ Transfusions Review: (Tied)
- The medical staff must review blood transfusions for proper utilization (e.g., whole vs. component blood use) at least quarterly and document their efforts.

6. Conduct Review of Quality and Appropriateness of Care for Ambulatory Care Services: (Tied)
- This should occur at least semiannually and include the medical record and pre-established criteria. Reviews, evaluations, and actions taken shall be documented.

7. Conduct Review of Quality and Appropriateness of Care for Rehabilitation Services: (Tied)
- This should occur at least quarterly using predetermined criteria. Both medical staff and rehabilitation personnel must participate.

7. Conduct Drug Utilization/ Pharmacy and Therapeutic Committee Review: (Tied)
- There should be a periodic review of drug utilization and effectiveness. The director of pharmaceutical services should participate in those aspects of the hospital's Quality Assurance program.

7. Conduct Medical Records Review: (Tied)
- Review of medical records, which should include participation of the medical staff, nursing service, and medical record department personnel, should be performed at least quarterly and the results documented.

7. Conduct Concurrent Review of Diagnoses, Problems, Procedures, and/or Practitioners With Utilization-Related Problems: (Tied)
- Review shall focus on diagnoses, problems, procedures, and/or practitioners with identified or suspected utilization-related problems.

8. Conduct Review of Quality and Appropriateness of Care Anesthesia Services: (Tied)
- This should occur at least quarterly, be documented, and include care rendered by all anesthesia personnel.

8. Conduct Review of Quality and Appropriateness of Care for Radiology Services: (Tied)
- Documentation must prove that a regular review of the radiologic services provided is performed.

8. Conduct Review of Quality and Appropriateness of Care for Respiratory Care Services: (Tied)
- Documentation must prove that respiratory care services are reviewed at least quarterly. Attention shall be given to the evaluation of the necessity for respiratory care services having the highest utilization rate.

8. Conduct Review of Quality and Appropriateness of Care for Social Work Services: (Tied)
- Documentation must prove review at least semiannually.

9. Conduct Review of Quality and Appropriateness of Care for Emergency Services:
- Review and evaluation shall be performed and documented at least monthly. Evaluation should involve the emergency medical record and pre-established criteria.

10. Conduct Review of Quality and Appropriateness of Care for Dietetic Services:
- A documented review and evaluation of dietetic services should be performed at least annually.

11. Conduct Review of Quality and Appropriateness of Care for Nuclear Medicine Services: (Tied)

• Review and evaluation of nuclear medicine services must be performed and documented.

11. Performance of Executive Committee of Medical Staff Functions: (Tied)
• It must be documented that the medical staff's executive committee acts upon the reports and recommendations of all other medical staff committees, clinical departments, services, and assigned activity groups.

11. Conduct Infection Control Program: (Tied)
• Hospitals shall have an effective infection control program that includes definitions of nosocomial infections, a system for reporting and reviewing infections among personnel, employee orientation, and in-service education on infection control matters.

12. Conduct Review of Quality and Appropriateness for Laboratory Services: (Tied)
• The director of pathology and medical laboratory services shall assure the department reviews services rendered.

12. Conduct Credentials Review and Annual Reappraisal: (Tied)
• Privileges must be delineated for each medical staff member.

You are all aware this is an era of greater accountability, renewed attention to the contingency mission, and increased awareness of health care issues by all beneficiary populations. It is unacceptable for Navy medical treatment facilities to be found substandard and labeled "not as good as, or unequal to" hospitals and clinics in the private sector. Higher authority certainly won't tolerate this, nor should we. With this in mind, the preceding list of recommendations speaks for itself.

In closing, I want to say we have all learned a lot about QA in the past year. When the *QA/RM Manual* was issued, it was a prototype. Even today, the Army and Air Force have nothing comparable to it. Joint Commission personnel have stated they find the *QA/RM Manual* impressive. To improve it, the BUMED QA Division recently began a systematic review of its contents in order to capitalize on lessons learned at our commands. Just as the Medical Department's association with the Joint Commission can be constructive and beneficial, the conscientious implementation of QA at Medical Department commands can strengthen our organization and improve the health care delivered.

Medical Corps Status Report

CAPT L. Carey Hodges, MC, USN
Director, Medical Corps
BUMED (MED 21)

I will discuss three topics:
• The number of medical officers now on active duty versus our authorized end strength as of 30 Sept 1982.
• The profile of the Medical Corps by specialty.
• The anticipated growth of the Medical Corps in the next 5 years.

We have good news on overall numbers for the Medical Corps. The authorized end strength on 30 Sept will be 3,693; we cannot exceed this number of active duty medical officers on that date. We fully expect to have at least 3,656 on active duty 30 Sept, only 37 short of our allowed strength. There are 14 medical officers in the recruiting pipeline. We hope to have them on active duty in 2 weeks. These additional 14 could put us within 23 of our authorized strength.

Now for the not so good news. Within these overall numbers, the specialty mix remains a problem. Figure 1 shows numbers by each specialty. *Authorized* is the number of valid billets for that specialty—the funded billets. *Required* is the number of specialists we calculate that is needed to get the job done, regardless of costs. *Inventory* is the number of medical officers in that specialty on active duty. Comparing the 1981 and 1982 inventory numbers will give an idea how each specialty has done over this past year.

So much for the past and present. What does the future look like? We anticipate the addition of 554 billets by October 1986 to an authorized end strength of 4,247. This is a significant increase in manpower. The future numbers look good for the Medical Corps (Figure 2). Our authorized billets will increase at a more rapid rate over the next 5 years. In summary:
• The Medical Corps will be very close to reaching authorized strength in 2 weeks, possibly as close as 23 medical officers.
• Specialty mix remains a problem as you have seen during this past year, but gains have been made in:
  Radiology—17
  OB/GYN—16
  Family Practice—9
  Anesthesiology—8
  ENT—5
  Nuclear Medicine—5
  Neurology—1
  Pediatrics—1

CAPT Hodges

FIGURE 1. Medical Corps Profile by Specialty
As of 30 Sept 1982

Specialty	Authorized Billets	Required	Sept 1982 Inventory	Sept 1981 Inventory
Dermatology	36	59	36	39
Family Practice	140	219	205	196
Internal Medicine	227	259	305	315
Neurology	27	32	27	26
Neurosurgery	12	28	14	18
Nuclear Medicine	6	6	13	8
Obstetrics/Gynecology	116	157	127	111
Ophthalmology	46	69	57	57
Otolaryngology	47	72	55	49
Pathology	71	75	91	98
Pediatrics	169	171	216	215
Plastic Surgery	7	15	8	8
Psychiatry	100	103	106	111
Preventive Medicine (Gen/Occup)	37	44	27	31
Preventive Medicine (Aerospace)	40	38	34	37
Radiology	94	121	111	94
Thoracic-Cardiovascular Surgery	14	33	13	18
Urology	35	65	36	33
Orthopedic Surgery	81	154	75	75
General Surgery	128	287	111	111
Anesthesiology	92	163	109	101

Losses occurred in:
- Internal Medicine—10
- Pathology—7
- Thoracic-Cardiovascular Surgery—5
- Psychiatry—5
- Preventive Medicine/Occupational Health—4
- Neurosurgery—4
- Dermatology—3
- Preventive Medicine/Aerospace Medicine—3

• The numbers of ophthalmologists and orthopedic and general surgeons have remained the same this past year; we have held our ground in these specialties.

Finally, the anticipated growth of the Medical Corps will be at a more rapid rate in the next 5 years. You, as program directors, will play an important part in this accelerated growth of the Medical Corps.

Don't wait for us to call you—call us first (Figure 3, page 10). Let us know your concerns, problems, and suggested solutions. We need your input.

FIGURE 2. Medical Corps End Strength

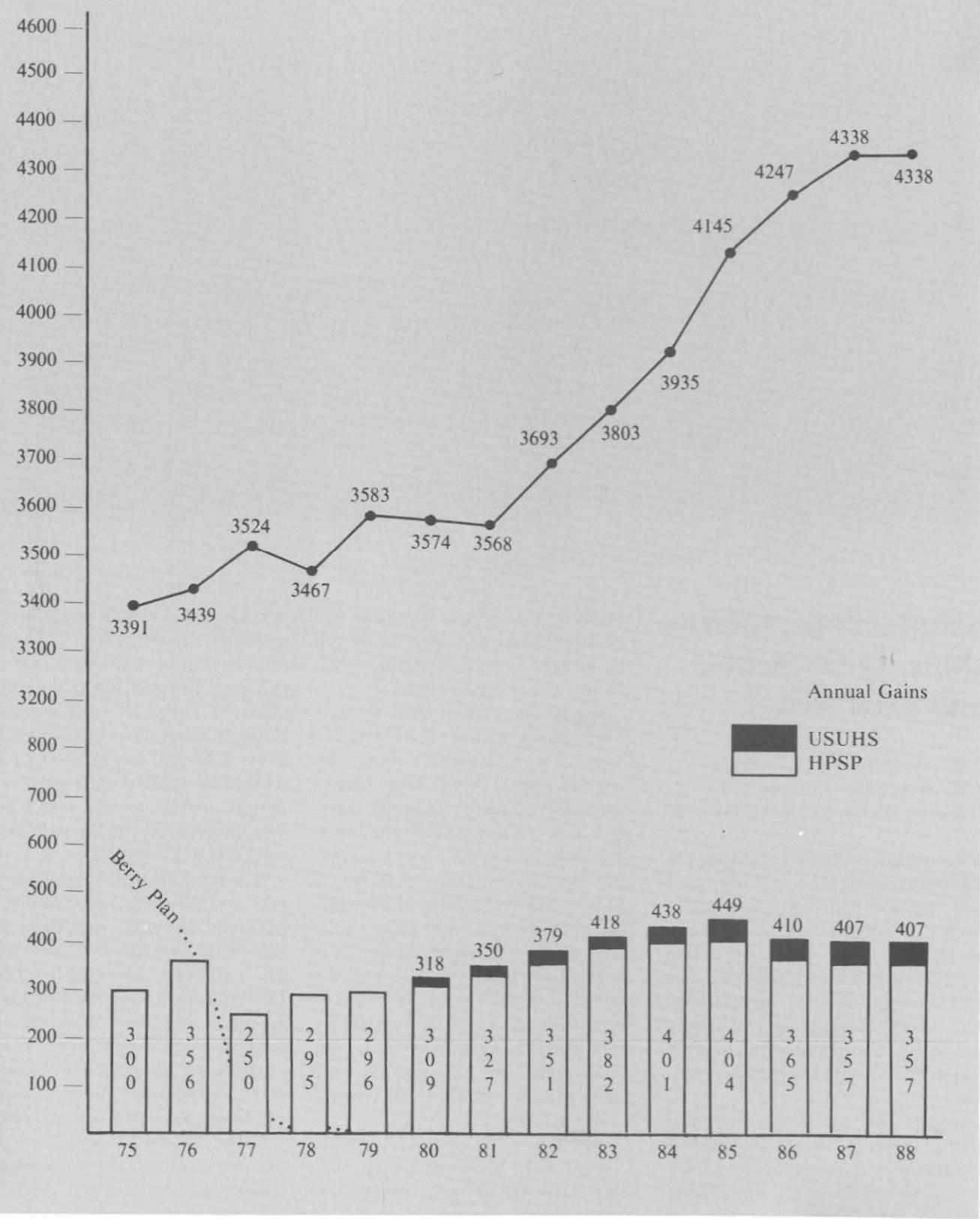


FIGURE 3

BUMED Code		
MED-21	Director, Medical Corps Division CAPT L. Carey Hodges, MC, USN	(202) 254-4109 (A) 294-4109
MED-21A	Administrative Assistant CDR John A. Boyle, MSC, USN	(202) 254-4133
	Staff Assistant Mrs. Marge Gibbs	(A) 294-4133
MED-21B	Deputy Director, Medical Corps Division CAPT Robert W. Browning, MC, USN	(202) 254-4133 (A) 294-4133
MED-212	Human Resource Inventory & Accounting Branch LT B. Thomas Miller, MSC, USN HMCS Warren E. Bohlman, USN	 (202) 254-4390 (A) 294-4390
MED-214	Medical Corps Accessions Branch CDR C.B. Mohler, MSC, USN (Retired) Mrs. Pat Bryfonski	(202) 254-4339 (A) 294-4339

Scholarships, Internships, Deferments, and DOPMA

CDR C.B. Mohler, MSC, USN (Ret.)
Head, Procurement Programs and
Accessions Branch, BUMED (MED 214)

Scholarships. Suffice it to say that the scholarship program is still alive and well. We are experiencing no difficulties in filling all billets with top quality candidates. In support of our selection procedures it can be said that 99.9 percent of all scholarship students who graduate serve willingly and honorably. However, that other one-tenth of 1 percent presents challenges.

Interns. As you know from last year's report, the intern program is filled. Your new trainees are on station and, in the absence of any report to the contrary, are performing well as we had expected. When they join the operational forces in 1983, the health and welfare of the fleet and the FMF will be in very capable hands.

Deferments. At this time we have 281 obligated medical officers who are serving in deferments under the NADDS (Naval Active Duty Delays System) program for specialty training in the civilian sector. At the end of their deferments, they will be available for active duty to help fill specialty needs. Because of promises that were made to this group in the past concerning assignments by Navy program directors, detailers have not wanted program directors to know the identity or the place of training for these doctors. This is no longer so. BUMED will tell you who they are and where they are any time you have a need to know.

DOPMA. The Defense Officer Personnel Management Act (DOPMA) is an attempt by our leaders to provide us with a unified management tool that will be fair and equitable for all officers in the military services. For the most part, it is just that. However, like any rule that is made to cover all situations at all times, there are differences of opinion. It's like those of us who produce what we think is a perfect child for our community and fail to take into account that the guy down the street thinks the little rascal is a monster.

One thing DOPMA has done is to take away the longevity credit for pay purposes that newly appointed medical officers received for medical school and civilian internship before DOPMA. To be sure, there is a saving provision, and those of you who were medical officers on 14 Sept 1981 and continue in that status will retain your credit. Students who were in medical officer producing programs such as USUHS and HPSP on 14 Sept 1981 will likewise continue to receive the credit upon graduation. However, over the next 3 years we shall be

calling to duty officers who could have been classmates. One will be receiving over $500 more pay per month than the other. I am sure the wife of the guy on the short end of the stick is certainly going to think DOPMA is a monster.

Another example of inequity is rank for new appointees. Without going into great detail, it is conceivable, under DOPMA, that a physician with sufficient seniority could apply for a commission and be tendered an appointment in the grade of lieutenant, lieutenant commander, commander, or even captain. The determination in this regard is made by a screening board that takes into account the candidate's specialty as compared to the needs of the Navy at that time. To those who are offered lieutenant DOPMA is meaningless. Those offered captain compare it to the second coming of Santa Claus.

Another inequity that will be with us for the next 3 years concerns those who were USUHS and HPSP students on 14 Sept 1981 and who had prior active officer service. From this group we presently have on active duty a 1982 medical school graduate who is serving as an intern in the rank of a full commander. To make this unprecedented variance even more apparent, one of the residents in his program is an outstanding officer who is serving as a lieutenant commander even though he has a longer professional and military background than our intern. I am sure that our resident is not overly impressed with those DOPMA provisions that fail to provide equal recognition for his long years of faithful service.

The DOD directive that implements DOPMA has also provided us with a change in promotion flow points. By 1984 the flow points for all promotions up to and including 06, will be 6 years in the next lower grade. However, unlike previous computations, this will not be 6 years of active duty in the next lower grade. It will be 6 years from your date of rank which seems always more favorable than your active duty in grade date.

CDR Mohler (Ret.)

Trends in Medical Education

CAPT E. Lee Taylor, MC, USN
Director, Medical Department
Education and Training (MED 28)

There are three topics I would like to address:

- The mission and functions of the Bureau of Medicine and Surgery (MED 28), the Division of Medical Department Education and Training.
- The operational readiness training programs.
- Trends in the medical educational system today.

MED 28, the Division of Medical Department Education and Training, is under the direction of MED 02, the Assistant Chief for Professional Development, COMMO J.S. Cassells. Our mission is to develop and administer the education and training of the Medical Department. Our functions are to establish policy, priorities, develop resource support, advise, assist, and monitor the effectiveness of education and training programs for all corps by coordinating the programs with the Naval Health Sciences Education and Training Command (HSETC). In addition, it is the responsibility of this division to maintain liaison with the Office of the Secretary of Defense, OPNAV, and all military and necessary civilian professional organizations. Believe me, we try. With the coordinating efforts between our office and HSETC we are able to manage these functions to some degree of effectiveness.

As you are well aware, the priority mission of training for combat readiness remains in the forefront. The present courses for Combat Casualty Care (C-4), Cold Weather Medicine, and Medical Mobilization Augmentation Readiness Team training and deployment continue. The C-4 course will be increased from 10 to 20 courses in FY83 and 800 Medical Department personnel will be trained, an increase of 400 over 1982. For the first time, all corps in the Medical Department will enter the training as well as some reservists. All GME-1 trainees (interns) will receive the training before graduation. Cold weather medicine training will also be continued as a priority. In addition, chemical casualty treatment will be available to us from the Army at Aberdeen, MD. The Navy quotas will be limited to 18 Medical Department personnel. The Tropical Theater Disease Course in Panama, in cooperation with the Gorgas Memorial Institute, is thriving and will train 20 Medical Corps officers per year. Nurse Corps operational readiness training and the Dental Corps Combat Casualty Care Course have provided readiness training for those corps.

A Navy cadre of key personnel has just completed 5 weeks of field training at Fort Lewis, WA, and Fort Sill, OK. This training was accomplished under the auspices of the Army to prepare the Navy for taking over the Rapidly Deployable Medical Facility (RDMF). A continued train-

TABLE 1. Ratio Percent of Projected Supply to Requirements - 1990

		Ratio Percent
Shortages	Child Psychiatry	45
	Emergency Medicine	70
	Preventive Medicine	75
	General Psychiatry	80
Near Balance	Hematology/Oncology-Internal Medicine	90
	Dermatology	105
	Gastroenterology-Internal Medicine	105
	Osteopathic General Practice	105
	Family Practice	105
	General Internal Medicine	105
	Otolaryngology	105
	General Pediatrics and Subspecialties	115
Surpluses	Urology	120
	Orthopedic Surgery	135
	Ophthalmology	140
	Thoracic Surgery	140
	Infectious Diseases-Internal Medicine	145
	Obstetric/Gynecology	145
	Plastic Surgery	145
	Allergy/Immunology-Internal Medicine	150
	General Surgery	150
	Nephrology-Internal Medicine	175
	Rheumatology-Internal Medicine	175
	Cardiology-Internal Medicine	190
	Endocrinology-Internal Medicine	190
	Neurosurgery	190
	Pulmonary-Internal Medicine	195
	*Physical Medicine and Rehabilitation	75
	*Anesthesiology	95
	*Nuclear Medicine	N/A
	*Pathology	125
	*Radiology	155
	*Neurology	160

*The requirements in these six specialties were estimated crudely after a review of the literature. They should be considered as very rough approximations and tentative. The full GMENAC modeling methodology was applied to them in 1980-1981.

Supply numbers for Nuclear Medicine are not available.

ing plan is being devised, probably to be conducted at the Field Medical Service Schools, which will prepare us to take over the Navy RDMF system which should be on board by June 1983.

Future operational readiness training is planned in the POM-84 for CBR and Desert Jungle/Hot Environment Training.

The long standing excellent programs in flight surgery and undersea medicine continue to flourish and provide invaluable professional training for those critically needed flight and undersea medical officers.

The third topic is almost a complete turn-around from the first two subjects, but I believe that it is valuable information which will help us understand what the atmosphere is on the outside with regard to medical education and may be of assistance to us in determining future goals and objectives in training.

In September 1980 the Graduate Medical Education National Advisory Committee (GMENAC) filed their report with the Secretary of the Department of Health and Human Services. The report stated that there would be 70,000 excess physicians by 1990. There would be surpluses in 15 specialties, near balance in 8, and shortages in 4 (Table 1).

There were 40 recommendations relating to all phases of medical education, foreign medical graduates (FMG), financing, and monitoring of the GMENAC report. Needless to say, responses to these reports were numerous and opinionated from medical schools and professional organizations.(*1*)

To see what might have stimulated such GMENAC findings, let us look at the present undergraduate medical profile and track some statistical information from undergraduate through graduate medical education entrance.

Table 2 demonstrates the activity for medical school applicants from 1961 to 1980.

Table 3 shows the number of graduates from medical schools over the

past 25 years. These numbers do not include graduates from schools of osteopathy. As we can see from the numbers presented, there is some stimulus for concern about physician overproduction. In addition to the U.S. medical school graduates, there has been growing concern about the number of U.S. citizen foreign medical graduates who will be returning to this country. Depending on the source, estimates of U.S. citizens attending foreign medical schools range from 5,000 to 10,000. The National Residency Matching Program (NRMP) provides some information for determining foreign medical graduate entrance in the GME programs.

There were 4,852 FMG applicants to the NRMP for 1982 training programs. This was an increase of 2,336 over the previous year; 1,348 of these were U.S. FMG applicants and this was a 72 percent increase in application rate. Alien FMG applicants doubled in 1981. Fifty-seven percent of the U.S. FMG's were matched, but only 31 percent of alien FMG's were matched.(*2*)

We now have reviewed the undergraduate activity, the M.D. graduate numbers, and the FMG numbers, both U.S. and alien seeking U.S. training programs.

Let us back up somewhat and review the type of students entering medical school and the evaluation procedures that medical schools are using to grade performance.

The new Medical College Admission Test (MCAT) is only 3 years old. Table 4 compares the MCAT scores of the 1979-1980 and the 1980-1981 class. What are the grade point averages (GPA) of the entering students? They are high. In 1973, 33.9 percent of the entering class had a GPA of 3.6 to 4.0 on a 4.0 system. In 1977 the percentage was 50.4. In 1980, 47.5 percent had achieved a GPA of an A average.

The attrition rate for the academic failure was 0.55 percent in 1971 and 0.37 percent in 1981. In 1981, 3.3 percent of the first-year class repeated the academic year.

TABLE 2. Medical School Application Activity

	Class 1961 - 62	Class 1980 - 81
Applicants	14,381	36,100
Accepted	8,682	17,146
Application/Person	3.7	9.2
Acceptance Ratio	1.7	2.1
Number of Schools	87	126

TABLE 3. U.S. Medical School Graduates

	1956	1981
Number of Schools	82	126
Graduates	6,845	15,667

16,907 graduates are projected for 1986, based on entering class of 1982

TABLE 4. MCAT Scores

	1979 - 80	1980 - 81
Biology	9.4	9.3
Chemistry	9.5	9.6
Physics	9.5	9.3
Science Problems	9.6	9.5
Skills Analysis—Reading	9.2	9.0
Skills Analysis—Quant.	9.3	9.1

CAPT Taylor

In 1981, 106 of the 126 medical schools used no numerical grades and 29 ranked students by year. Ninety-three required students to take Part I of the National Boards and 56 schools required a pass to progress to the advanced year. Eighty-eight of the schools require Part II of the National Boards and 46 schools require a pass for graduation.

How are the students faring financially? It appears that financial burdens will increase. With the loss of capitation budgeting and reduced biomedical research funds from Federal sources, medical schools have increased or will be forced to increase tuition rates. Also, the amount of guaranteed student loan funds has decreased remarkably. In 1971, 72 percent of the graduates owed an average of $5,500. In 1981, 76 percent of the graduates reported an average debt of $19,700. In 1983 the projection is $25,000.(*3*) The total need of all students not funded in 1981 is $10.7 million.(*4*)

Graduate medical education salaries are reported to have increased somewhat, but they are certainly not comparable to Navy graduate trainee salaries, which are significantly higher. The Association of American Medical Colleges reports the national average house staff stipends as shown in Table 5.

In summary, there has been a significant increase in medical school graduates, a significant increase in FMG activity with an evolution of the new U.S. FMG, and a decrease in Federal medical education financial support.

As a result, we will probably have excess physicians in 1990, graduates will have excessive educational debts, and civilian stipends will continue to be lower than military GME pay.

What can we expect? There may be increased competition for the Armed Forces Health Professions Scholarship Program (AFHPSP) which is already very competitive. We may assume an increase in civilian GME applicants since many schools may have to decrease GME positions because of lack of funding, and those fully trained physicians who experience decreasing salaries may seek the military as a professional way of life.

We may also begin to see those students in private schools, who are not AFHPSP funded, return or transfer to cheaper tuition state schools. This may therefore decrease enrollment in these high cost private schools, some of which already charge $17,000 to $20,000 per year tuition.

There are many other problems which might arise, extending the ethical issues to state licensure by specialty, but time does not allow further philosophical projections.

I hope you find this information to be useful when communicating with your clerks, students, interns, and residents and I wish you a good SAC XIV.

TABLE 5. Resident Stipends, National Average

Year Level of Training	1979 - 80	1982 - 83
GME-1	14,811	18,930
GME-2	15,832	20,238
GME-3	16,749	21,412
GME-4	17,626	22,537
GME-5	18,495	23,654
GME-6	19,494	24,832

References

1. Annual report on medical education in the U.S. 1980-81. *JAMA* p 2912, Dec 25, 1981.
2. *JME 57(5):420, May 1982.*
3. *JME 57(5):418, May 1982.*
4. *Annual report on medical education in the U.S. 1980-81. JAMA* p 2921, Dec 25, 1981.

Recruiting

CDR R.E. Newman, MSC, USN
Head, Medical Programs Branch
Navy Recruiting Command

There is a significant amount of expectation involved in the recruiting process. The individual recruiter expects professional and prompt attention for his applicants when delivered to our medical activities for the professional interviews and physical. You as the interviewer expect the recruiter to deliver a quality applicant. Our problems lie somewhere in between. I am addressing you on this occasion after my first full year as the Head of Medical Programs for Navy Recruiting. It was an excellent year, but it could have been outstanding. One of the reasons it was not outstanding presents an interesting and distressing paradox. We have lost quality health care professionals as a direct result of attitudes and behavior at our treatment centers, the very places we are struggling to support.

Many of our candidates are either enthusiastic or inquisitive enough to visit a naval regional medical center (NRMC) before they decide to make formal application. These people show up unannounced, in civilian clothes and, all too often, are ignored or treated as a burden to the command.

It costs over $6,000 and requires more than 40 hours of a field recruiter's time to recruit, process, and appoint one physician. The recruiter spends hours on the highway in a Navy vehicle, countless nights at Holiday Inns, and interminable periods in outer offices just waiting to see a prospect. They negotiate duty stations, overcome the fears of spouses, and convince applicants that Great Lakes is a tropical garden spot, well disguised. Can you imagine the sheer frustration and unmitigated anger when their candidate tells them of shabby and/or indifferent treatment at an NRMC? Come now, let's act like sailors. These NRMC's do not belong to us; we are mere stewards. Most public facilities lose their respectability by having the wrong people meeting the public.

I acknowledge the imposition I am making on you and your very busy staffs, but it is vital to our common goals that you establish a procedure to insure that prospective Navy physicians get VIP treatment when they arrive on your doorstep. This means that they be escorted by a competent, trustworthy, command-oriented individual, that they be made to feel we are proud of our command and mission, and that their interest in joining the Navy medical team is appreciated.

It is counterproductive to be less than candid with these individuals but it is the height of folly to introduce them to your malcontents and misfits. The candidate should be encouraged to explore freely the pros and cons of Navy medicine but be judicious as to with whom these are discussed. In short, use common sense. You, your service, or your command might very well be the final factor in the candidate's decision. Believe me, I would like to provide you with nothing but 100 percent "gung-ho," all-Navy, mission-oriented physicians. In actual practice, I can only give you real human beings who agonize over the difficult decision as to whether or not to join the Navy team. You can only be helping yourselves when you do your part in facilitating that decision, regardless of what it actually turns out to be.

At this point a caveat is in order. I do not wish to convey the impression that this problem is rampant throughout. Typically, it presents itself on a limited basis popping up unexpectedly and unpredictably. Closer attention to the business of helping us attract quality applicants for the Navy team is certainly in order.

CDR Newman

This coming year is going to be a banner year. We have been able to justify the Medical Exhibits Program at a reduced schedule. We are hopeful monies will be restored to support the Physician Recruiting Navy Program. This is a tremendously important tool for the individual recruiter. Looking beyond next year, Medical Department accessions will increase twofold. We are confident that with appropriate support and a smidgen of creative recruiting added along the way, that these long overdue requirements will be met.

The military services are no longer considered a refuge of the second rate. We are again an honorable profession. With your support and understanding the Navy Recruiting Command will meet our common objective of providing the finest health care professionals available in the marketplace today. □

CAPT Harris Responds to *Navy Times*

I recently read an article and an editorial in the *Navy Times* which seem to be mutually exclusive.

The article, entitled "Rumors, Criticisms Surrounding Navy BUMED, Bethesda Hospital," appeared in the 13 Sept 1982 issue. The editorial, entitled "The Bad News Bearers," was in the 20 Sept 1982 issue.

I have no quarrel with your list of "partial reasons for the bad news glut . . ." listed in the editorial. I can find no fault in your "trying to report as accurately, honestly, fairly, interestingly, and completely as we know how on matters that we believe our readers will consider news both good and bad." However, I do take exception to the tinge of Hearstian yellow in the 13 Sept article. The use of intensive words and phrases such as "rumors," "major shakeup," "devastating" (used twice), "especially displeased," "criticized," and "stripped of direct control" smack of yellow journalism which is far from accurate, honest, fair, interesting, or complete.

Yes, there is a considerable amount of restructuring underway in the Navy Medical Department and much of it probably is long overdue. By public law, the Surgeon General of the Navy and the Chief, Bureau of Medicine and Surgery are one and the same (10 USC 5131). Policy formulation and policy execution were being done by the same person. Although not always true, one person in two jobs most assuredly means that neither gets the full attention of the incumbent. Full attention to one task can be done only at the expense of the other. Dividing the offices of the Surgeon General and the Chief, Bureau of Medicine and Surgery and realigning and reinforcing the staffs of each office will not only separate policy formulation from policy execution, it will permit the incumbents to give their full attention to the tasks at hand.

Discussing the performance of the Surgeon General and the Navy Medical Department and the problems of the hospital ship in almost the same breath seems to be an attempt to link these problems to the Surgeon General. This is far from factual. The present Surgeon General and his predecessors have been in the forefront of the battle for hospital ships. If the Navy Medical Department had had its way, we would have had modern hospital ships at least 10 years ago. After a long fought battle and a Secretary of Defense mandate, it seems likely that we will have some hospital ships in 1986.

In the interest of factual and complete reporting, it might be of value to your readers to know that the Surgeon General is far from being the master of his own fate. The Surgeon General and the Navy Medical Department are tasked to provide medical and dental care and services as authorized by law or regulation in medical and dental activities under the command of the Bureau of Medicine and Surgery for Navy and Marine Corps personnel, other uniformed service personnel, their dependents, eligible survivors of deceased members, Federal civilian employees, and other categories of persons authorized by law or regulation. It might just be reasonable to expect that the Surgeon General would be permitted to plan for the assets necessary to provide care for this multifaceted beneficiary population. *Not so!* Public law dictates that staff and facility planning can only be based on the *active duty* population. A very small 5 to 10 percent addition for all other beneficiaries may be added under certain circumstances.

Over the past 35 years there have been ups and downs in the growth of the Navy and the Marine Corps with the end result being one of a 27.68 percent increase in end strength of the Navy and Marine Corps. When compared to 1947 strengths, all corps of the Navy Medical Department (officer and enlisted) have experienced positive growth *except* the Medical Corps. It has experienced a negative growth rate of 2 percent. While this number appears insignificant, it is not. In 1947 there were 3,762 physicians in the Navy. Had the Medical Corps been permitted to grow at the same pace as the end strength, the 1982 planning figure for physicians could well have been 4,803 instead of the 3,686 that was used. This was not the case. It should be kept in mind that the number would be even greater if planners could consider a larger active duty dependent population and the ever-growing, longer lived retired population and their dependents.

Medicine, like other fields, has experienced a technology explosion. The numbers and sophistication of the diagnostic tools and tests available, and which the ethical practice of medicine demands the use of, have grown by quantum leaps. Exploitation

of this technology through the use of enlisted technicians could possibly ameliorate the physician shortfall. Again, this has not been the case. Weapons; propulsion; and command, control, and communications systems also have had exponential increases in technology. When the "personnel pie" is carved up, these more "glamorous" systems gobble up major allocations of billets—many of which go unfilled. Unfortunately, the medical system has not been considered to be very glamorous.

But all is not gloom and doom. Some of your readers just might find the following facts about Navy medicine's accomplishments interesting. Based on a 24-hour day, 7-day week, in 1981:

- 548 patients were admitted each day.
- 32,877 outpatient visits were conducted, or 1,370 visits per hour.
- 28,000 babies (just over 3 per hour) were delivered.
- 9,589 immunizations were given each day.
- 4,438 prescriptions (185 per hour) were filled each day.
- 17,260 X-rays (719 per hour) were taken each day.
- 1,164 daily eye refractions resulted in 1,496 pairs of spectacles being made every day.
- 60,274 dental work units were performed on 10,137 patients daily.
- 1,074 physical examinations were done each day.

All of this and more from a Navy Medical Department that is experiencing a "major shakeup" as the result of a "devastating" Navy IG report.

George Harris
CAPT MSC USN
Executive Assistant
to the Medical Officer
U.S. Marine Corps

BUMED Becomes NAVMEDCOM

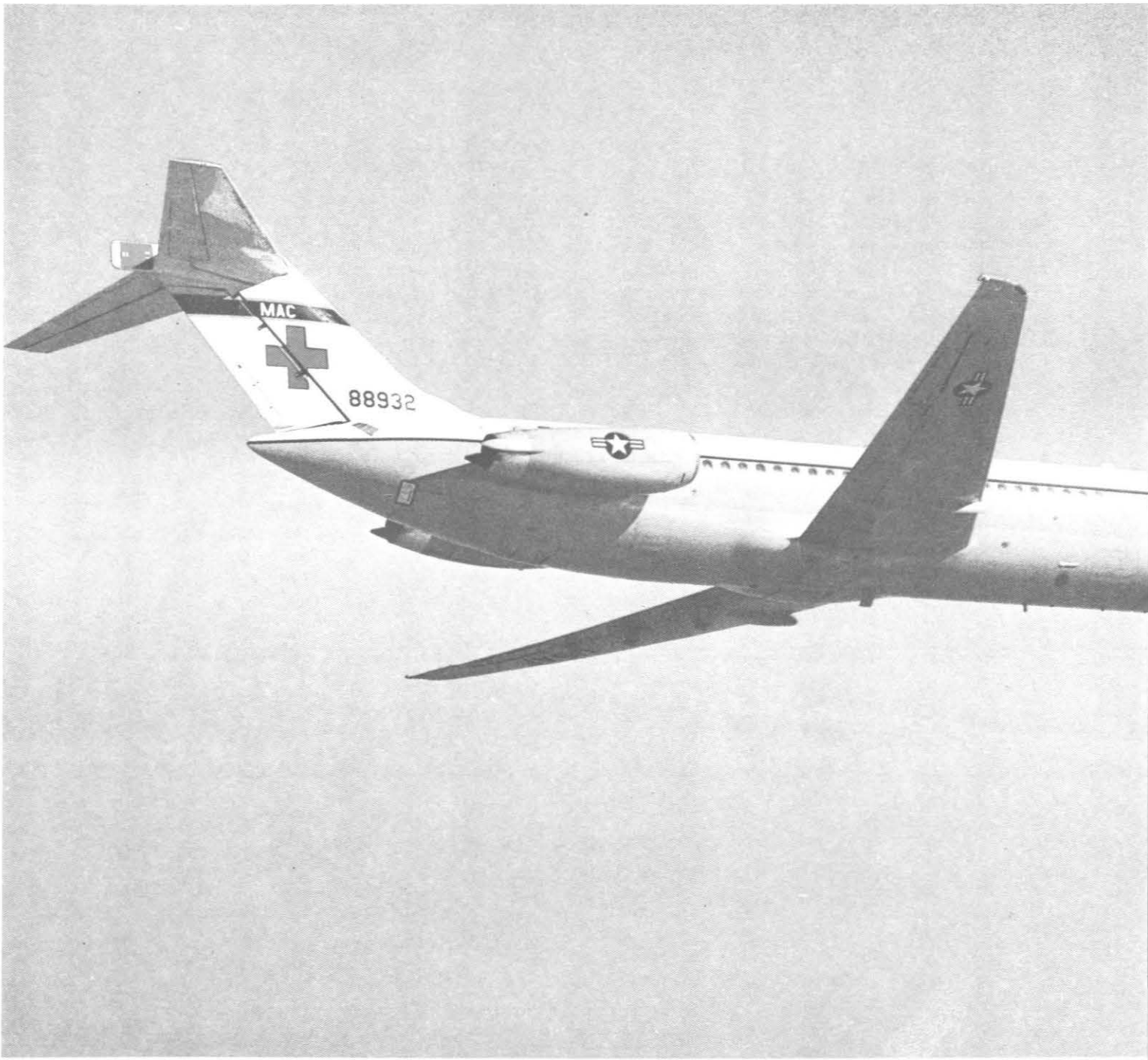
After 140 years the Bureau of Medicine and Surgery, last of the original Navy Bureaus, has been restructured as the Naval Medical Command. The realignment, long supported by the Medical Department, was formally enacted on 1 Oct 1982.

Of major benefit is the separation of policy planning within the Medical Department from the execution of policy. Policy planning for the Medical Department will be vested in the Office of the Director of Naval Medicine. Policy implementation will be the responsibility of the Commander, Naval Medical Command. Under the former organization, single offices were responsible for both the development and implementation of policy and plans.

VADM J. William Cox, MC, in addition to his role as Surgeon General of the Navy, will assume duties as the Director of Naval Medicine (OP-093). RADM Stephen Barchet, MC, has been named Deputy Director.

RADM Lewis H. Seaton, MC, has assumed duties as Commander, Naval Medical Command (COMNAVMEDCOM). He will be assisted by the Executive Assistant, CAPT E.N. Buckley, MSC.

The realignment is a dynamic, ongoing process which will take some time to complete. NAVMEDCOM activities should continue to direct phone calls, correspondence, and messages to current MED codes. A revised, detailed, organizational chart will be mailed to the field in the near future.



U.S. Air Force

A PDR to CONUS Aeromedical Evacuation

1LT Carl J. McCann, MSC, USAF
CAPT Catherine D. Young, NC, USAF

Aeromedical evacuation of seriously ill patients is not a common occurrence but when it is necessary, the Navy as well as the other military services utilize aircraft operated by the Military Airlift Command (MAC) of the U.S. Air Force. What you should know about aeromedical evacuation is the subject of the following article reprinted from the USAF Medical Service Digest, *March-April 1982.*

A lot of effort has been put forth to try to explain aeromedical evacuation, yet these explanations often fell short of their goal by failing to provide a step-by-step explanation that can also serve as a reference. This article is just that: a step-by-step explanation of aeromedical evacuation to be used as a reference, covering patient reporting, mission planning, and mission operation.

Patient Reporting

Reporting a patient for aeromedical evacuation (air-evac) is not a complicated process if the information needed to complete AF Form 230 (Figure 1) is at hand. This information provides a complete medical picture of the patient, and of particular importance are the precedence of movement and description of the illness. As a rule of thumb, those people who are eligible for care at a Department of Defense medical facility are eligible for air-evac.(*3*)

Movement Precedence

The three movement precedence categories are routine, priority, and urgent. A routine patient should be picked up within 72 hours and a priority patient in 24 hours. An urgent patient should be picked up immediately to save life, limb, sight, or to prevent serious complication of an illness.(*2,3,6*)

When this article was written, LT McCann was an Aeromedical Evacuation Operations Officer and CAPT Young was a Flight Clinical Coordinator at the 57th Aeromedical Evacuation Squadron, Scott AFB, IL. LT McCann is now stationed at USAF Hospital Hellenikon, Athens, Greece, and CAPT Young at USAF Hospital Torrejon, Spain.

The first step in reporting a routine patient destined for a military medical facility is to contact the Armed Services Medical Regulating Office (ASMRO) at Autovon 225-9118. Located within the Pentagon, ASMRO's function is to make a "reservation" of sorts—determine specialty availability and bed space—at the nearest military medical facility capable of treating the patient. ASMRO will provide a site number that must be provided when the patient is reported for air-evac. Routine patients may be reported between 0730-1400 central time at Autovon 638-6241 (57 AES/Patient Reporting, Scott AFB, IL)(*2*) ASMRO relocated to Scott effective 1 Oct 1982. This will permit the sharing of information between ASMRO and the Patient Airlift Center, eliminating the need for two phone calls when reporting a patient.

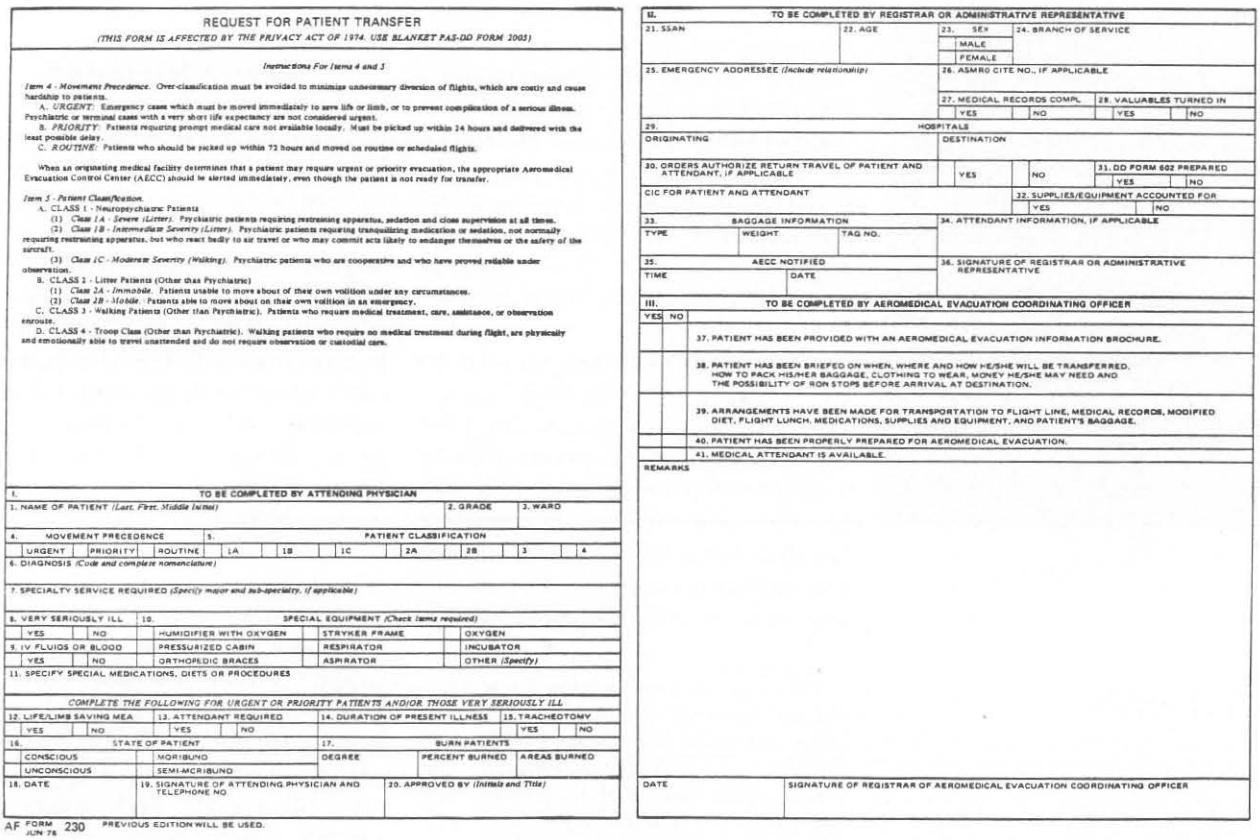
For priority or urgent patients, ASMRO need not be consulted until after the movement has taken place; however, a receiving physician must be located at the facility to which you wish to send the patient. Obtaining a receiving physician is critical as this patient will, in all probability, require specialized care at the destination. Reports for movement of priority and urgent patients can be made at any time by calling the 57 AES/Patient Airlift Center at Autovon 638-4936, FTS prefix 255, or Commercial (618) 746-2111/2113.

Description of the Illness

As the patient will be in the care of the flight nurse until arrival at the destination facility, it is imperative that a description of the patient's condition, course, and treatment be provided. The information is also important due to the inherent dissimilarities between an aircraft at altitude and a hospital ward. The dissimilarities stem from the stresses of flight and the necessity to anticipate a requirement for special equipment such as cardiac monitors and respirators. Consequently, a discussion of these subjects and their importance is in order.

Stresses of Flight

Air travel causes peculiar medical problems because of atmospheric pressure differentials, auditory fatigue, and a lack of humidity. Changes in altitude cause expansion and contraction in the volume of free body gases.(*2,6*) A decrease in atmospheric pressure allows gas expansion that may become trapped. This compounds existing problems of the gastrointestinal tract, middle ear, and sinuses. Patients with upper respiratory infections, head colds, and



REQUEST FOR PATIENT TRANSFER

(THIS FORM IS AFFECTED BY THE PRIVACY ACT OF 1974. USE BLANKET PAS-DD FORM 2005)

Instructions For Items 4 and 5

Item 4 - Movement Precedence. Over-classification must be avoided to minimize unnecessary diversion of flights, which are costly and cause hardship to patients.

A. *URGENT:* Emergency cases which must be moved immediately to save life or limb, or to prevent complication of a serious illness. Psychiatric or terminal cases with a very short life expectancy are not considered urgent.

B. *PRIORITY:* Patients requiring prompt medical care not available locally. Must be picked up within 24 hours and delivered with the least possible delay.

C. *ROUTINE:* Patients who should be picked up within 72 hours and moved on routine or scheduled flights.

When an originating medical facility determines that a patient may require urgent or priority evacuation, the appropriate Aeromedical Evacuation Control Center (AECC) should be alerted immediately, even though the patient is not ready for transfer.

Item 5 - Patient Classification.

A. CLASS 1 - Neuropsychiatric Patients

(1) *Class 1A - Severe (Litter).* Psychiatric patients requiring restraining apparatus, sedation and close supervision at all times.

(2) *Class 1B - Intermediate Severity (Litter).* Psychiatric patients requiring tranquilizing medication or sedation, not normally requiring restraining apparatus, but who react badly to air travel or who may commit acts likely to endanger themselves or the safety of the aircraft.

(3) *Class 1C - Moderate Severity (Walking).* Psychiatric patients who are cooperative and who have proved reliable under observation.

B. CLASS 2 - Litter Patients (Other than Psychiatric)

(1) *Class 2A - Immobile.* Patients unable to move about of their own volition under any circumstances.

(2) *Class 2B - Mobile.* Patients able to move about on their own volition in an emergency.

C. CLASS 3 - Walking Patients (Other than Psychiatric). Patients who require medical treatment, care, assistance, or observation enroute.

D. CLASS 4 - Troop Class (Other than Psychiatric). Walking patients who require no medical treatment during flight, are physically and emotionally able to travel unattended and do not require observation or custodial care.

I. TO BE COMPLETED BY ATTENDING PHYSICIAN

1. NAME OF PATIENT *(Last, First, Middle Initial)* | 2. GRADE | 3. WARD

4. MOVEMENT PRECEDENCE: URGENT | PRIORITY | ROUTINE

5. PATIENT CLASSIFICATION: 1A | 1B | 1C | 2A | 2B | 3 | 4

6. DIAGNOSIS *(Code and complete nomenclature)*

7. SPECIALTY SERVICE REQUIRED *(Specify major and sub-specialty, if applicable)*

8. VERY SERIOUSLY ILL: YES | NO

9. IV FLUIDS OR BLOOD: YES | NO

10. SPECIAL EQUIPMENT *(Check items required)*: HUMIDIFIER WITH OXYGEN | STRYKER FRAME | OXYGEN | PRESSURIZED CABIN | RESPIRATOR | INCUBATOR | ORTHOPEDIC BRACES | ASPIRATOR | OTHER *(Specify)*

11. SPECIFY SPECIAL MEDICATIONS, DIETS OR PROCEDURES

COMPLETE THE FOLLOWING FOR URGENT OR PRIORITY PATIENTS AND/OR THOSE VERY SERIOUSLY ILL

12. LIFE/LIMB SAVING MEA: YES | NO

13. ATTENDANT REQUIRED: YES | NO

14. DURATION OF PRESENT ILLNESS

15. TRACHEOTOMY: YES | NO

16. STATE OF PATIENT: CONSCIOUS | UNCONSCIOUS | MORIBUND | SEMI-MORIBUND

17. BURN PATIENTS: DEGREE | PERCENT BURNED | AREAS BURNED

18. DATE

19. SIGNATURE OF ATTENDING PHYSICIAN AND TELEPHONE NO

20. APPROVED BY *(Initials and Title)*

AF FORM 230 JUN 78 PREVIOUS EDITION WILL BE USED.

II. TO BE COMPLETED BY REGISTRAR OR ADMINISTRATIVE REPRESENTATIVE

21. SSAN | 22. AGE | 23. SEX: MALE | FEMALE | 24. BRANCH OF SERVICE

25. EMERGENCY ADDRESSEE *(Include relationship)*

26. ASMRO CITE NO., IF APPLICABLE

27. MEDICAL RECORDS COMPL: YES | NO

28. VALUABLES TURNED IN: YES | NO

29. HOSPITALS: ORIGINATING | DESTINATION

30. ORDERS AUTHORIZE RETURN TRAVEL OF PATIENT AND ATTENDANT, IF APPLICABLE: YES | NO

31. DD FORM 602 PREPARED: YES | NO

CIC FOR PATIENT AND ATTENDANT

32. SUPPLIES/EQUIPMENT ACCOUNTED FOR: YES | NO

33. BAGGAGE INFORMATION: TYPE | WEIGHT | TAG NO.

34. ATTENDANT INFORMATION, IF APPLICABLE

35. AECC NOTIFIED: TIME | DATE

36. SIGNATURE OF REGISTRAR OR ADMINISTRATIVE REPRESENTATIVE

III. TO BE COMPLETED BY AEROMEDICAL EVACUATION COORDINATING OFFICER

YES | NO

37. PATIENT HAS BEEN PROVIDED WITH AN AEROMEDICAL EVACUATION INFORMATION BROCHURE.

38. PATIENT HAS BEEN BRIEFED ON WHEN, WHERE AND HOW HE/SHE WILL BE TRANSFERRED. HOW TO PACK HIS/HER BAGGAGE, CLOTHING TO WEAR, MONEY HE/SHE MAY NEED AND THE POSSIBILITY OF RON STOPS BEFORE ARRIVAL AT DESTINATION.

39. ARRANGEMENTS HAVE BEEN MADE FOR TRANSPORTATION TO FLIGHT LINE, MEDICAL RECORDS, MODIFIED DIET, FLIGHT LUNCH, MEDICATIONS, SUPPLIES AND EQUIPMENT, AND PATIENT'S BAGGAGE.

40. PATIENT HAS BEEN PROPERLY PREPARED FOR AEROMEDICAL EVACUATION.

41. MEDICAL ATTENDANT IS AVAILABLE.

REMARKS

DATE | SIGNATURE OF REGISTRAR OF AEROMEDICAL EVACUATION COORDINATING OFFICER

Figure 1

abdominal ailments must be monitored closely in flight for problems with the body's ability to equalize and adapt to changing pressures.(*2*) Other examples of conditions that may experience problems from trapped gas include pneumothorax, open skull fractures, and penetrating wounds to the eye. As altitude is increased there is a decrease in the partial pressure of oxygen. Patients who already have an oxygen deficiency are particularly susceptible to this pressure differential. Therefore, diagnoses of pneumonia, asthma, or anemia are carefully screened and evaluated prior to flight.

Patients are exposed to almost constant vibration and noise in the aircraft. The noise level and length of exposure may cause interference with detection and understanding of speech. Some patients experience a feeling of pressure or tinnitus in the ears. These temporary threshold shifts can be reduced if not completely controlled. Earplugs are available to those patient who desire them. Unprotected exposure to noise is normally of minor significance, yet individual tolerance to auditory fatigue is difficult to assess or predict.(*2*)

Jet aircraft fresh air supply is drawn from the cold, dry, ambient air. Cabin humidity will approach 0 percent, aggravating any existing dehydration. Patients with a respiratory problem are closely observed for effects from this easily evaluated environmental factor. The intervention to maintain adequate hydration is constant provision of oral fluids.(*2*)

The result of these stresses is fatigue. Air travel may increase fatigue through the effects of decreased partial pressure of oxygen, the effort required to communicate, or inadequate fluid intake.

Special Patients

Because of the stresses of flight and the sensitive nature of various diagnoses and treatment regimes, certain patients bear special consideration to insure their medical condition is safeguarded. The following categories describe flight precautions for various conditions; however, these are not absolute and do not necessarily preclude air-evac. The individual patient's medical information is the determining guideline for in-flight care requirements. If your patient falls into one of these categories, contact the nurse on duty at the Patient Airlift Center.(*6*)

Abdominal Surgery. These patients may travel on the fifth day post-op if they are functioning physiologically and are not experiencing any complications. The patient should have good bowel sounds and be on oral fluids.(*2*)

Anemia. If the patient's hemoglobin is 7 to 8.5 and the condition is chronic and stable, there should be little problem. However, if the hemoglobin is below 7, the patient may require an altitude restriction. Patients with an acute hemoglobin decrease may require oxygen, transfusions, and/or altitude restriction. For sickle cell anemia patients, low-flow oxygen should be administered continuously in flight and altitude restricted from 4,000 to 5,000 feet.(*2,6*)

Aneurysm. If the patient has not had surgery and is less than 21 days post-bleed, arrangements should be made to provide an altitude restriction and the most direct flight possible.(*2*)

Cerebrovascular Accident. These patients are not routinely moved until 7 days post-bleed with no complications during this time frame.(*2*)

Chest Tubes. The patient should not be transported for at least 24 hours after chest tube removal to guard against pneumothorax during flight. A chest X-ray is recommended before the flight.(*2,5*)

Eye Injury. Air present in the globe because of an injury or surgical procedure will require an altitude restriction.(*2*)

Fracture. Casts (fresh) should be 48 to 72 hours old and bivalved to allow for soft tissue expansion. If the stability of a new fracture will be jeopardized by the bivalve procedure, the physician must be aware that there is no in-flight cast-cutting capability. Anticipated movement time is also a consideration for acceptance into the air-evac system.(*2,7*)

Myocardial Infarction. Patients should be 10 days post MI and 5 days arrhythmia- and complication-free.(*2, 5,7*)

Paralysis, Cervical Fracture, and Coma. Patients with a severe impairment or loss of motor functions should travel on a Stryker A or modified wedge frame. Unmodified wedge frames are unacceptable as connections often vibrate loose during travel. The 7-foot frame is preferable, but a 6-foot frame can be used. All parts of the frame must be sent. Parts are not interchangeable and all connections must be secured with an Allen wrench. Traction is applied using a Collin traction device. Because swinging weights are unreliable in flight, the device uses a series of bungee cords and springs to apply 0 to 60 pounds of traction.(*2*)

Quarantinable Disease. Isolation during an infectious stage of a quarantinable disease requires special approval for air-evac. This can be obtained by contacting the nurse at the Patient Airlift Center. For forward or reverse isolation, the patient may be placed in a special care area of the aircraft for protection.(*2,7*)

Tracheostomy. Tubes need to be changed 24 to 48 hours before the flight to prevent the possibility of an airway obstruction.(*2*)

Tuberculosis. Patients receiving medication for less than 2 weeks are required to travel on litters in respiratory isolation. If there is a noncommunicating pulmonary cavity, an altitude restriction is necessary.(*2,7*)

Equipment

Routine equipment carried on all flights includes emergency cardiac arrest medications and supplies, a cardiac monitor with defibrillator, a Pleur-Evac and Heimlich Valve for chest tubes (glass bottles are unacceptable for flight and the Heimlich

C-9A *Nightingale*

The C-9A *Nightingale* is a twin-jet, T-tailed, medium-range, swept-wing jet aircraft used exclusively for the Military Airlift Command's (MAC) aeromedical evacuation mission.

The *Nightingale* is a modified version of the McDonnell Douglas Aircraft Corporation's DC-9. It is the only aircraft in the inventory specifically designed for the movement of litter and ambulatory patients.

The C-9A's aircraft capability to carry 40 litter patients, 40 ambulatory patients, or various combinations thereof, provides the flexibility for MAC's international aeromedical evacuation role.

Eighteen C-9A *Nightingales* are utilized by the MAC, with headquarters at Scott Air Force Base, IL. Twelve of these aircraft are assigned to the 375th Aeromedical Airlift Wing at Scott. Three are assigned to Clark Air Base, Republic of the Philippines, for use in the Pacific intratheater, and three more are assigned to Rhein-Main Air Base, Germany, for use in the European and Middle East intratheater.

The normal crew aboard the C-9A consists of a pilot, a copilot, two flight nurses, three aeromedical technicians, and one flight mechanic.

In addition to speed, quiet, and comfort for patients, the aircraft is equipped with many special features for the care of patients. These include:

- A hydraulically operated folding ramp which is stowed during flight and which allows for the efficient enplaning and deplaning of litter patients and special medical equipment.
- Ceiling receptacles for securing intravenous bottles.
- A special care area with a separate ventilation system which can be used for patients requiring isolation or intensive care.
- Eleven vacuum and therapeutic oxygen outlets positioned in sidewall service panels at potential litter tier locations.
- One 28 VDC outlet located in the special care area. Eighteen 115 VAC-60 hertz electrical outlets are located throughout the cabin, permitting the use of cardiac monitors, respirators, incubators, and infusion pumps at any location within the cabin.
- A medical refrigerator for preserving whole blood and biologicals.
- A medical supply work area with sink, medical bottle storage section, and work table.
- Fore and aft galleys and lavatories.
- Commercial airline type seats for ambulatory patients.
- A medical crew director's station with desk, communications and control panel to monitor temperature, therapeutic oxygen, and vacuum system gauges.
- An auxiliary power unit that provides electrical power for uninterrupted cabin air-conditioning, quick servicing during en route stops, and self-starting for the twin-jet engines.

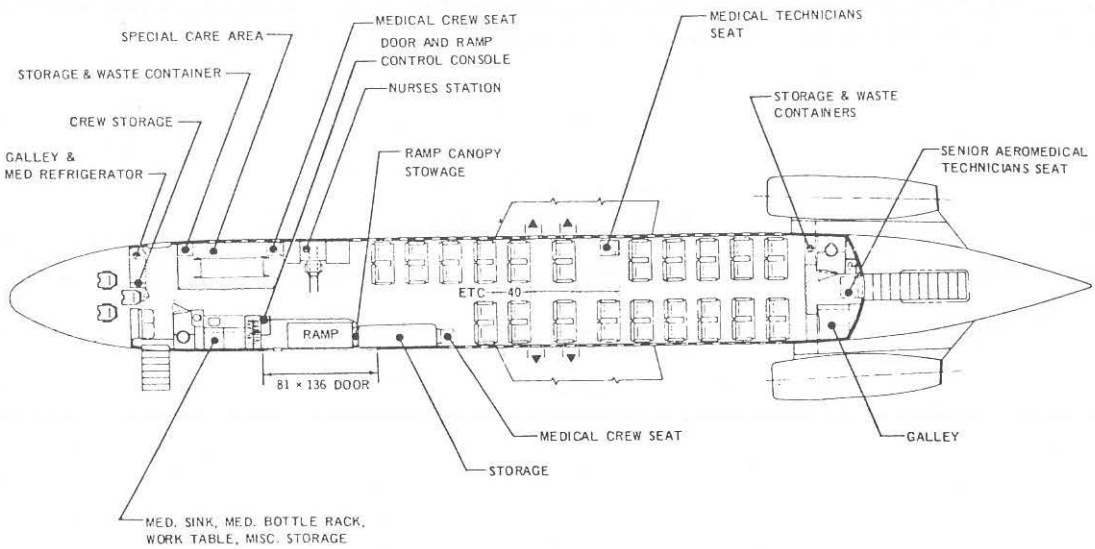
As the mission itineraries change according to patient requirements, so can the interior configuration of the *Nightingale*. Its uniqueness and versatility are demonstrated every day by its ability to serve over 660 military, Veterans Administration, and civilian hospitals, using 520 military commercial airfields throughout the world. Flying 60 scheduled missions per week, the *Nightingale* airlifted 60,734 patients on 3,270 missions in CY81.

Specifications

Primary Function: aeromedical evacuation
Prime Contractor: McDonnell Douglas Corporation
Power Plant/Manufacturer: two Pratt & Whitney JT8D-9A engines
Thrust: 14,500 lb each engine
Dimensions: span 93.3 ft, length 119.3 ft, height 27.5 ft
Average Cruise: 470 TAS at 35,000 ft
Range: 2,500 miles
Maximum Takeoff Weight: 108,000 lb
Status: Operational

Photo by David Chenowith

USAF - DOUGLAS C-9
INTERIOR
40 AMBULATORY



Valve is necessary to safeguard the patient against unexpected cabin pressurization loss), an Ohio incubator with oxygen analyzer, IMED infusion pump, an infant blood pressure cuff, and Collins traction unit.(*2,7*) When requested in advance by the attending physician, the medical equipment placed on board the aircraft can include a Stryker A frame, a Bird Mark 10 respirator, an MA-1 ventilator, a Baby Bird respirator, a hypothermia blanket, and a croup tent.

Mission Planning

Mission planning begins the day before the flight, within the confines of the schedule shown in Table 1. It is not an absolute; it can be altered to meet changes in patient requirements. However, many facilities report patients based upon the day a mission will be in their area. Arrangements for outpatient appointments, physician availability at the receiving facility, and surgery are often made according to the schedule. As a consequence, alterations are held to a minimum.

Each flight is assigned a four-digit number. The North American continent, excluding Mexico and Alaska, is divided into eight geographic areas, and numbered from 1 to 8 (Figure 2). Canada represents area 7, but is no longer serviced on a scheduled basis. A mission number is assigned a prefix from 0 to 5 to identify the type of mission (0—a local mission, Midwest, Southwest, Northeast, etc.; 1—a coast-to-coast mission; 2—an urgent launch; 3—a burn urgent; 4—a civilian urgent; and 5—a priority mission). The last three numbers are assigned in the sequence the mission will fly—the area of departure, the area it transits, and the area of termination. An analysis of the 0654 will illustrate how this works: it will be a local mission and depart from area 6 (Scott AFB), transit area 5, and terminate in area 4 (Travis AFB). The schedule is the first major criteria limiting where flights go on a particular day. The stops for a scheduled mission are determined by a combination of medical and operational considerations.

An important factor regarding stops is where patients have been reported and where they are destined. The primary goal is to provide the most direct possible movement for all patients. Therefore, a mission traveling east to west would not normally pick up patients eastbound. Other factors would be the patient's precedence, classification, and quantity of patients reported. An urgent precedence would assume greater importance than a priority, a priority more than a routine, litter over ambulatory patients, and inpatients over outpatients. If a greater number of patients can be supported at one stop than another, the stop with the most patients receives the support. This does not mean that other stops are forgotten. Facilities that have not been supported are continuously monitored for a return at the earliest possible date.

Some of the operations restrictions that must be dealt with involve weather, runway length, weight bearing capability of the runway, fuel availability, and airfield navigational aids. To insure the safe operation of flights, all airfields must meet Air Force standards. Air-evac has an enviable safety record and it must remain so.

Potential stops for a mission are continually monitored the day before a mission operates, resulting in a draft of all missions by 1500 central time. This is the reason for the 1400 central time routine patient reporting deadline. Throughout the evening, coordination between the nurse, air-evac duty officer, and the pilots continues, arriving at a finalized mission by approximately 2000 central time. The finalized mission is complete with flying times, times of arrival, and patient on- and off-load. Calls are then placed to all medical facilities that will be supported by the mission to notify them of the time of arrival and patients that will be on- and off-loaded.

Mission Schedule

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
0666	0622	0456	0654	1416	0611	0116
0621	0126	0336	0621	0126	0622	0256
0456	0654	0611	0634	0444	0456	1614
1416	0663	0222	0666	1614	0436	0634
	0666	0656	0116	0655	0526	0656
	0681	0116	0256	0636	0666	0666
		0636			0636	

Table 1

Domestic Aeromedical Evacuation Areas

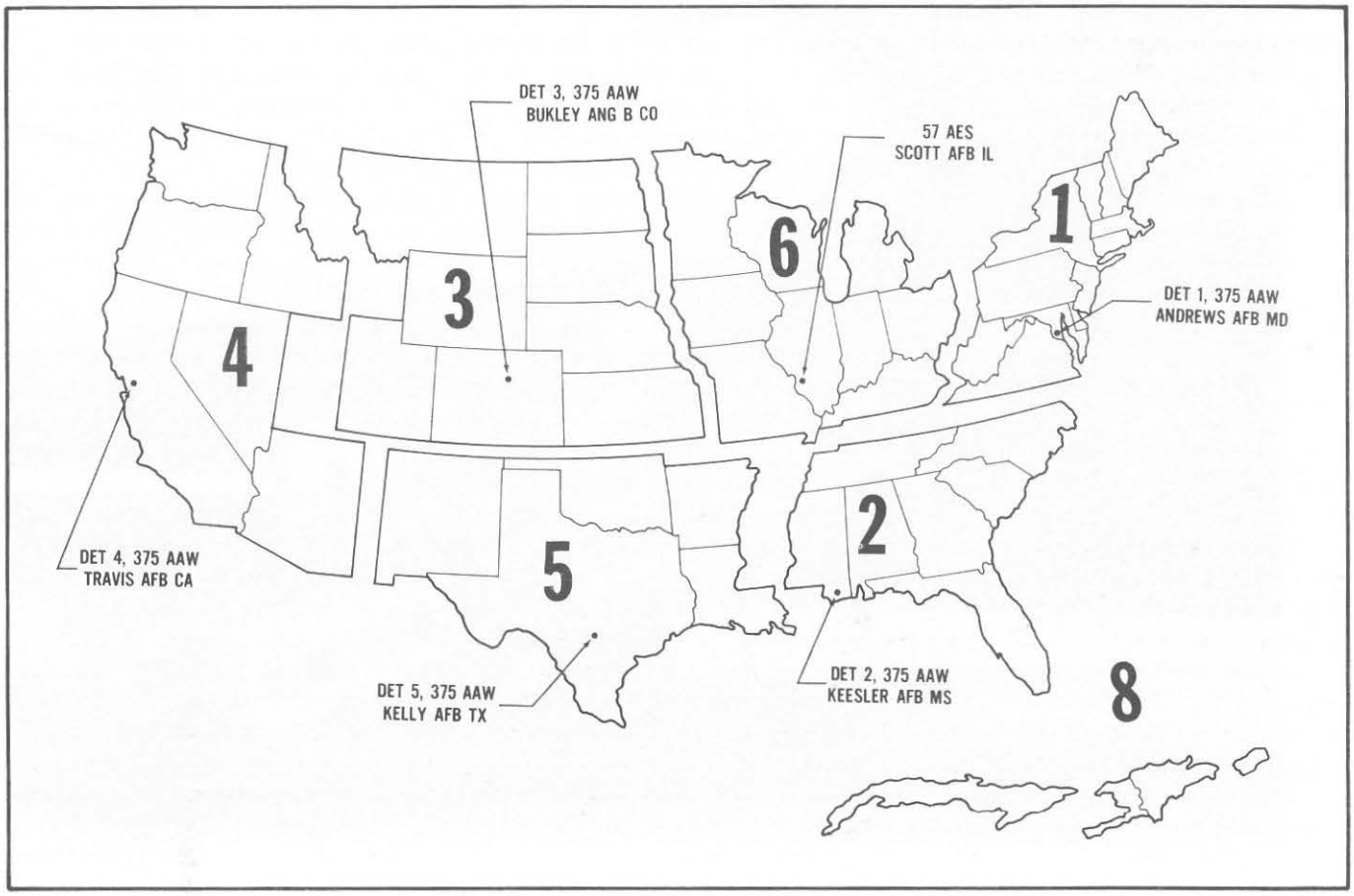


Figure 2

Mission Operation

Mission operation begins at approximately 0500 when the nurses, medical technicians, and pilots arrive to review flight information and patients that will be on the day's flight. After developing a nursing care plan and insuring the assigned aircraft is suitable mechanically, the first flight departs Scott AFB at 0630. All other missions follow at half-hour intervals. Missions originating at detachments depart at various early morning hours. Once the mission has taken off, another call is placed to each facility receiving support from a mission reconfirming arrival time and on- and off-load.

Effective patient preparation is crucial. To provide quality care, the medical personnel receiving each patient, the air-evac crew, and the destination facility all must be fully aware of what to expect during the transfer process. Therefore, effective preparation includes attending to the patient's medical, administrative, and emotional needs. Patients unable to ambulate without assistance must be on litters and secured with straps. Severe psychiatric patients must also be sedated and restrained; those of intermediate severity sedated with restraints available. All records, X-rays, narrative summaries, and patient evacuation tags (DD From 602) must be gathered and baggage identified with appropriate tags.

The briefing given the patients by the air-evac clerk is possibly the most important step. This briefing should be as comprehensive as possible. Subjects to consider are: probability of stops before arrival at their destination; possibility of a layover, which could be in a different climate; stowed baggage is not readily available during a layover; and nonmedical attendants will have to pay lodging and meal expenses.(*1,4,6*) The pamphlet *A Quick Reference for CONUS Air-Evac Clerks* is a helpful source for additional information.

In order to complete missions within a reasonable time (most have a day 12 to 14 hours long), each stop is alloted only 20 minutes. Consequently, medical personnel with patients should arrive at the flightline a few minutes before the aircraft lands. When the mission does arrive, the nurse on the flight will require a short,

Photo by David Chenowith

comprehensive briefing on all patients being brought aboard. The briefing should be supplemented with a narrative summary and, if available, a nursing care plan.(*2,6,7*) This information will insure that everyone rendering care to the patient is fully aware of the patient's treatment and course.

Most patients are picked up and delivered on the same mission, although one in three will require a layover. When a layover is planned, the patients are being strategically placed to match up with other air-evac flights that will deliver them to their destination. During a layover, patients will stay at an Aeromedical Staging Facility (ASF). An ASF can be described, in colloquial terms, as a hospice, yet intensive care facilities are available. There are five of these facilities in the United States; each is part of a major medical center near one of the detachments. The detachments help keep patients informed of departure times and when they may anticipate movement. Although not "home," ASFs generally provide a very pleasant stay.

Arrival at the destination follows the same process. Calls are placed to the receiving facility notifying them of the arrival time, which patients they will receive, and a briefing on the patient supplemented with information on how the patient tolerated the flight.

The purpose of this article was to provide a step-by-step reference for the aeromedical evacuation process. Following these steps should make your job easier and your patient's flight better.

References

1. Administration of aeromedical staging flights, AFM 164-1, 6 Aug 1971.
2. Aeromedical evacuation nursing, AFP 164-2, 9 April 1976.
3. Air transportation eligibility, DOD 4515, 13-R, chap 11, Jan 1980.
4. Harris PE: Preparing patients for aeromedical evacuation. *USAF Medical Service Digest* 30(2):26, March-April 1979.
5. Military Airlift Command worldwide aeromedical evacuation, MACR 164-1, 11 Aug 1975.
6. Worldwide aeromedical evacuation, AFR 164-5/AR 40-535/OPNAVINST 4630.9C/, CO P4630.9A, 1 Dec 1975.
7. Worldwide aeromedical evacuation procedures, 375 Aeromedical Airlift Regulation 164-1, 1 Jan 1980. □

ACDUTRA Physicals

Some confusion persists concerning the physical exam that is required before reporting for each period of active duty for training (ACDUTRA). The exam is required regardless of whether ACDUTRA is to be performed at your school or at a naval activity.

Because the naval activities that perform these physicals usually cannot respond to last minute requests, you should arrange for your exam as soon as you receive ACDUTRA orders. If you have already had a complete physical exam within 12 months of the reporting date on your ACDUTRA orders, you don't have to get another one provided that the Standard Form 88 and Standard Form 93 from your last exam are still filed in your health record. But you still must report to a naval or Naval Reserve facility so a medical department representative can ascertain that there has been no significant change in your condition and that you continue to be physically qualified for active duty. Your physical fitness will be certified by an entry on Standard Form 600 as well as on your ACDUTRA orders.

Obtain a signed copy of Standard Form 88 and Standard Form 93 each time you complete a physical exam so you can take advantage of the 12-month provision whenever it applies. If you are found not physically qualified (NPQ) for ACDUTRA, immediately notify the Naval Health Sciences Education and Training Command (Code 14), Naval Medical Command, National Capital Region, Bethesda, MD 20814. □

NEHC Expands Programs

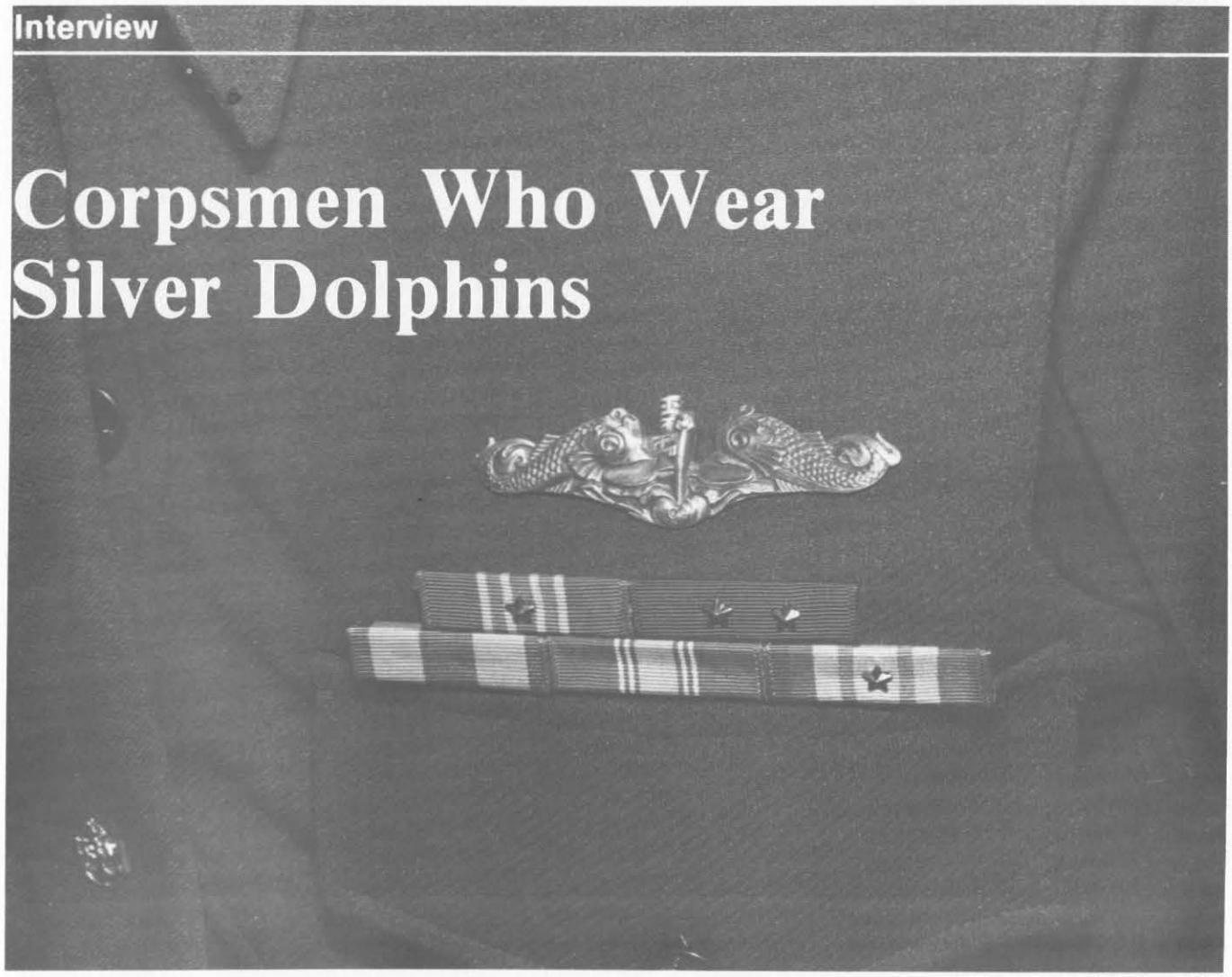
During the past year the Naval Environmental Health Center (NEHC) has made significant strides in expanding its occupational health and preventive medicine programs, with particular emphasis on supporting the operating forces. A contract has been awarded to procure the last 3 of 16 Mobile Hearing Conservation Audiometric Trailers (MOHCAT's). The program to check and record the hearing status of Navy and Marine Corps recruits in the Recruit Baseline Audiometry Program is progressing. Expansion of the Asbestos Medical Surveillance Program has concentrated on Navy ships of the fleet, ships in precommission status such as the battleship *New Jersey,* and vessels of the Military Sealift Command.

Efforts to improve and expand medical surveillance and industrial hygiene programs have been effected by increased command attention to occupational health problems detected by the Navy Occupational Safety and Health Inspection Program (NOSHIP) and through the contracting of specific services such as at the Naval Air Rework Facility, NAS Alameda, CA. The Department of Labor, Occupational Safety and Health Administration (OSHA) has commended the Navy for a good occupational safety and health program after a recent inspection of multiple Navy work sites and commands.

Preventive medicine programs have concentrated on the surveillance and control of hepatitis, tuberculosis, gonorrhea, and malaria. In particular, the use of hepatitis B vaccine, the detection of penicillinase-producing neisseria gonococcus (PPNG), and concomitant use of appropriate antibiotics have played major roles in these efforts. The development of computerized disease alert reports allows centralized epidemiologic evaluation of illness clustering within the Navy. NEHC has actively supported the operating forces through the deployment of preventive medicine teams and vector control teams from Environmental and Preventive Medicine Units and Disease Vector and Ecology Control Units, most recently in Lebanon.

The efforts for the future will include the acquisitions of significant new personnel resources beginning in FY84. Development of a group microprocessor audiometer is currently in the prototype development phase with implementation into a centralized hearing conservation data base scheduled for 1983-84. A computerized Navy Occupational Health Information Monitoring System (NOHIMS) is under development by the Navy Health Research Command with implementation planned to begin in 1984-85. Increased efforts to obtain resources and expand programs, matched with increased attention to compliance requirements from both the Navy Medical Inspector General and NOSHIP inspections should result in occupational health programs of enhanced scope and quality for all naval personnel.

Corpsmen Who Wear Silver Dolphins



Photos by the Editor

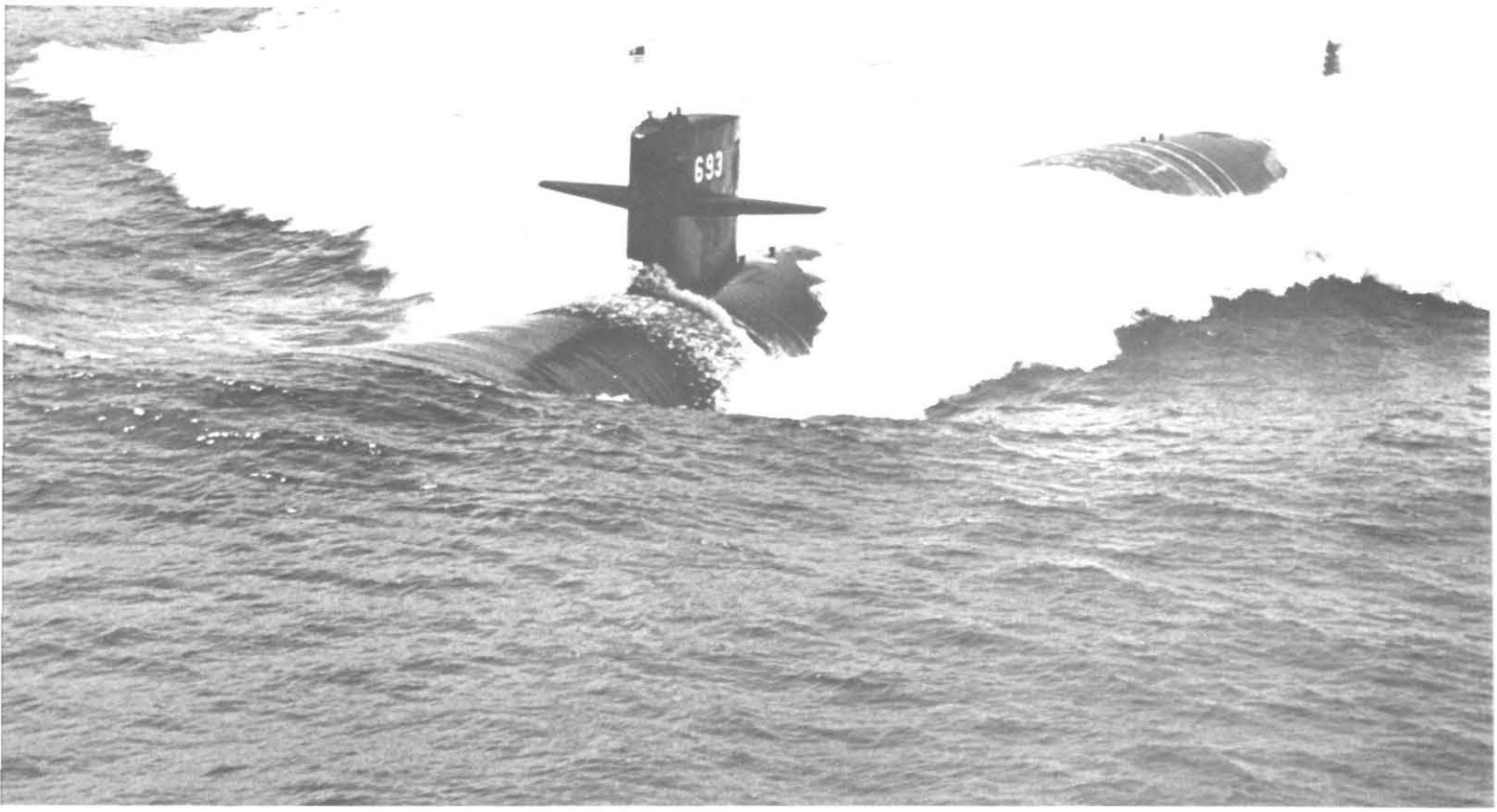
To his fellow crewmen he's "Doc," the man they depend on to treat them when they're ill and advise them when they're well. The purity of the air they breathe and the food they eat is his responsibility. Although medicine is his profession, "Doc" wears the same device on his uniform they do because he knows the ship as well as they do. He trained with them and qualified as a submariner to earn the silver dolphins.

*Nuclear medicine technicians (HM-8402) are indeed a unique group of corpsmen. They provide the only medical care aboard the Navy's fast attack and fleet ballistic submarines while those vessels are at sea.**

Those who have served as corpsmen in the Submarine Service insist that the challenge is unequaled anywhere else. "The responsibility you have on a submarine is a lot greater than what you will ever have on any other type of independent duty," points out HMCM Steve Campbell, a 17-year Navy veteran with two 3-year submarine tours under his belt.

One would be hard pressed to find fault with Campbell's conclusion. Like independent duty corpsmen assigned to other ships, submarine corpsmen head their respective medical departments and are responsible both for maintaining the health of their crews and the living and working environment. Where they differ from other independent duty corpsmen is the degree of independence. A corpsman assigned to a destroyer or frigate can, in an emergency, consult by radio with other surface ships having physicians aboard. Because radio silence is essential for the success of a submarine's mission, submarine corpsmen must carry on their duties in situations where medical advice is difficult, if not impossible, to obtain.

*When the new Trident submarines are deployed physicians will head their medical departments.



USS Cincinnati *(SSN-693)*

Left to right: HMCM Frank Carroll, HMC Tom Gray, HMC Josiah Bartholomew, and HMC W. Ben Parker talk about their profession.

What all this means in practical terms is that although submarine personnel are the best medically screened crews in the Navy, the corpsman's diagnosis of serious disease or injury is his alone. In the most extreme case he might have to advise the skipper as to whether a patient should be medically evacuated. Such an event could well mean the end of a submarine's mission.

To say that submarine corpsmen carry tremendous responsibility upon their shoulders would be an understatement. Although few in number (there are only 144 submarine corpsmen in the Atlantic Fleet), this elite group of men plays a key role in safeguarding the health of those who serve in the Submarine Service.

U.S. Navy Medicine *recently talked with four veteran submarine corpsmen about their profession.*

HMC Josiah Bartholomew has served 3 years aboard the fast attack USS *Silversides* (SSN-679).

HMC Thomas Gray is presently assigned to the fast attack USS *Cincinnati* (SSN-693).

HMC W. Ben Parker has served aboard the fleet ballistic submarine USS *George Washington Carver* (SSBN-656) and is presently fitting out the medical department of the new fast attack USS *Buffalo (*SSN-715).

HMCM Frank Carroll is Administrative Assistant to the Force Medical Officer, Submarine Force, U.S. Atlantic Fleet.

USS Cincinnati*'s pharmacy: Almost every medication carried aboard is housed in this locker.*

USNM: When one thinks about submarine duty what comes to mind is being submerged for months at a time and a great deal of responsibility.

HMC Gray: Most of that is true, but there are a lot of positive things also. I really like the freedom to make my own decisions. As a submarine corpsman, I function as a department head and deal directly with the XO and CO. It's easy to build credibility with them if you do your job well. There is a tremendous amount of administrative responsibility—making sure the crewmembers go through dental and the various medical services to insure that when you go to sea you've eliminated any unnecessary medical problems.

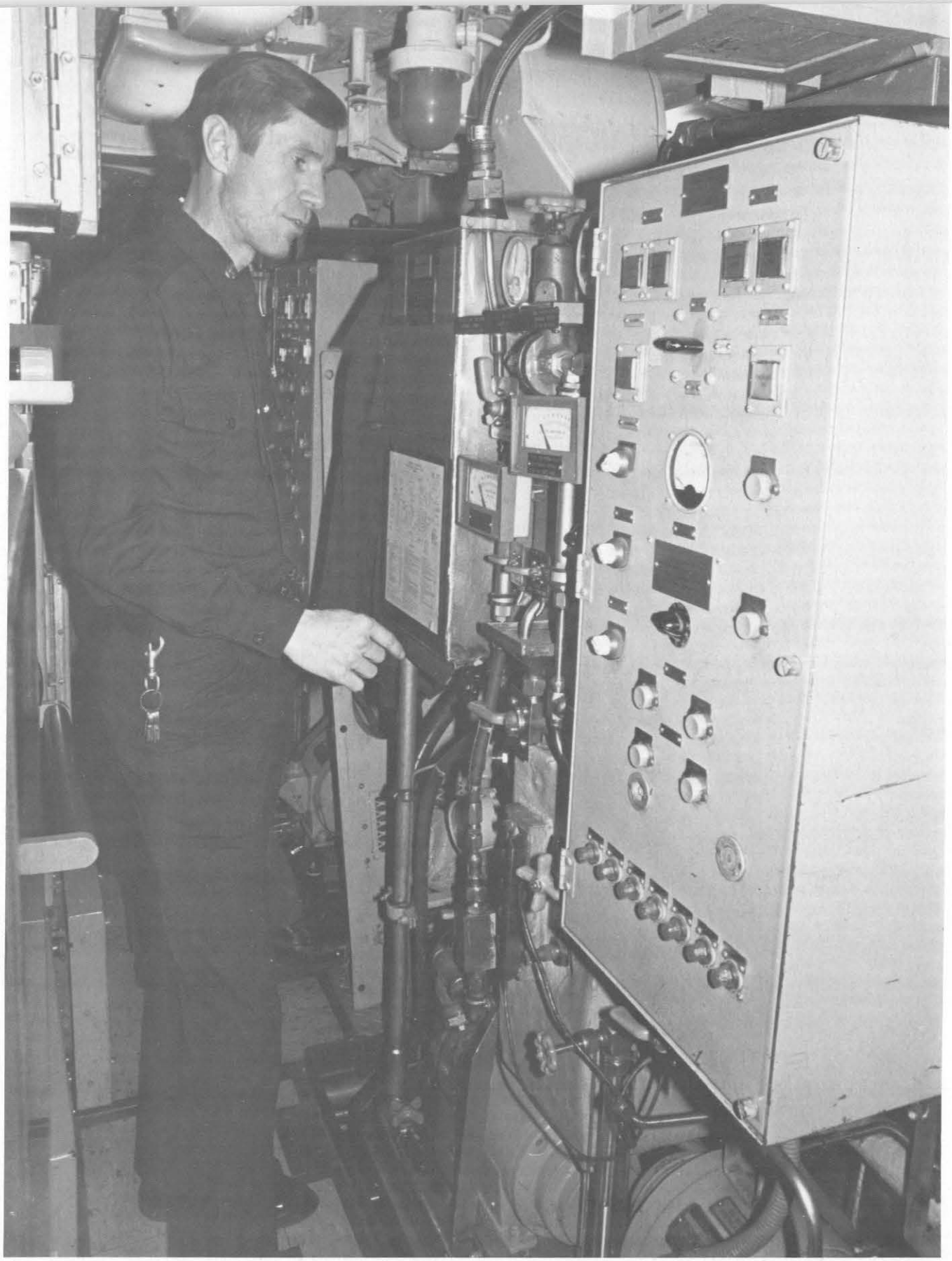
The recruiting posters traditionally invite you to join the Navy and see the world, yet you don't really get to see much of the world aboard a submarine.

HMC Gray: That's not necessarily true. We do get more of an opportunity to see it aboard a fast attack than an FBM (Fleet Ballistic Missile submarine). I've been to some choice liberty ports you'd never see on a surface ship.

Have you ever run into that kind of medical emergency where you had to go to the skipper and recommend a medevac?

HMC Bartholomew: Once. I had to contend with a crewman with an amputated finger. Fortunately, we were close in and the medevac was uneventful. But I've had other emergencies. I had to extract teeth that wouldn't respond to antibiotics, a patient with a kidney stone, and another whose lung collapsed. The latter was a very touchy situation because we couldn't use radio communication. We watched the patient closely for several weeks. Bed rest and

Corpsman country: With space aboard the fast attack submarine USS Cincinnati *at a premium, HMC Gray's office doubles as the vessel's sickbay.*



Scrubbers remove carbon dioxide. Electrolysis of seawater in another on-board space helps replenish the atmosphere's oxygen content.

antibiotics helped stabilize him. But I was prepared for the worst.

You are trained to handle dental emergencies. What are the typical cases you encounter?

HMC Gray: Chipped teeth, dislodged fillings. A serious case might involve an abscess. We have antibiotics and dental materials for temporary fillings, and instruments to do minor restorative work. As a matter of last resort, we can perform extractions.

What kind of medical library do you have aboard?

HMC Bartholomew: We carry minor surgery books, pharmaceutical textbooks, the *Physicians' Desk Reference,* and the *Merck Manual.* I have a book from advanced Hospital Corps school that is very helpful.

HMCM Carroll: We're also required to carry the BUMED 6820 series instruction that lists the textbooks required on board different ships. The corpsman depends heavily upon his library especially when there's an emergency. You must be ready to handle just about anything.

HMC Gray. I constantly review medical procedures for the more serious casualties I might face.

Being the only corpsman aboard, you're also the pharmacy tech. What kind of drugs do you carry?

HMC Bartholomew: Everything from the smallest decongestant tablet to the high narcotics. You must have the drugs available for any emergency.

Besides having the medical responsibilities, you're also the environmental health officers aboard. What does that job entail?

HMC Bartholomew: While underway and submerged, you must constantly monitor the atmosphere for different gases using electronic gear. With a sealed atmosphere, one gas in the wrong concentration could put a whole crew down. The breathing atmosphere is constantly recycled through filters, precipitators, and scrubbers.

What types of disease do you see most often while underway?

HMC Gray: For the first 7 to 10 days into a cruise, if there's a cold among the crew, everyone will generally get it. But by mid-deployment a surprising thing happens. Virtually everyone heals up and is free from upper respiratory infections from then on. Once the cold runs its cycle, that's it.

You do run into fungal infections such as athlete's foot but that's about the extent of it. Because you have a well-screened and isolated community, it's a very healthy environment.

As the environmental health officers you are also responsible for monitoring sanitation and inspecting the food preparation and serving spaces.

HMC Bartholomew: I check the food service personnel on a daily basis. On a weekly basis I inspect the whole ship—heads, showers, and food service areas. If you are lax you put the health of the entire crew in jeopardy. Dirty dishes and substandard food can quickly affect the crew's morale.

Why did you decide to become a submarine corpsman?

A submarine corpsman's responsibilities include the monitoring of the vessel's atmosphere. The CAMS (Central Atmosphere Monitoring System) tests for levels of oxygen, carbon dioxide, carbon monoxide, hydrogen, and nitrogen.

HMC Gray: I wanted to return to independent duty following instructor duty. I wanted submarines simply because of the challenge, the responsibility, and the fact that I would function as an integral member of the crew. You can't knock the pay either. It amounts to about $250 extra a month for me. If you've got to go to sea, you might as well go with the best. The Submarine Service has a proud tradition and submariners are pretty much the cream of the crop. They tend to be more professional and have a better view of the Navy. The whole situation is appreciably better than what I found either in the surface fleet or with the Marines. Career-wise, I think it has been very rewarding. I feel that anyone who can handle himself well on a submarine for 3 years is pretty much qualified to do anything.

How many tours would you like to have aboard submarines?

HMC Gray: I think you need a break between tours, but I'd ride them forever without any qualms. A surface ship just wouldn't be the same. You have a greater role in the overall mission aboard a sub.

HMC Bartholomew: Right now I'm on a break time, but when sea duty comes up again it's going to be submarines. The quality of the people I've gotten to work with has been superb.

What are some of the courses a submarine corpsman candidate takes at NUMI (Naval Undersea Medical Institute)?

HMC Bartholomew: You learn dermatology, evaluation of abdominal problems using the new computer tape program,* and get a full week of dental training followed by radiation health.

What does the radiation health training consist of?

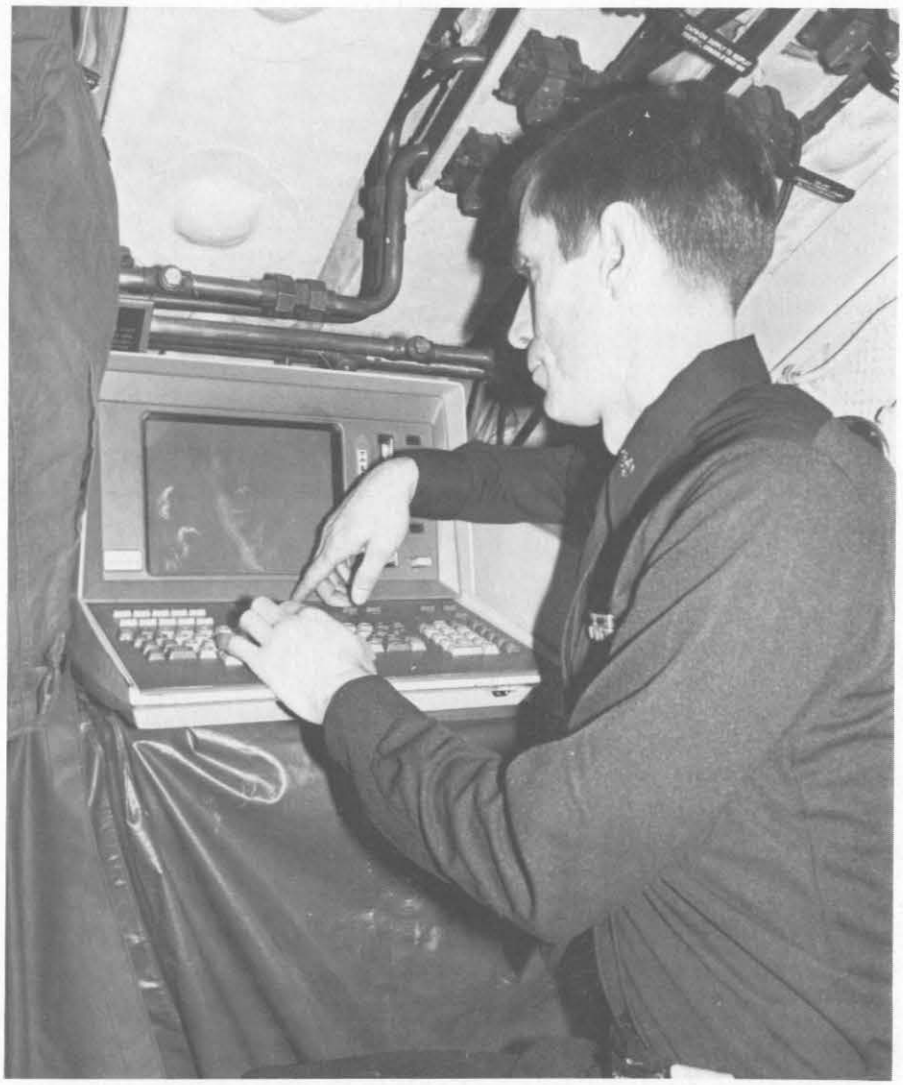
HMC Bartholomew: You learn the effects of radiation on the body and how to treat patients who have sustained high radiation doses.

HMC Gray: The radiation health program is where they separate the men from the boys. If anyone is going to drop out, that's where it happens.

The program is divided into four different phases covering the monitoring equipment used aboard the submarine—how to do assays for tritium, how to handle spills or other accidents that might occur, and the medical problems associated with low- and high-level radiation exposure. There is a good amount of chemistry and physiology involved.

The admin part of radiation health is also a key part of the submarine corpsman's total administrative workload. At least 75 percent of your admin effort is strictly for maintaining physical exams on people, making the exposure entries in the health records, and keeping track of your monitoring program. We had extensive laboratory training so that we'd have the know-how to do necessary lab work at sea.

Physicians came and lectured on specialties such as orthopedics, cardiology, and internal medicine. We got to work on the service for a period to gain some experience and diagnostic ability. You would also pull duty in the emergency room as part of the training.



An on-board computer aids HMC Gray in diagnosing acute abdominal pain. These computers are now undergoing sea trials.

*(See "Computer-Assisted Diagnosis of Acute Abdominal Pain for Submarine Corpsmen," *U.S. Navy Medicine,* September 1982)

What is the size of the crew you take care of on a fast attack?

HMC Bartholomew: We can carry 128 people on the *Silversides* but we average about 120 at sea.

How does submarine duty affect your family life?

HMC Bartholomew: It can be tough. Wives have to really know and understand what the command is all about and what part you play in the overall picture.

HMC Gray: The families and the crews are generally closer knit than you find in the surface Navy. The wives really look after each other. You can go away with the assurance that if anything goes wrong at home your spouse will have all the assistance she needs to get through the problem. That's a real plus.

What is a typical day for a submarine corpsman at sea?

HMC Gray: You don't have a regular 8 to 5 day. It's a 24-hour schedule. I generally rotate through a 24-hour cycle where for a while I'm up in the evening hours, then the early morning hours, and then during the regular workday. That gives me a chance to see each of the watch sections. I try to make contact with those I've treated to see how things are progressing.

I'll do a sanitation walk. Atmosphere samples are usually done on a weekly basis. One of the watchstander's duties is to take readings from the atmospheric monitor. These are recorded on a 24-hour basis and submitted to the CO as a daily report.

What gases are you monitoring?

HMC Gray: Oxygen, carbon dioxide, carbon monoxide, hydrogen, etc.—all the ambient gases you may have in the breathing atmosphere.

What do you do about sick call?

HMC Gray: We don't have regular sick call hours. Generally, when someone's hurting or not feeling well, he will seek you out. Many times, when doing my daily walk-through, the men will tell me how they're feeling.

HMCM Carroll: When you're at sea, sick call is 24 hours a day.

How does the FBM differ from the fast attack submarine? What's the FBM's normal crew size?

HMC Parker: The FBM usually runs about 150 men and has a sickbay to work in, even though it's 2 feet wide and 8 feet long. The FBM schedule is also different. They are out so many days and in so many days. From a psychological standpoint you can see the crew going through stages when we begin a patrol cycle. Once you learn it you know when to make yourself more available to the crew. You can also pinpoint problems.

What kind of problems?

HMC Parker: Personal problems, family problems. As the corpsman, you have to be more stable than everyone else. You are the doc, the chaplain, the mother, father, grandmother, and grandfather to these people. You can't just say go away, don't bother me. You've got to be there when you're needed.

As submarine corpsmen you wear the silver dolphins. How do you qualify as a submariner?

HMC Gray: By learning the ship. The wealth of experience you gain by the qualification process is a real plus. By the time you finish you know virtually every piece of machinery on board and how it functions. Qualification takes from 6 to 9 months. When you first report on board you have two responsibilities—maintenance of the medical department and studying for qualification. You have to know the ship because in a disaster you would be required to take charge of a damage control situation.

I understand that you are also responsible for training the crew in first aid.

HMC Bartholomew: Once a year I'll devote 3 to 4 days after normal working hours to run the crew through everything from applying a bandage and splinting a fracture to CPR. Most crewmembers are very interested. I've had some come to me individually to ask for additional training. I enjoy teaching them.

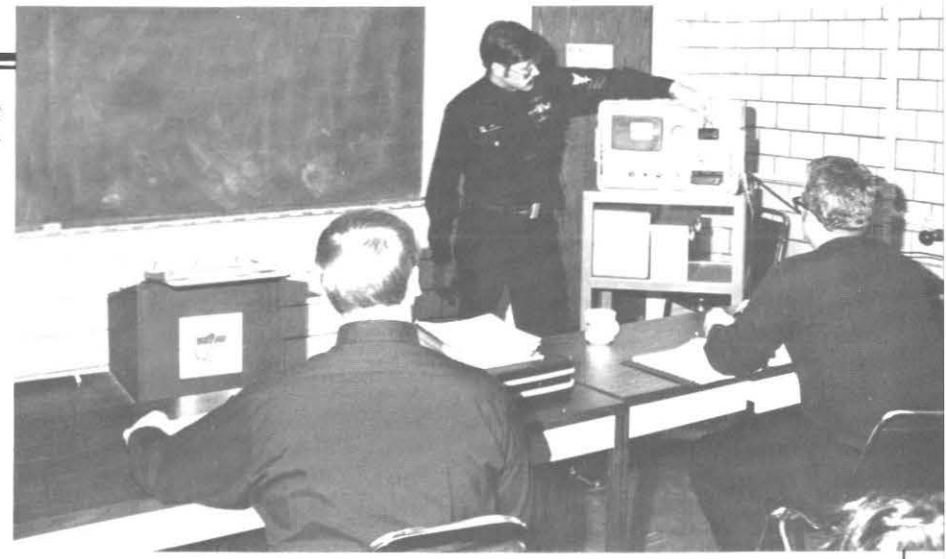
If a young corpsman comes to you and says he wants to be a submarine corpsman what kind of advice would you give?

HMC Bartholomew: Two corpsmen I've talked with are already at NUMI and due to graduate in December. I took them aboard for a few hours and let them follow me through my whole routine. The reward, I told them, was the challenge of accomplishing what has to be done. They came back and asked for letters of recommendation.

HMC Parker: I'd first check out his motivation. A lot of guys are good corpsmen but many cannot handle the load submarine corpsmen are subjected to. You've got to be aggressive; you have to be a go-getter. You set your sights on what your purpose is. My purpose is to keep my crew healthy so they can work and fulfill the mission. If you want to be a submarine corpsman, you'll make rank well, get paid well, but you'll also work your tail off. If you're not willing to do that we don't need you.

HMC Gray: I'd tell him to be prepared to face the challenges. I wouldn't lie to him and make it sound glamorous. It's a lot of hard work but it's also the epitome of what being a corpsman is all about. If he likes to work independently, has a lot of personal initiative, and a great deal of pride in what he does, it is the perfect way in which to satisfy all three. I honestly feel that a submarine corpsman is a member of a very elite group.

For more information on the Nuclear Submarine Medicine Program (HM-8402) see your career counselor or call the HM "C" School detailer at NMPC, Autovon 224-4547. —JKH



NUMI instructor HM1 Larry Smith discusses the CP-1112-PD TLD (Thermoluminescent Dosimeter) reader.

Education of a Submarine Corpsman

Earning the right to wear the silver dolphins is anything but easy. The selection process is rigorous and education extensive. The Nuclear Submarine Medicine Technician (HM-8402) is not simply a corpsman but a submariner as well. Diagnosing and treating disease and injury are only part of his job. He is in charge of the ship's radiation health, occupational and preventive medicine, and atmosphere control programs. Because he wears the same device on his uniform as an auxiliaryman, an engineman, and a machinist's mate, the submarine corpsman must also qualify the same way. That means knowing his ship from stem to stern.

A corpsman begins training for the 8402 NEC only after he has had at least 6 years in the Hospital Corps and has become an HM2. After 46 weeks of training at advanced hospital corps school, he graduates as an Independent Duty Hospital Corpsman HM-8425.

Fifteen more weeks of school follow at the Naval Undersea Medical Institute (NUMI) in Groton, CT, consisting of basic submarine school, comprehensive radiation training, atmosphere control, and the specifics of submarine medicine. After this 61 weeks of training he is designated an HM-8402 but, before being accepted for submarine duty, one more hurdle must be crossed—an examination by a radiation health board composed of both medical and line officers.

The formal education may be over for awhile but the training process never ends. Every 18 months the submarine corpsman must go through a 2-week clinical refresher training program given either at Portsmouth or San Diego. The program is designed to sharpen his skills, i.e., insertion of IV's, endotracheal tubes, etc. Those nuclear submarine medicine technicians rotating from a shore station back to submarines go via the same program.

At 12-month intervals there is also an administrative refresher course on radiation health given at NUMI.

Even aboard a fast attack (SSN) or fleet ballistic missile (SSBN) submarine, the corpsman constantly hones his skills both by practicing his profession and consulting the on-board library and computer that serve as the only references at sea. —JKH

NUMI photos

HM1 Jerry Coss instructs students in the operation of various radiac instruments.

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