

AD-A272 338



23 March 1992

Final Student Research Report

Is the MEDEVAC System Broke?



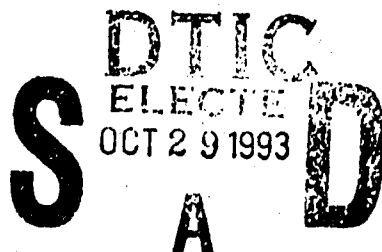
Captain P. B. Colby, USMC; Captain M. J.
Feldhake, USAF; Captain C. A. Nielsen, USMC;
Captain C. D. Wadsworth, USMC

Command and Control Systems Course
Communication Officer's School
2085 Morrell Avenue
Quantico, Virginia 22134-5058

Marine Corps University
Marine Corps Combat Development Command
2076 South Street
Quantico, Virginia 22134-5068

Approved for public release;
distribution is unlimited

Thesis: The current tactical Medical Evacuation (Medevac) system is definitely broken and in dire need of repair. This paper addresses several areas including command and control in which Medevac can be improved, resulting in a more efficient, flexible system.



USMC; Command and Control; C2; C3; C4I;
Joint Command and Control; MEDEVAC; Medical Opns;
MSC; DRASH; PWR/AMALS; Casualty Reporting;

32

Unclassified

Unclassified

Unclassified

GENERAL INSTRUCTIONS FOR COMPLETING SF 298

The Report Documentation Page (RDP) is used in announcing and cataloging reports. It is important that this information be consistent with the rest of the report, particularly the cover and title page. Instructions for filling in each block of the form follow. It is important to *stay within the lines* to meet optical scanning requirements.

Block 1. Agency Use Only (Leave blank)

Block 2. Report Date. Full publication date including day, month, and year, if available (e.g. 1 Jan 88). Must cite at least the year.

Block 3. Type of Report and Dates Covered. State whether report is interim, final, etc. If applicable, enter inclusive report dates (e.g. 10 Jun 87 - 30 Jun 88).

Block 4. Title and Subtitle. A title is taken from the part of the report that provides the most meaningful and complete information. When a report is prepared in more than one volume, repeat the primary title, add volume number, and include subtitle for the specific volume. On classified documents enter the title classification in parentheses.

Block 5. Funding Numbers. To include contract and grant numbers; may include program element number(s), project number(s), task number(s), and work unit number(s). Use the following labels:

C - Contract	PR - Project
G - Grant	TA - Task
PE - Program Element	WU - Work Unit Accession No

Block 6. Author(s). Name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. If editor or compiler, this should follow the name(s).

Block 7. Performing Organization Name(s) and Address(es). Self-explanatory.

Block 8. Performing Organization Report Number. Enter the unique alphanumeric report number(s) assigned by the organization performing the report.

Block 9. Sponsoring/Monitoring Agency Name(s) and Address(es). Self-explanatory.

Block 10. Sponsoring/Monitoring Agency Report Number. (If known)

Block 11. Supplementary Notes. Enter information not included elsewhere such as: Prepared in cooperation with ; Trans. of ; To be published in. When a report is revised, include a statement whether the new report supersedes or supplements the older report.

Block 12a. Distribution/Availability Statement. Denotes public availability or limitations. Cite any availability to the public. Enter additional limitations or special markings in all capitals (e.g. NOFORN, REL, ITAR).

DOD - See DoDD 5230.24, "Distribution Statements on Technical Documents."

DOE - See authorities.

NASA - See Handbook NHB 2200.2.

NTIS - Leave blank.

Block 12b. Distribution Code.

DOD - Leave blank.

DOE - Enter DOE distribution categories from the Standard Distribution for Unclassified Scientific and Technical Reports.

NASA - Leave blank.

NTIS - Leave blank.

Block 13. Abstract. Include a brief (*Maximum 200 words*) factual summary of the most significant information contained in the report.

Block 14. Subject Terms. Keywords or phrases identifying major subjects in the report.

Block 15. Number of Pages. Enter the total number of pages.

Block 16. Price Code. Enter appropriate price code (*NTIS only*).

Blocks 17. - 19. Security Classifications. Self-explanatory. Enter U.S. Security Classification in accordance with U.S. Security Regulations (i.e., UNCLASSIFIED). If form contains classified information, stamp classification on the top and bottom of the page.

Block 20. Limitation of Abstract. This block must be completed to assign a limitation to the abstract. Enter either UL (unlimited) or SAR (same as report). An entry in this block is necessary if the abstract is to be limited. If blank, the abstract is assumed to be unlimited.

IS THE MEDEVAC SYSTEM BROKEN?

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

Submitted to
Major Julian
and Mrs. Cundick
at the Communication Officers School
Quantico, Virginia

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

Captain P. B. Colby, USMC
Captain M. J. Feldhake, USAF
Captain C. A. Nielsen, USMC, (Editor)
Captain C. D. Wadsworth, USMC

23 March 1992

93-26077



2-1

93 10 27 018

IS THE TACTICAL MEDEVAC SYSTEM BROKEN?

OUTLINE

THESIS: The current Tactical Medevac system is definitely Broken and in dire need of repair.

I. Medical Corps Structure

- A. Medical Units and Missions
- B. Personnel Training and Selection

II. Medical Regulating

III. Asset Allocation

- A. Personnel
- B. Facilities
- C. Transportation
- D. Supply

IS THE TACTICAL MEDEVAC SYSTEM BROKEN?

War means death.

Man has spent thousands of years in the quest to define war. Perhaps he is driven by the hope that to define something, to truly understand it, is to ultimately control it. But, man can never control war, and war will always mean death.

Since the beginning of modern warfare, the United States has taken special pride in the value of the young men it has sent forth in the way of harm. Great emphasis has been placed on the professional qualities of those individuals to ensure they will always be victorious in war. The United States has also taken great pride in the importance it places in the preservation of human life. Even when entangled by the greatest folly of mankind-- war-- the U.S. strives valiantly to maintain the best trauma care system possible. Critical to this system is the means by which the casualty is evacuated from the combat area, and the medical care he receives during evacuation. This is Medical Evacuation (Medevac).

Recent events in South West Asia gave many armed forces an opportunity to discover the status of their capabilities and incapacibilities. Operation Desert

Shield/Storm provided U.S. forces an excellent chance to establish a Medevac system in one of the most demanding scenarios: large scale, conventional, land warfare. To the good fortune of all, this system was never tested in its entirety. However, for the first time in nearly twenty years, a U.S. Joint Task Force Medevac system was established and subject to keen scrutiny.

Many of those who saw the USN/USMC Medevac system in action, or anticipation of action, have grave reservations as to the effectiveness of this system and are asking "Is the Medevac system broken?"

If being broken means that something needs to be fixed, the Medevac system is then definitely broken. For it is clear that the Medevac system, as it stands now, needs to be fixed.

The intent of this paper is to identify areas of the Medevac system that are correctable within the Navy/Marine Corps structure and therefor could be rapidly improved. Though the medical issues addressed here are the result of information obtained from within the military medical community, an objective study of the Medevac system does not necessarily require a medical background. The issues which will be addressed are:

1. Medical Corps structure
2. The Medical Regulating System
3. Medevac asset allocation

The U.S. Military Medevac System of today is by far the most advanced and capable ever created. However, a single discrepancy of the system which continuously

surfaced during our study was unit and personnel training for combat. From medical experience to command and control planning, continuous priority training of our Medevac System is not nearly adequate.

MEDICAL CORPS STRUCTURE

MEDICAL UNITS AND MISSIONS

A. Medical Battalion: Provides direct and general medical support to the Marine Expeditionary Force (MEF), in order to sustain the combat effort.

The battalion is organized to plan and supervise the medical support function to the MEF, as coordinated with MEF and Marine Air Ground Task Force (MAGTF) surgeons and medical planners.

B. Collecting and Clearing Company: Provides direct support to medical elements organic to the Ground Combat Element (GCE) and Air Combat Element (ACE) of a MAGTF.

C. Surgical Support Company: Is best suited for a general medical support role to the MAGTF. The surgical support company is divisible and approximately equals two collecting and clearing companies.

PERSONNEL TRAINING AND SELECTION

Over the years many O-5 and O-6 Medical Corps

officers with little or no experience in any facet of operational medicine have been assigned to executive-level FMF billets. This has occurred for many reasons (none based on the best interest of the Marine Corps). (3:5)

Although the importance of military training for MC personnel has been fully recognized, the Navy Medical Department has always had to react to national emergencies with insufficiently trained physicians. The history of American wars has shown that officers, including the surgeon, must be highly trained in order to conduct any war successfully. Disastrous results of inadequate military training for the surgeon can only be measured in lives. The idea of providing physicians with military training is not an original one, but it has suffered general neglect over the past decade and requires calling attention to this neglect and reemphasizing the importance of training for war. The idea practiced today that physicians need only a slight amount of exposure, training, and experience with the line to be prepared to advise at any level is completely without basis. The surgeon cannot be a window dressing in the MAGTF. Unless trained for the position, he will merely bear the name.

This section of the study will focus on the Medical Department of the Navy and the medical support it provides to the Fleet Marine Force (FMF). We will review

of the duties of the Medical Service Corps (MSC) and Medical Corps (MC) in order to focus on the training the MC and MSC officer requires in order to properly perform his medical staff and leadership duties within the FMF. Clinical or physician specialty skills and training requirements are purposely discussed in broad, limited terms.

A. Division/Group Surgeon & Wing Medical Officer:

Functions as a special staff officer under cognizance of the Assistant Chief of Staff for Logistics (ACS/G-4). The wing medical officer performs general duties as a special staff officer and a department head, under cognizance of the chief of staff. Each advises the commander on matters relating to the health of the command. He develops the command's medical policies, and provides professional advice to the commander and his staff. He is responsible for staff supervision of medical subjects training for the command's medical and nonmedical personnel. The surgeon/medical officer and the ACS/G-4 determine internal medical support requirements, allocate organic medical resources, and establish priorities for medical support.

(24:17)

B. Division/Group/Wing Medical Administrative Officer:

Assists the surgeon/officer in the performance of his duties. He is especially concerned with medical

logistics, coordination of administrative functions, maintenance of records, and matters of personnel administration. (24:18)

C. Regimental Surgeon: A special staff officer who represents the regimental commander in all matters concerning health services. He advises the commander on matters relating to the health of the command. In addition, he exercises staff supervision over health service support functions in the regiment. (24:19)

D. Battalion Surgeon: A special staff officer who, in addition to his duties in patient treatment, is a planner, organizer, teacher, supervisor, and advisor. He advises the battalion commander and his staff on all matters pertaining to the health of the battalion, and performs other duties as the battalion commander may direct. The surgeon directs the activities of the battalion medical section. He is responsible for--

- (1) Organizing the battalion medical section and assigning medical personnel to appropriate duties.
- (2) Preparing the health services appendix to the battalion's operational plan.
- (3) Supervising and assisting in collection, care, treatment, and evacuation of the sick and wounded.
- (4) Ensuring that medical supplies and equipment are

properly managed, and that a responsive resupply system is planned and tested to ensure adequate supply levels in garrison and in combat.

(5) Recommending appropriate sites for battalion medical installations.

(6) Maintaining appropriate records and preparing necessary reports.

(7) Conducting medical and sanitation inspections and advising the battalion commander of the medical situation.

(8) Training medical department personnel in subjects relating to health service support.

(9) Supervising instruction for nonmedical personnel in personal hygiene, preventive-medicine, field sanitation, extraction of casualties from vehicles, litter bearing, and first aid/buddy aid.

(10) Developing plans and procedures for handling contaminated casualties.

(11) Developing medical standing operating procedures consistent with unit and higher guidance. (24:20-21)

E. Assistant Battalion Surgeon: Directs the operation of the BAS and performs such other duties as may be assigned by the battalion surgeon. (24:21)

F. Medical Battalion Commanding Officer: Must be capable of organizing, training, leading, supervising, and maintaining his unit personnel and equipment. To

effectively operate within the FMF, he must first understand the environment in which he's placed. He must be well versed in tactics, communications, logistics, and administration to best serve the supported unit. (22)

The preceding duties of MC and MSC personnel have always encompassed command, staff (advisory and administrative), and clinical functions. For example, as a physician, the Battalion Surgeon's clinical duties have been limited to simple, lifesaving procedures and monitoring the sorting and evacuation of casualties. Staff duties required the Battalion Surgeon to monitor, influence, and report on the health of the unit personnel and operational environment. The Battalion Surgeon is a key individual, both in the evacuation system and in the command and administrative structure of the battalion to which he is assigned. He is required to provide information to the Battalion Commander on the physical and mental health aspect of both individuals and units. Therefore, the Battalion Surgeon must be administratively proficient. Finally, as a clinician, the Battalion Surgeon must be able to advise as to preventive medicine, sanitation, illness in the area, and safety measures to be taken within a battalion area.

The requirements and selection of physicians to fill the key position of the Battalion Surgeon, and that of Commanding Officer of the medical battalion are matters

that need to be reviewed.

As stated by Frank B. Berry in an issue of Military Medicine:

A well balanced Military Medical Service requires two components - first, a large group of physicians well qualified in general practice and in the specialties, and second, a segment interested and proficient in the military and the various aspects of organization, tactics and strategy. They must be able to understand and advise their commanders and line associates wisely and to exert qualities of sound leadership. This does not preclude their being good doctors in their specialty of choice, but because of their interest in and further study of military problems they can become true military officers. (2:43)

Furthermore, Berry recommends that physicians interested in a military--as opposed to a clinical--career, spend 18-24 months as a Battalion Surgeon to learn the basic military problems of the soldier. (1:89) These statements have merit and warrant consideration. History has shown that the failure of physicians to be trained and assigned to units well before their deployment to combat zones resulted in excessive casualties because of this insufficient preparation. The infrastructure of the medical system must be sound before augmenting it with inexperienced personnel. (3)

Training physicians to be qualified front line surgeons has never been easy, especially during active conflicts. A shortage of time and a lack of proper emphasis have always mitigated against the Medical

Department of the Navy in properly training physicians to perform both tactical and clinical skills. When lulls between conflicts have occurred, the emphasis on wartime military medical training and preparation has always been replaced by a peacetime emphasis on clinical training programs.

A tri-service initiative in forming the Combat Casualty Care Course (C4 course) in 1980 had the purpose of preparing military medical officers to function on an integrated battlefield during a high intensity conflict at forward points in the casualty care system. A highly visible and expertly conducted course within the Department of Defense, the Combat Casualty Care Course is of short duration (two weeks), possesses a clinical scope, and draws students from the three military services.

A popular notion has been expressed that physicians could be trained and prepared to assume company and higher level duties by attending the Combat Casualty Care Course. This is merely an expedient and unsound idea. The Combat Casualty Care Course does not make any pretense, in its course description or in practice, of graduating a surgeon prepared and trained to operate throughout the wide spectrum of conflict, especially in peacetime garrison duty. Although the course helps physicians prepare for their professional (clinical) wartime duties, the Combat Casualty Care Course was not

developed systematically to train surgeons to function as leaders.

The basic orientation currently provided to newly commissioned Medical Corps officers is broad in scope and can by no means be considered to qualify physicians for any specific duty position, much less an executive-level leadership position. There is a need to study the training a surgeon requires in order to accomplish his duties and responsibilities. (2:127)

Through time, the military and medical profession has become more complex. Tactical, logistical, and administrative doctrine has changed as rapidly as clinical medicine advances. If physicians and MSC personnel are going to be depended upon to plan, execute, and supervise the medical support provided to maneuver elements, they must be given the appropriate training. This includes the organization, functions, and tactical employment of all arms of service, including medical, and the organization, training, leadership, and tactical employment of medical assets. Physicians serving as special staff officers need to understand the responsibility of the line officer and of command; to learn and identify with the mission of his service; and to understand, to at least a reasonable degree, the duties, stresses, and hazards involved for personnel in the major segments of the armed services.

There must be Marine Corps representation on MC and MSC promotion boards. The perception that an FMF tour is

the "kiss of death" for MC, and to a limited degree, MSC personnel must be eliminated.

The Marine Corps cannot allow the Navy to "dump" physicians to the FMF. The FMF deserves and should demand quality personnel. Prerequisites for assignment as a special staff officer must be established and adhered to. The Marine Corps should no longer rely on the Navy to make the final selection of who will fill FMF billets.

An aggressive Marine Corps training program is the only means of developing tactical proficiency of both MC and MSC personnel. At a minimum, we should mandate enrollment in the appropriate MCI courses that are commensurate with the individual's rank. Attendance at Marine Corps schools (i.e. AWS, Command and Staff) must be encouraged.

MEDICAL REGULATING

This section of the MEDEVAC problem will deal mainly with medical regulating and the flow of the casualty from the point of injury to the final medical facility.

Medical regulating is the managing system designed to ensure all casualties receive the most expeditious and effective medical care possible. The type of treatment required for the casualty must be matched with the appropriate facility capable of handling such an injury.

This is very crucial when dealing with modern treatment procedures. An example would be the treatment of a burn victim. The best care this patient could receive would be at a stateside burn treatment center. This type of specialty care is what the Medical Regulating system is tasked with providing.

Critically important medical judgement must be employed over and over again with every patient. This judgement determines what type of care the patient receives during the immediate post-injury period critical to survival known as the "Golden Hour." Something that must also be considered is that when regulating is performed incorrectly, the entire system is stressed and is susceptible to failure. The flow of casualties needs experienced, well-trained personnel not just to provide care but also to determine when the patient must be further regulated (ie. moved further up the system).

It is understood that the care of the casualty in any combat area is influenced by the changing tactical condition. The combat mission is the primary goal and the would influence all regulatory decisions. Flexibility of this system is paramount.

The medical regulating system is comprised of the Amphibious Task Force Medical Regulating Control Officers (TFMRCO/LFMRCO), the Joint Theater Medical Regulating Control Officer (JMRO) and the Joint Armed Services Medical Regulating Control Officers (ASMRO).

The JMRO is the Joint Army, Navy, Air Force authority located in theater. The ASMRO, on the other hand, is responsible for regulating evacuation beyond the theater to CONUS. The ASMRO is located at Scott AFB, and with limited system support provides this service.

The Medical Regulating system comes under extreme stress during wartime scenarios and intense training. This study will focus on three areas of weakness in the system.

1. Effects of improper Aeromedevac procedures on Medical Regulating
2. Communications/coordination/data flow in theater and CONUS
3. Casualty tracking from injury to final destination

Medical Regulating, as stated earlier, has the critical importance of matching the injury with the facility. When the system is circumvented by aeromedevacs transporting wounded all the way back to fleet hospitals regardless of the type injury, minor problems are caused which grow and clog the system at a higher level. This is a very difficult area to address because the preconceived opinion of most military personnel is that all Medevacs are accomplished by helo. (25) But aeromedical evacuation is not always warranted and often bypasses the nearest facility capable of

treating the injury.

It is critical that the commander instills confidence in the medical personnel and the men he commands that responsive use of ground transportation for Medevac is, in most cases, an effective alternate to aeromedical evacuation. Waiting until a soldier is wounded before educating him and his C.O. of this, only compounds the problem. A Marine does not fight as effectively if he doesn't understand, or have confidence in, the Medevac plan.

The second area of concern is the communications, coordination and information flow which is both internal and external to the medical regulating system. If this flow fails, the casualty's survival is in jeopardy. For instance, when a Medical Regulating Control Officer (MRCO) evacuated casualties during Operation Desert Storm to a distant facility not knowing the USS COMFORT was nearer the casualty location. (3)

The tracking of the casualty from facility to facility has been a problem in every war the U.S. has been involved. During Operation Desert Shield/Storm, casualty tracking was clearly limited. Patient records would be misplaced or moved. The wrong units would be notified of the individual's location and status. Even family notification and updating of casualty information was severely inefficient. The casualty tracking system is truly broken and in need of repair.

Medical regulating is a very complex and dynamic mission which requires trained and experienced personnel.

Many ways of improving the medical regulating system are being examined by those who manage it; however, more emphasis on training involving higher casualties and chemically and biologically contaminated patients would greatly benefit the system in the immediate future. Most current exercises are logistically oriented, focusing primarily on the movement and establishment of medical facilities. MRCOs are seldom exposed to triage and asset management on a large scale with high casualties.

Finally, the physical process for tracking patients is in great need of overhaul. Dog tags are still being used to identify patients to the CONUS level. The use of computerized data bases to regulate patients and forward their records must be considered. The bar coding system is an excellent means of tracking patients prior history and current situation. This technology is available and in use in many American hospitals. Though now used primarily at the CONUS or theater level, this technology can be of great value early in the medevac process.

ASSET ALLOCATION

One dilemma that has faced military commanders throughout the ages is asset allocation. Usually a commander will prioritize his goals and then allocate his resources accordingly. The modern battlefield in a conventional war is a fluid, mobile environment. Today, commanders' dilemmas revolve primarily around the issue of mobility. Battlefield personnel replacements, logistic trains, and maneuver combat units all vie for the commander's precious mobility resources. Surely no one would argue that our Marines are our most valuable asset, and of primary importance is the ability of the medical service to provide quality care. The predicament is how, with limited assets, to provide quality care yet maintain a mobile force.

Fortunately, Operation Desert Storm produced few casualties. But After-action reports as well as several articles have identified several serious problems in the way the sea services allocate resources to the medevac system. Although there are numerous areas of discussion, we will focus our attention on four areas: personnel, facilities, transportation, and supply.

PERSONNEL

Prior to Iraq's invasion of Kuwait, I MEF was manned at about 50% of its Table of Organization (T/O) for enlisted medical personnel and approximately 20% of its T/O for nurses and physicians. The Navy augments the operational forces with individuals from the Bureau of Medicine (BUMED) facilities through the Medical Personnel Augmentation System (MPUAS). MPUAS was implemented early in Operation Desert Shield, and I MEF received about 1,000 people in the first two weeks. Over 1,500 came in by the end of Operation Desert Storm. (2) MPUAS allowed I MEF to deploy with an adequate medical complement, but several problems surfaced. Field training for MPUAS personnel ceased in 1988 because of funding and manpower constraints. This resulted in many medical personnel that were dysfunctional in a deployed, field environment. Additionally, many were not screened for deployability nor were they screened for medical knowledge in the billets they were to assume. (6:1) The long lead time during Desert Shield allowed sufficient training of early augmentees, but we will probably not have this luxury in a future conflict.

The mobilization and readiness of the Naval Medical Reservists during Operation Desert Shield/Storm was woefully inadequate. Many reservists reported to duty without eyeglasses, gas mask inserts, medications, and

health records, and they were poorly screened for deployability. Many were badly out of shape and were candidates for a weight control program. (7:1) Some reservists had very high medical skills, and some had none. The result of this was a very turbulent mobilization. Areas that are in need of review include reserve medical billet structure, mobilization criteria, basic medical skills, and timeliness in mobilization notification. Recent manning inadequacies, anticipated force restructuring, and anticipated force reductions further compromise the medical corps readiness. A key issue for the future will be the proper mix, preparation, and distribution of medical personnel to meet operational readiness.

FACILITIES

Another critical issue in asset allocation is the facilities that the medical corps uses. Medical facilities afloat provide the amphibious commander with an organic capability that few others enjoy. But this capability is declining because of the very nature of warfare today. Silkworm and Exocet missiles (as well as other weapon systems) have driven the amphibious task force over-the-horizon, and with it a large portion of the forces' medical facilities. We can safely assume that there will never be a time when one hundred percent of the

afloat medical facilities will be available for casualty receiving and treatment. Obviously, this places additional stress on the facilities ashore, something they can ill afford.

Medical care ashore is administered by the Naval Medical Corps at four echelons within the AOA: Level 1 is the company corpsman; Level 2 is the battalion/regimental aid station; Level 3 is the medical battalion; Level 4 is the fleet hospital. Levels 3 and 4 are in serious need of improvement. By 1993, the Navy will have up to twenty-three modular 250-to 1000-bed hospitals that will be stored in warehouses or aboard ships. These fleet hospitals have been purchased for approximately \$30 million apiece. Each 250-bed hospital comes in 325 containers and requires 8-10 days for assembly. This assembly takes place after the site has been prepared by a 250-man detachment of Seabees. (19:49) The size and lengthy construction time of these facilities which were deployed on Operations Desert Shield/Storm have been the topic of several after-action reports. The answer, obviously, is to field smaller, lighter, and more mobile facilities.

One solution to this problem could be the procurement of the DRASH (Deployable Rapid Assembly Surgical Hospital). The DRASH is made of jointed metal frame and attached tentage. The basic module makes a six- or eight-bed battle aid station that can be combined

with other modules to build a 200+ bed hospital complete with x-ray, laboratories and operating rooms. Rather than the days or weeks required to assemble a fleet hospital, these modules can be erected by two people in just 90 seconds. When displacement is necessary, the unit can be stowed in minutes or hours, moved and rapidly redeployed.

(19:50)

Unfortunately, the medical battalion suffers from many of the same problems as do the fleet hospitals. Specifically, it's too heavy and lacks mobility.

The Medical Battalion, as it is configured today, was largely the result of experiences gained during World War II. Medical units were organized, trained, and employed forward to bring the surgeon to the casualty. The objective was to provide surgical treatment to the patient in the "Golden hour". It was within this framework that the present medical battalion was developed; thus their echelon of care provides forward treatment. The goal was, and remains, to provide the resuscitation and surgery necessary for the stabilization and evacuation to a facility capable of definitive or restorative care. (8:51)

Clearly, medical technology has come a long way since World War II. With the advance of technology has come a desire to attempt to provide all the advantages of new technology to every wounded Marine, at every level of treatment. The effect this desire has had on the companies of the medical battalions has been obesity. The

medical companies can no longer move. During Desert Shield/Storm, this lack of mobility placed an immense burden on the system because instead of bringing the surgeon to the casualties, we had to bring the casualties to the surgeon. This change in procedure costs time where it is most critical, at the expense of the patient.

Because of the immense logistical effort to move a surgical company (62 flat-bed truckloads to move with 15 days of supply) the Second FSSG was unable to provide the GCE with doctrinal medical support. (6)

The solution is to get back to the basic mission of the medical battalion: forward medical support, mobility, and flexibility. These units must be capable of tactical mobility in keeping with the concept of operations and the scheme of maneuver of the commander. The support provided by the medical battalion units must be limited to resuscitation, life saving, and emergency surgery. The more sophisticated procedures and treatments must be left for the rear units and higher echelons of care. The third and fourth echelons of care must be as expeditionary as the force they are supporting.

TRANSPORTATION

In addition to the logistical burden the medical battalion has become, two factors are responsible for the reversal of the original aim of forward medical support:

the use of the helicopter in aeromedical evacuation, and inadequate ground Medevac capability.

The use of helicopters for medevac was started in Korea and gained prominence in Vietnam. As distance and time between wounding and treatment decreased in Vietnam, the size and lack of mobility of medical facilities increased. The Vietnam War served to create an entire generation who equated medevac with helos. Since Vietnam, we have become increasingly dependent on helicopters for evacuation. This dependence was highlighted during Operations Desert Shield/Storm. Several after-action items describe an ineffective aeromedical evacuation system. In his lessons learned report, Col A.M. Lloyd stated, "All helicopter medevacs from positions other than 2D MARDIV's own landing zone took over 90 minutes for completion." He goes on to state that "There are significant problems with the air medevac process."

Air medevac should be reserved for those whose life depends on timely evacuation. Clearly, the Marine Corp's doctrine of "lift of opportunity" will not suffice in a mid or high intensity conflict. Because the Marine Corps lacks the assets to designate an entire squadron to medevac, consideration should be given to a reserve squadron being so designated. This squadron would train and deploy with the express mission of medical evacuation.

If this squadron is not mobilized, efficiency of helicopter Medevac must be improved. Areas requiring

specific improvement include: improved request procedures, reserving helicopter evacuation for those whose lives depend on it; improving coordination between control agencies and flying squadrons.

Having identified the shortfalls of aeromedical evacuation, the MEF clearly needs adequate ambulances, both in quantity and capability. Unfortunately, the M1035 ambulance is ill-designed and ill-equipped; it is difficult to load casualties and nearly impossible to care for them inside. They lack communication and navigation gear and are extremely vulnerable to small arms fire. (6)

A more suitable ambulance is the M997. Additionally, infantry battalions, infantry regiments, CSSD's, and the entire medical battalion all suffer from a shortage of ambulances.

SUPPLY

The deficiencies that have been discussed up to this point will prove difficult to fix considering the current austere fiscal climate. The serious deficiencies in medical supplies will require a monetary infusion as well. But the bulk of the solution is in proper management, command interest, and organization.

Our research points to nearly universal dissatisfaction with Class VIII Prepositioned War

Reserves (PWR) and Authorized Medical Allowance Lists (AMAL). Several lessons learned reports mention a Class VIII resupply via the Medical Logistic Companies (MEDLOG CO'S) that was unresponsive, inflexible, and without coordinated leadership. (6) The problem with AMALS was of such severity that some FMF AMALS opened in SWA were missing up to 60% of the required contents. All three SWA Maritime Prepositioned Forces had deficiencies of a million or more dollars worth of Class VIII. (3) In his after action report regarding AMALS design and contents, Capt R.D. Handy states that contents of AMALS 635 and 636 were short of T/E, lacked basic items, and contained inappropriate (sometimes ludicrous) substitutes. Both Captains Crim and Handy agree that the PWR contained many supplies that had expired, and had several sections completely missing. (3:7)

Obviously, the aforementioned shortcomings in the Marine Corp's allocation of assets has generated anxiety and even animosity within the medical community. We were truly fortunate that only limited casualties were encountered during Operations Desert Shield/Storm.

CONCLUSION

This paper has addressed several areas in which Medevac can be improved, resulting in a more efficient, flexible system. Requiring prerequisites for special

staff officer medical assignments and developing tactical proficiency of MSC and MC personnel are critical to improving the Medical Corps support to the MAGTF. High Casualty exercises increasing MRCO's exposure to triage and asset management will greatly improve the efficiency of the Medical Regulating System.

Fielding smaller, lighter, and more mobile medical facilities such as the DRASH supported by a capable ambulance such as the M997 will allow forward medical support in keeping with the scheme of maneuver of the MAGTF Commander. This can be accomplished without automatically relying on aeromedevac assets.

The state of PWR/AMALS needs to be a priority to the Marine Corps in order to prevent outdated, poorly maintained Class VIII supplies from crippling medical support to the MAGTF.

Only by commanders making Medevac a serious training priority will the System ever be fixed.

BIBLIOGRAPHY

1. "Accountability of Personnel Medically Evacuated from Southwest Asia." Marine Corps Lessons Learned System 70829-72798. 1991.
2. Berry, Frank B. "The Status of the Medical Officer: His Training and Employment." Military Medicine, Dec 1964
3. Crim, J., Captain, USN. Point Paper dated 4 Oct 1991
4. Davis, Joanne, Lieutenant Commander, USN. Personal interview, MCCDC Quantico. 6 Dec 1991.
5. Engle, Eloise. MEDIC: America's Medical Soldiers, Sailors and Airmen in Peace and War. New York: The John Day Co., 1967
6. Handy, R.D., Captain, USN. Marine Corps Lessons Learned System Long Report 40347-35231. 1992.
7. Handy, R.D., Captain, USN. Marine Corps Lessons Learned System Long Report 40350-45829. 1991.
8. Hooten, Carl J., Lieutenant Commander, USN. "Medical Support for the FMF: Far in the Rear, Too Much Gear." Marine Corps Gazette, Apr 1990: 51-53.
9. Jeffries, Richard, Commander, USN. First Marine Division Surgeon After Action Topics for Fourteenth Fleet Marine Force Conference, 14 Jan 1992.
10. ---. "First Marine Division Exceptional Medical Concerns For Desert Storm, 20 Mar 1991.
11. ---. "First Marine Division Topics for 1992 Fleet Marine Force Medical Department Conference, 26 Nov 1991.
12. "JMRO Medevac Coordination." Marine Corps Lessons Learned System 02329-79900. 1991.
13. "Joint Service Approach to Personnel Casualty Reporting." Marine Corps Lessons Learned System 61253-21456. 1991.
14. Jones, D., Chief Petty Officer, USN. Personal interview, Scott AFB. 15 Jan 1992.
15. Knisley, Colonel, USAF. Personal interview, McDill AFB. 14 Jan 1992.
16. Lloyd, A.M., Colonel, USMC. Marine Corps Lessons Learned System Long Report 40375-51618. 1991.

17. "Managing Casualty Information." Marine Corps Lessons Learned System 52035-00300. 1991.
18. "Medical Casualty Tracking." Marine Corps Lessons Learned System 40374-42120. 1991.
19. Mertz, Kenneth A., Lieutenant Commander, USN. "Medical Management in High-Intensity Combat--Can It Be Done?" Marine Corps Gazette. Apr 1990: 46-50.
20. Riley, Terrence. Captain, USN. "Medical Service in the FMF: Time for a Change." Marine Corps Gazette, Sept 1991: 51-52.
21. United States Bureau of Medicine and Surgery. Combat and Field Medicine Practice. 1956.
22. United States Bureau of Medicine and Surgery. Task Force Medical Regulating Manual. 1990.
23. United States Department of the Navy, Bureau of Medicine and Surgery. Manual of the Medical Department, U.S. Navy. 1980.
24. United States Department of the Navy, Marine Corps. Health Service Support. 1990.
25. Vidmar, J.E., Captain, USN. Personal interview, MCCDC Quantico. 19 Dec 1991.