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# Professionalism and Leadership in the Army Medical Department

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N/A

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4. PERFORMING ORGANIZATION REPORT NUMBER(S)  
  
NDU-ICAF-92-*R 23F*

5. MONITORING ORGANIZATION REPORT NUMBER(S)  
  
Same

6a. NAME OF PERFORMING ORGANIZATION  
Industrial College of the  
Armed Forces

6b. OFFICE SYMBOL  
(if applicable)  
ICAF-FAP

7a. NAME OF MONITORING ORGANIZATION  
  
National Defense University

6c. ADDRESS (City, State, and ZIP Code)  
Fort Lesley J. McNair  
Washington, D.C. 20319-6000

7b. ADDRESS (City, State, and ZIP Code)  
Fort Lesley J. McNair  
Washington, D.C. 20319-6000

8a. NAME OF FUNDING / SPONSORING  
ORGANIZATION

8b. OFFICE SYMBOL  
(if applicable)

9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)

10. SOURCE OF FUNDING NUMBERS			
PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)  
*Professionalism and Leadership in the Army Medical Department*

12. PERSONAL AUTHOR(S)  
*Daniel Ferrugini*

13a. TYPE OF REPORT  
Research

13b. TIME COVERED  
FROM Aug 91 TO Apr 92

14. DATE OF REPORT (Year, Month, Day)  
April 92

15. PAGE COUNT *67*

16. SUPPLEMENTARY NOTATION

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

15. ABSTRACT (Continue on reverse if necessary and identify by block number)  
  
SEE ATTACHED

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT  
 UNCLASSIFIED/UNLIMITED    SAME AS RPT.    DTIC USERS

21. ABSTRACT SECURITY CLASSIFICATION  
Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL  
Judy Clark

22b. TELEPHONE (Include Area Code)  
(202) 475-1889

22c. OFFICE SYMBOL  
ICAF-FAP

## PROFESSIONALISM AND LEADERSHIP IN THE ARMY MEDICAL CORPS

### ABSTRACT

For every mobilization in recent history, our nation has been able to deploy physicians in sufficient numbers to support the combat forces. However, medical officers' inadequate personal preparation and soldier skills, incomplete understanding of military medical administration, and inexperience in combat have threatened the lives of soldiers and physicians. Neither modern medical education nor ordinary practice experience prepare physicians for combat. Nevertheless, physicians can be prepared to practice in the austere environment of the battlefield. The process is one of education and acculturation. Technical credibility, appropriate knowledge and attitudes are essential. Development of military physicians' soldier skills, professional or clinical skills and leadership skills is fundamental to the concept. This study reviews historical lessons and proposes an integrated professional development program for military physicians that will prepare them to practice, in combat, every aspect of their profession, from patient care to command.

Daniel F. Perugini



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## PROFESSIONALISM AND LEADERSHIP IN THE ARMY MEDICAL CORPS

In the next several years, an increasingly complex, volatile and unpredictable world situation will challenge the United States. The demands which that world environment will place on our military establishment, particularly our conventional forces, will be extraordinary. The Army Medical Corps will not be immune from those demands. Will it be ready?

In his testimony before the Senate early in 1991, General Carl E. Vuono, Chief of Staff of the Army, outlined strategic imperatives facing the Army of the twenty-first century.<sup>1</sup> The operative phrases most applicable to the Medical Corps are "globally deployable...no warning" and "training...the cornerstone of readiness" so that "soldiers, units, and leaders...accomplish...missions and survive...combat."<sup>2</sup>

During every critical period of our nation's history, some military physicians' inadequate personal preparation and soldier skills, incomplete understanding of military medical administration, and inexperience in combat have threatened the lives of soldiers and care providers. In almost every conflict, time and exposure to combat medicine have been the essential - the most effective - instructors. However, in an age of rapid deployments and "come as you are" wars, Professor Time may not always be able to work his magic.

Nevertheless, physicians can be prepared for mobilization and combat. The process is one of education and acculturation. It occurs only when the student - the physician - allows it to happen. It is a slow process, absorbed in small doses, tempered by time and leavened by experience in the proper environment. Technical expertise is essential. This applies to soldier skills, professional/clinical skills and leadership skills. The price of deficiency therein is lost credibility and ineffectiveness.

Development of clinically competent, operationally astute, physician leaders is costly. It requires a committed senior leadership, medical teachers who are willing to lead by example, and junior physicians and medical students with faith in their mentors and courage to experiment. So bolstered, we can design an integrated professional development program for military physicians that will prepare them to practice every aspect of their profession from patient care to command.

Following redeployment from Operation Desert Storm, several Army Medical Department Conferences were organized to capture lessons learned from the mobilization, deployment and conflict. To the medical officers who attended these sessions, professional, operational, command and survival skills of physicians were issues of singular importance.<sup>3</sup> Taken together they suggest a central theme of the need for professional and leader training leavened by experience - a lifetime of preparation for operational medicine at all ranks and in all

specialties. As such they represent one of the critical challenges that has consistently plagued the Army Medical Department throughout its history. The Department's ability to overcome these challenges is testimony to its personal, professional, and institutional competence.

This study attempts to coalesce the opinions of the physician specialty panels and relate their experience to the Medical Department's historical patterns of war fighting. Personal preparation for one's respective role in combat defines the essence of military medical professionalism. Therefore, the focus is on related aspects of mobilization and medical operations as perceived by the physicians, medical staff officers and commanders who attempted to practice their art and science in an austere environment.

It must be emphasized that the resource material derived from professional after action reviews has not been validated. That process is beyond the scope of a paper of this nature. It will require time and the concerted effort of multiple experts in doctrine, training, medical practice, leader development and materiel acquisition and management.

## LESSONS OF PAST CONFLICTS

Throughout its two century history, the Army Medical Department has continued to evolve as a military medical force. The hard lessons of each conflict have often been forgotten during the inter-war years, but they have also engendered changes in the way the medical department prepares to support our fighting forces.

### American Revolution - Organizing the Department

The colonial physicians who were appointed to the Continental Army's Medical Department in 1775 were all civilian practitioners, many without any military experience.<sup>4,5</sup> Fortunately, some few had obtained limited experience in military medicine during the French and Indian War when they became familiar with the lower level operations of the British Army's medical department. Nevertheless, most American regimental surgeons tended to be poorly trained, at times leaving the sick and wounded untended for days.<sup>6,7</sup>

The deplorable quality of the colonial army physicians was reflective of the medicine of the day but resulted in Congressional recognition of the need for a Surgeon General to promulgate and enforce centralized policy and standards.

### War of 1812 - Selection Criteria for Medical Officers

Experience remained a problem after the Revolutionary War. Congress relied heavily upon militia and volunteer units. The small force of Regulars which was maintained during this time did not require a formal medical department. A single surgeon was authorized for each regiment of Regulars, and when the army was large enough to require hospitals, these were authorized surgeons also.<sup>8</sup>

In an attempt to winnow out incompetence, in 1813 the Surgeon General published criteria for the selection of medical officers. Unfortunately, more than the lack of military training and experience, the weak professional education and scarcity of civilian physicians blunted the expected positive effect.<sup>9</sup>

### Civil War - Standards, Supervision, and Reorganization

Prior to the Civil War the Medical Department comprised less than one per cent of the Army.<sup>10</sup> The war created such a vast demand that by April, 1865, more than 12,000 doctors had seen service in the field or in hospitals.<sup>11</sup> Such growth in the Medical Department could not but lead to problems of administration and inexperience.<sup>12</sup>

Reports from military physicians and surgeons of the era were not complimentary. Volunteers found the older Regulars arrogant, accepting of lower standards, lacking professional interest and fixed in stagnant routine. The volunteers resented having to take orders from leaders they considered

professionally inferior. Because they ignored orders and upset routine by not using standard reports, the Regulars called the young volunteers intractable and hard to indoctrinate into the military system.<sup>13</sup>

In June of 1861 the United States Sanitary Commission (a civilian oversight body) was created and immediately proposed revolutionary reforms. Their findings and concurrent internal reviews acknowledged inadequacies in the professional and military preparation and discipline of medical officers. However, the medical administrative system remained far from perfect well into 1862. The Regular Army surgeons who held most of the ranking medical directorships were frequently without administrative talent and often of a stubbornly conservative cast. They were hampered by the ignorance and inexperience of the volunteer regimental surgeons, many of whom were insubordinate and indisciplined.<sup>14</sup>

Reports on the poor performance of the small Regimental Hospitals illustrate the ignorance of military administration and lack of leadership skills common among Regimental Surgeons.

"These little hospitals were good or bad according to the intelligence and sense of responsibility of the regimental surgeons in charge. There was suffering in many because the surgeon did not know how to draw supplies, or how to husband those he had drawn."<sup>15</sup>

Although, in a bureaucracy, problem recognition does not lead to ready correction, throughout the war there was a gradual evolution towards consolidation of the small regimental hospitals into larger hospitals. By 1863, corps hospitals were

the rule in the Army of the Potomac. Consolidation tended to conserve scarce administrative talent, and capitalized upon the leadership skills of the most capable senior surgeons. It also permitted greater surgical specialization and considerably improved the supervision of junior surgeons, markedly reducing the suffering of the sick and wounded.<sup>16</sup>

#### Post-Civil War Reforms - Toward a Trained and Ready Department

Between 1885 and 1910, the War Department recognized the inadequacies of the military medical care system and initiated several educational and organizational reforms to improve the efficiency and effectiveness of the medical team, and to prepare physicians for military medical practice, administration and staff duties.

Perhaps of greatest importance was the recognition that reorganization of field ambulance services under Medical Corps supervision had improved care of battlefield casualties during the latter part of the Civil War. In 1887, Congress established the Hospital Corps as a formal part of the Medical Department, entrusting the training and supervision of enlisted medical assistants to military physicians.<sup>17</sup> Likewise, in 1901, the Nurse Corps (female) was established as a permanent corps of the Medical Department.<sup>18</sup> The Army Medical School (1893),<sup>19</sup> and the Field Service and Correspondence School for Medical Officers (1910)<sup>20</sup> were established to train medical officers for administrative, staff and field work. The major elements of a trained and ready medical department were now instituted.

## World War I - Medical Reserve and Team-Building

As the nation geared up in preparation for its entry into World War I, the problem of obtaining specialized personnel to man the medical facilities of the vastly expanded Army was met in part by the organization of volunteer hospitals. In 1912 the Surgeon General proposed that the Red Cross organize base hospitals which could be turned over to the Army when war came. Personnel were to be enrolled, supplies and equipment assembled, and doctors commissioned in the Army Medical Reserve Corps.

In essence, teaching hospitals of the major cities organized reserve detachments for mobilization and deployment as a unit in time of war. Physicians, surgeons, nurses, assistants and technicians working in their field daily were prepared to deploy and practice their professions in the military environment. Ultimately, fifty hospitals were organized for the Army and provided trained personnel, enrolled and ready to move when the emergency came.<sup>21</sup>

This concept was important because it recognized that medical professionals who shared peacetime practice experience in the same institutions were better prepared to work together and support each other in combat. Lines of communication, authority and responsibility were unchanged from their customary civilian patterns. Leader continuity and authority were clearly defined in both the civilian and military settings. Of note, certain nations maintaining large reserve combat forces currently operate very successfully under similar organizational arrangements.

### Between the World Wars - A School for Operational Medicine

Overall inadequate performance of the American Expeditionary Force's (AEF) medical support prompted the Surgeon General to establish the Medical Field Service School in 1920. This was the one movement in the Army Medical Department which paralleled that of the line Army. The emphasis was on professional training - especially command and staff doctrine associated with field medicine. Regrettably, by the end of the 1930's fewer than 2,000 personnel had attended the school.<sup>22</sup>

The result was predictable. The performance of many medical officers was judged "less than adequate" during the spring maneuvers of 1940. Many had worked only in fixed hospitals and lacked field experience entirely. The Annual Report of the Surgeon General went on to state:

"The inexperience of all echelons of command in the use of these [field] units showed the necessity of having in being all of the tactical medical elements of mobile forces in order that all may be trained in respective responsibilities and cooperative action."<sup>23</sup>

### World War II - Clinical Consultants, Army Medical Residencies

All the usual problems of the preceding hundred and fifty years faced the Army Medical Department during the early days of World War II. Soldiering skills, professional knowledge and combat experience differed between regulars and drafted physicians. Leadership skills were not universally developed. Commanders were often selected after their unit had been formed and sometimes only shortly before embarkation. There were bound to be clashes between "the army way" and civilian techniques.

At the very beginning of mobilization there was a small group of regular medical officers well trained in the operations of the Army Medical Department. Although a few older physicians called to serve in World War II had seen service in World War I, practically all of the new medical officers were completely unfamiliar with the ways of the Army and the Medical Department.

The regulars were familiar with Army regulations, accustomed to command and to obey, and, in most instances, proficient in the care of sick and wounded. The new medical officers were all recruited and commissioned as temporary wartime officers in the Army of the United States (AUS). Although they received field grade commissions, they lacked training as soldiers. They brought patriotic enthusiasm, professional ability and attainment, and fine fellowship. Conversely, they respected only professional credentials and showed disrespect for Army manners and customs.

Clearly, certain regular officers had achieved considerable peacetime reputations and ability in the field of amputations, tuberculosis, infectious disease, and so forth. However, on the whole, new officers brought to the Army a higher overall professional skill than had existed before. Not surprisingly, awkward situations arose. At times, regular officers of high rank in leadership positions dictated professional treatment which the AUS officers knew to be outmoded. This resulted in less effective treatment and completely undermined confidence in these commanders. When such orders were disobeyed commanders became frustrated and resentful toward their subordinates.<sup>24</sup>

It seems that many lessons of the preceding conflict had been forgotten. For example, when the United States entered World War II, there was no specialty consultant system in the Medical Department, although this was an essential part of the system in the American Expeditionary Force.<sup>25</sup> As a result of this oversight there were few specified clinical policies. Surgeons employed the techniques which they had found satisfactory in civilian practice. The results, however, were often unacceptable because combat wounds were more severe and extensive than peacetime wounds and the practice environment of military surgery was not conducive to many techniques of civilian surgery.<sup>26</sup>

The problems caused by the inexperience of the medical staff were compounded by leader disruptions. Commanding officers of many of the hospitals had little information as to how their men performed in action. Some commanding officers had joined the units some time after their organization, even as late as the day of embarkation, and had had no opportunity to see their personnel work together in a hospital. However, by direct association with the professional staff during the period of travel and staging, they were usually able to minimally evaluate the adaptability of individuals.<sup>27</sup>

Apparently, the need for leader preparation and continuity, the benefits of clinical consultant oversight, and adaptations of surgical techniques and practices to the combat situation were all forgotten between the World Wars. With the press of mobilization, medical officers did not have very much

opportunity to attend the Field Service School. Geared-up basic training programs for drafted physicians dealt with the fundamentals and externalities of army life. As in past conflicts, the essential curriculum for the training of medical corps officers appears to have been actual experience gained directing others and treating casualties in combat. Learning through experience is the method most familiar to physicians because it is employed in medical training throughout the clinical years. However, in combat, it is a costly and untimely educational method.

The Medical Department dealt with these complicated issues by reinstating the consultant system. Consultants attempted to visit hospital units prior to their embarking upon a mission. They spent two or three days gaining insight into the background, training, and personality of the medical officers. They also outlined the general principles in the care of the wounded and discussed problems peculiar to the oncoming mission. When the unit had not seen action under combat conditions, the consultants often encountered considerable enthusiasm and an equal amount of ignorance.<sup>28</sup>

One bright spot in the arena of personal readiness was the portable surgical hospital consisting of four medical officers and twenty-five enlisted men. Introduced in 1942, and employed during the New Guinea campaign, through Leyte, and to a lesser degree in Luzon, they were easy to move and to supply and provided definitive surgical treatment. The officers who

volunteered for this type of service were exceptionally well trained. They selected and trained to their standards the best non-commissioned officers and enlisted men they could find.<sup>29</sup> Without a doubt, the accomplishments of these units were overwhelmingly due to the training and readiness of their personnel.

In the area of medical education, the singular result of Medical Department experience in World War II was the recognition by Regular Officers of the need for a corps of military physicians who were prepared to take on administrative responsibilities but were also well grounded in the technical aspects of the new specialties of medicine. Therefore, in 1946, the Surgeon General initiated the Army Residency Programs in the medical and surgical specialties.<sup>30</sup> This departure from the past marked the beginning of advanced post-graduate clinical education in Army teaching hospitals. These programs were proposed as a ready source of medical officers who would be prepared to practice their specialties in combat. The onset of conflict in Korea would provide the first opportunity to test the validity of their clinical training and the extent of their military professional readiness.

#### Korean Conflict - Debating Technical vs. Operational Readiness

Professional and combat inexperience, ignorance of field procedures and inadequate personal preparation for the horrors of battlefield medicine haunted the Medical Department during the early days of the Korean Conflict. Many residents graduated

directly from Army teaching hospitals to become battalion surgeons, working in front-line aid stations. Some were not prepared for their responsibilities and were ignorant of field procedures, organization, and weapons.<sup>31</sup>

Mitigating the situation was the military experience of Medical Corps officers in command positions and of many Army Nurse Corps officers, Medical Service Corps officers and enlisted men. Although their numbers were small, most regular officers and many reservists had had battlefield experience in World War II.<sup>32</sup>

This "early conflict" theme contrasted with the post World War I Medical Department, when most medical officers lacked specialized professional training but had acquired broad experience as soldiers.<sup>33</sup> On the other hand, regarding strictly technical skills, whether they worked in battalion aid stations, field hospitals or fixed facilities, young doctors had a hard time adapting to the battlefield.<sup>34</sup>

Because there was no one else, Army residents were shipped to the Pacific before completing their training programs. When they arrived in Japan, they were issued field equipment which they had never seen before and told the designations of field units to which they had been assigned. Many junior officers who were residents in the Army's professional training program entered Korea without field training. Some residents received no field training at all prior to combat. Those who had completed their residency received (at the Medical Field Service School) a brief and ineffective introduction to military fundamentals.<sup>35</sup>

However, the doctors admitted that the Medical Service did not bear the burden of fault in toto. All officers reported that the field medicine course would have been more valuable if they had been impressed with its usefulness. But at that time the majority were preparing to specialize and had little or no interest in field medicine.<sup>36</sup>

Certain senior Army physicians complained that the viewpoint of Regular Army medical officers had been thoroughly professionalized and approached that of the drafted civilians who saw military service as an intrusion upon their lives. Most of the young doctors coming to Korea did not appear well versed on the simple fundamentals of care of wounds or the management of battle casualties. By necessity, the Medical Department developed a program of field training within Korea.<sup>37</sup>

Later, as the war degenerated into a long stalemate, the clinical aspects of the medical system gradually matured even as the military aspects deteriorated, reflecting the nature of the war and the outlook of doctor draftees.<sup>38</sup> The nature of the conflict, the environment - both physical and political - the emphasis on technical skill and the perennial attitudinal differences between military professionals and drafted physicians all contributed to the deterioration in standards and the loss of unit pride. At the same time, the survival rate of casualties who reached Army hospitals was the best in the history of the Medical Department.

## Vietnam Conflict - Specialty Teams and the Need for Primary Care

A review of the Vietnam Conflict presents a completely different picture of military medicine. Unlike all previous wars, the relative stability of forward hospitals made possible the use of sophisticated equipment.<sup>39</sup> Surgical technique was certainly state of the art and perhaps more so in the realm of trauma care.<sup>40</sup> Helicopter evacuation of casualties, born in Korea, was essential, and matured in Vietnam.

The reduced need for frequent tactical movement of hospitals, helicopter overflight of divisional medical facilities, and relative security of base camp existence all conspired to obscure individual inadequacies in medical readiness, soldier skills and combat medicine. Nevertheless, they remained issues and presented challenges to the Army Medical Department as always. Finally, the burgeoning growth of specialty medicine coupled with the veritable demise of properly trained and ready generalist physicians forecast changes in modern military medicine which are still evolving today.

Surgical technique was as advanced as the state of the art, especially in the realm of trauma; but there were some aspects that civilian trained surgeons had to relearn. "Since surgeons arriving in Vietnam were not adequately prepared by their background in civil trauma to treat combat casualties, they were attached to experienced teams for orientation and learned technique in the operating room."<sup>41</sup>

Changes in the conduct of military operations in Vietnam caused modification of past doctrinal concepts of hospital usage

in a combat area. There was no "front" in the tradition of World War II. Instead, base camps were scattered over the countryside. The base camp was relatively secure unless it was under attack. Billets, messhalls, and storage areas were constructed to support the units. Revetments were raised around all inflatable MUST components to make them less vulnerable during attacks. Semipermanent, air-conditioned, fully equipped hospitals were constructed at a number of these camps. Because hospitals supported operations from fixed locations, selection of a secure area for a hospital site became paramount.<sup>42</sup> At such sites, lack of soldiering skills and inadequacies in personal readiness were not as readily apparent as in past wars.

Additionally, hospitals did not follow an advancing army. Hospitals moved to support Army activities, but not tactical operations in the tradition of World War II and the Korean War. Except for the interim use of MUST equipment, the moves were more deliberate than the movement of tent hospitals in previous conflicts.<sup>43</sup> Thus, Army hospitals in Vietnam, including the MUST units, were fixed installations with area support missions. Proximity to tactical operations was a consideration only in the sense that the hospital had to be within reasonable air-evacuation time and distance.<sup>44</sup>

Again, the use of fixed facilities with the capability to support and sustain sensitive equipment made inadequacies in personal readiness less apparent than in previous wars.

However, there is evidence that there were problems when units were called upon to function according to doctrine - to move and operate under tactical conditions. Furthermore, all medical facilities were vulnerable to enemy attack. MG Neal documents the results of attacks on inflatable hospitals during which several personnel were wounded and the inflatables received extensive damage.<sup>45</sup>

Standards and style of medical practice also changed during the years in Vietnam. Army hospitals were inundated with outpatients referred for specialized consultation by physicians in troop dispensaries and divisional medical activities. The hospitals were not staffed or equipped to accommodate this unprogrammed workload. Furthermore, adequate facilities to house and feed the referred soldiers were usually not available; and significant discipline, control, and transportation problems arose.<sup>46</sup>

In the opinion of certain military medical leaders of the time, modern medical education contributed directly to the difficulty. Many of the physicians on duty in Vietnam had come directly from civilian practice or training. Their medical school and residency curricula had increasingly emphasized specialization and the use of specialist consultants. The development of sophisticated diagnostic and treatment procedures, evolving standards of care which demanded the very best care for patients in any environment, and the increasing awareness of malpractice suits added further to the problem.

The Vietnam Conflict taught several lessons. First, even though most medical support was provided from fixed facilities medical units still required practice in the operation of mobile field equipment if they were to retain the skills needed to move and set up hospitals, to treat combat casualties, and to survive combat themselves. Second, civilian trained surgeons had to relearn the wound care techniques of previous wars. Third, no amount of course material could prepare physicians for combat. Novices were assigned to teams of experienced combat surgeons until they had mastered the art of combat medicine.

These techniques were successful when there was sufficient time to orient new physicians to the hospital or dispensary. However, they could not relieve the discomfort of junior physicians thrust into the lonely, foreign and hostile environment of forward deployed troops and battalion aid stations. Hence, Vietnam was noted for the high rate of referrals which created great difficulties for hospital administrators and considerable lost time for troops referred for specialty consultation in the field.

The Army Medical Department attempted to deal with these problems by the strategic placement of commonly utilized consultants and modification of the Table of Organization and Equipment (TO&E) of medical units.<sup>47</sup> That was reasonably useful during flush times, when drafted physicians could be transferred in theater and when there were plenty of drafted general medical officers fresh from their internships and available for duty in the battalion aid stations, brigade

medical companies and troop dispensaries. Unfortunately, the tactic was ineffective in the garrison setting during the post-war era of drawdowns and physician shortages. First, there were not enough specialists to accommodate the need. Second, there were not enough primary care physicians, or general medical officers, willing to work in the pressure cooker of troop clinics and dispensaries where troops sought their first access to the medical care system.

#### Post-Vietnam - Enhancing Physician Capability & Effectiveness

Those Vietnam era accommodations recognized the existence of a fundamental problem in physician preparation for the military health care environment and began to address expedient solutions from within the system. However, the post-Vietnam drawdown forced the service to reconsider parts of this decision and implement more flexible and powerful alternatives. The first was the establishment of the professional Physician Assistant. The second was the decision to add the new specialty of Family Practice to the list of Army Residency programs.

Improving Primary Care Capability. Col. Ogden DeWitt, writing about Army efforts to improve the primary care of soldiers during peace and war compared Physician Assistants to the General Medical Officers (GMO) who they replaced. The Physician Assistants were standouts during a time when young physicians serving as battalion Surgeons and Brigade Surgeons definitely did not want to be in the Army. They certainly did not want to serve in a line unit running sickcall while their

medical school classmates were getting ahead of them in their residencies. As always, they were assigned to those line positions directly from internships with little or no military training, and they were unprepared for the administrative and medical skill requirements that such front line positions demanded.<sup>48</sup>

Simultaneously, the Academy of Health Sciences reviewed the structure and doctrine of the Medical Department within the System Program Review process. Their analysis demonstrated that significantly improved efficiencies in medical service could be attained in garrison and in war if more sick and injured soldiers could be returned to duty at earlier stages in the evacuation process. The new doctrine would institute a dual track evacuation system of casualties. Those with the potential to return to duty would go to Combat Support Hospitals (CSH). Other casualties facing evacuation would go directly to Evacuation Hospitals (EVAC). These initiatives required physicians with greater capabilities than those of General Medical Officers. The Family Physician with two extra years of residency training fit the new requirements.<sup>49</sup>

There are significant differences between a General Medical Officer and a Family Physician. The most obvious is the fact that a GMO has had only a one year Internship following graduation from medical school. In contrast, the Family Physician has completed a three year residency training program. This added time in training provides more maturity, depth of knowledge, and experience - all of which equates to

improved readiness for the rigors of Army field medicine and combat. When GMOs are assigned to remote sites such as battalion aid stations, they require frequent access to consultation. In a deployed status that means more medical evacuation. In addition, young GMOs lack military knowledge. As part of the residency training Family Practice Residents have the opportunity to learn the subtleties of budget, supply, personnel, unit relations, and Army administration in a living environment.<sup>50</sup>

Improving Operational Readiness. It took several years to train and advance Army prepared Family Physicians into positions of responsibility within the Medical Department. But, by the mid-1980's, Army trained Family Physicians with field experience began to assume leadership positions. Most had served as Division Surgeons or clinic commanders. Some became successful medical company commanders. They sought out command and staff positions and then they returned to Army hospitals as residency chiefs. The influx of operationally experienced Family Physicians as leaders profoundly influenced attitudes within their specialty. Interjecting command of remote clinics and assignments to staff positions between stints in clinical medicine became the preferred career path.<sup>51</sup>

Senior leaders in the Office of the Surgeon General and in the Department of Defense began to take notice of the effects engendered by these changes. The medical services began to offer short courses designed to prepare physicians of all specialties for the demands of combat medicine.<sup>52</sup>

The Military Unique Curriculum. Short courses are useful to provide a baseline of knowledge about the practice of medicine in the combat environment. However, they have never been a satisfactory vehicle to teach all military physicians. Traditionally, they are not available to young physicians still involved in specialty training, and, more importantly, they are not an effective mechanism for the inculcation of attitudes and values.

Therefore, in 1987 the Department of Defense graduate Medical Education Advisory Committee made several recommendations concerning the conduct and content of military graduate medical education. One recommendation was that curricula for all specialty residency training programs conducted by the military departments should include those aspects of practice of a medical specialty which are unique to the military. The committee recognized that combat injuries differ in extent and intensity from the diseases and injuries seen in ordinary practice. Physicians need time to prepare themselves intellectually and emotionally to face the devastating wounds which they may encounter in combat. They require time and some sort of controlled exposure to desensitize themselves and to bolster their confidence in their ability to manage combat injuries.

Combat and operationally experienced physicians, both military and civilian, and residency program directors designed the curricula. Their goal was to address the essential content of knowledge, skills, and values unique to the major specialty

areas of medicine to better prepare physicians for deployment and the practice of medicine in the military environment. The ultimate goal was better educated, trained and prepared military physicians in all medical disciplines.<sup>53</sup>

Uniformed Services University of Health Sciences. These courses and curricular changes were designed to improve the knowledge and skill of military physicians. History teaches that the attitudes and values of physicians also influence their ability to survive and treat patients in combat. It is important to instill these attitudes early during the formative years of medical education. To this end, in 1972, Congress authorized the Department of Defense to establish the Uniformed Services University of Health Sciences (USUHS). The charter class of thirty-two students began classes in 1976.

The principal emphasis of the university is on the production of medical officers for the uniformed services. Therefore, the educational program is unique among medical schools. In addition to teaching the usual biomedical sciences that prepare students to provide preventive and curative health care, the school also prepares students to provide total health care in adverse physiological and psychological environments. Students are taught the mission and utilization of the military health care team and an appreciation for the physician's role as a uniformed officer. Since the objective of the school is to produce dedicated military medical officers, the program of studies includes both leadership and military training.

Thus, the military and military medical programs in the curriculum are an integral part of the educational process.

The first graduates of USUHS completed their specialty training and were available for deployment in the mid-eighties. Although their numbers are small, they represent a very successful contingent of veterans through Operation Desert Storm.

However, the military services obtain most of their physicians for the active force through the Health Professions Scholarship Program (HPSP). Unlike USUHS students these physicians are not exposed to this acculturation process. Their first exposure to deployment medicine may be the Medical Officers Basic Course or a short course on deployment medicine. Reserve physicians may be even more distant and unreachable. The problem is compounded during mobilization as evidenced by reports of problems encountered during the deployment for Operation Desert Storm.<sup>54</sup>

#### Persian Gulf Conflict - Into the Future

For Operation Desert Shield/Desert Storm, the U.S. Army deployed 198 medical units. Active duty units supporting the XVIII Corps began to deploy in August 1990, within days of Iraq's invasion of Kuwait. Next, to support the VII Corps and an echelon above corps, active duty units from Europe and Reserve and National Guard units from the United States began to deploy in November 1990. Approximately 55 percent of the Army medical forces were Reserve and National Guard units, while the remaining 45 percent were active duty units.<sup>55</sup>

In testimony before the Subcommittee on Military Personnel and Compensation, Richard Davis of the Government Accounting Office noted that doctors and nurses who were professional augmentees in active, Reserve, and National Guard units had not participated in field training, lacked soldier skills, and were not familiar with their unit's mission or field equipment.<sup>56</sup>

Lack of personal preparation was not limited to professional augmentees. Some reservists complained that they were untrained and not ready for the realities of war, insisting that they went to the Persian Gulf with little knowledge of the dangers that they were to face.<sup>57</sup>

Physicians who served in deployed hospitals remarked that some Medical Corps (MC) commanders were not well prepared for leadership in wartime hospitals for several reasons including lack of preparation, operational medical knowledge, and unfamiliarity with the TO&E hospital. The problems were compounded by the system of intra-deployment assumption of command.<sup>58, 59</sup>

On balance, some hospital commanders were better prepared than others. The perception was that some of those selected to command did not seek the position. Other commanders were picked at the last minute. Successful hospital commanders who served in Desert Storm concluded that the root cause of these problems was the lack of career preparation.<sup>60</sup>

Specifically as regards soldiering skills, some MC's did not have the respect of Medical Service Corps (MSC) and "line" commanders, and more importantly, these physicians did not have

the respect of the very soldiers they were expected to lead. Why? In the field environment, some physicians did not appear to understand even the rudiments of soldiering. Consequently, their image was tarnished from the beginning.<sup>61</sup>

One panel reported that Professional Officer Filler System (PROFIS) physicians were deficient in their field medical and soldiering skills while the field medical unit enlisted members were unaccustomed to caring for real patients and assisting with medical procedures. Some medics and operating room technicians had been away from their actual Military Operational Specialty (MOS) duties for years during the time they were in TO&E units. On balance, the same panel did emphatically state that most medical corpsmen were superbly trained and current in their skills.<sup>62</sup>

Thus, it is clear that some PROFIS personnel experienced unnecessary difficulties in accomplishing their mission due to their lack of familiarity with their respective unit and in some cases, their roles in that unit. It took many senior personnel weeks or months to gain expertise in the workings of their assigned unit. Most PROFIS personnel did not know the mission or organization of the units to which they had been assigned. They often discovered that group dynamics did not permit "foreigners" to "join" or lead effectively until they had first become integrated.<sup>63</sup>

As in previous conflicts, doctors familiar with state of the art medical equipment found in modern fixed hospital facilities

in the United States were not comfortable with the austere equipment in field facilities. As a result, they began to identify numerous requirements for new or different equipment. Their requests were accommodated during Desert Storm even to the fielding of a modern Computerized Axial Tomography (CAT) scanner for use in a Deployable Medical Systems (DEPMEDS) equipped Army Evacuation hospital.<sup>64</sup>

Some observers believed that, lacking experience, many physicians did not understand the missions of their units. In peacetime physicians provide comprehensive treatment until the patient is discharged from the hospital. Typically, physicians in forward deployed units did not understand that their role was to stabilize the patient for evacuation to the rear where more intensive care could be provided.<sup>66</sup>

Although some of those selected for command did not seek the position or were selected at the last minute, others were better prepared. Colonel Hugh Donohue, Commander of the 28th Combat Support Hospital explained the Professional Filler System (PROFIS) and augmentee integration into the field unit. "Physicians are not normally assigned to field medical units, instead, during peacetime they work at fixed hospitals and only assume duties in field units during time of conflict. Few physicians spend any time with their field unit because of the press of peacetime patient care."<sup>67</sup>

Having previously commanded a field hospital, Colonel Donohue understood the group dynamics and knew that hospital

staff had to work together for a time before a unit could come together. The 28th CSH was no exception. Most of the clinical staff had spent less than six weeks with the unit before deployment to Saudi Arabia. They had no opportunity to check out the hospital equipment or to adjust to a new work environment. The 28th had to mature as an organization as it cared for soldiers.<sup>68</sup> Colonel Donohue summarized his thoughts when he wrote: "Once we had treated a few casualties from accidents and the clinical staff saw that the facility, the supporting staff, and the equipment could work, they began to settle down and get on with the business of preparing for combat casualty care."<sup>69</sup> The experience of the 28th CSH was not unique and the Colonel's words are both a reminder of lessons from past conflicts and advice for the future.

#### MEDICAL CORPS READINESS: FROM STUDENT TO PHYSICIAN TO LEADER

That the most notable aspects of the mobilization and deployment of medical professionals would include professional and combat inexperience, administrative ignorance and lack of personal preparation for the battlefield should come as no surprise. Even when there has been time to prepare for deployment, many physicians subjected to the tedium of the Medical Officer Basic Course curriculum have not been impressed with the usefulness of their instruction. This resistance to acquiring "foreign" (not clinical) knowledge and skills has been common to military physicians throughout our history.

Most recently, Colonel Leonard M. Randolph Jr. attempted to capture the internal sense of urgency he felt during his unit's deployment preparations for Operation Desert Storm. In so doing he revalidated a well known but oft ignored educational precept. That is, students, even those with as much academic experience as physicians, will not learn until they have accepted the necessity of doing so. He wrote:

"...the 831st Medical Group had prepared me for duty in the Middle East...The hospital participated fully in all base exercises and training programs. So, I was accustomed to the chemical warfare ensemble, the gas mask, the weapons of war, and the ever present heat...During the last leg of the flight [to Saudi Arabia], I seriously practiced the use of my gas mask for the first time...Everything about the region we were about to enter became of paramount importance to me, and I read anything I could find that described the unique culture we were to experience."<sup>70</sup>

#### Objectives of Military Physician Education

We have never been able to prepare physicians for combat by forcing them to sit through a few lectures in the sterile, disengaged environment of the classroom or hospital. That modern military physicians do not consider such a method reasonable is evidenced by their after action reviews from Operation Desert Storm. In every conflict in our history, the only effective preparation for war has been exposure to the combat environment.

Short of actual experience in combat, how might the Medical Department accomplish this fundamental task? First, the program must be visceral and it must mimic the learning methods used to teach physicians clinical medicine. Most physicians have spent

five or more years learning by observing and doing in the working environment. Second, the training must occur at a time when the physician feels the need to learn. Remember the comments of the Korean Conflict veteran who chided his Basic Course instructors for not impressing upon him the survival value of their information. Remember also Colonel Randolph's comments about finally learning how to properly use his gas mask during the flight to Saudi Arabia.

Let's review the recommendations of veterans of Operation Desert Storm regarding the preparation of physicians for deployment. We can organize them in a hierarchy of objectives for military physician education, namely the attainment of: survival or soldier skills, knowledge of the practice of medicine in combat, and leadership skills. These objectives are an interrelated continuum of physician education and professional development.

Credible Soldier Skills. Division leaders such as Division Surgeons recommended that the Army provide professional military training which will be career enhancing - training that will allow physicians the opportunity to soldier and learn what an army is about. In addition to attendance at the Medical Officer Advanced Course and Command and General Staff College, they strongly recommended reinstituting a six week Officer Basic Course after the end of the first year in medical school. But this group went further.

In describing their concept of these courses they said:

"Make this training meaningful and not merely an exercise to meet an existing mandate or requirement... [Consider the use of] existing concepts such as [Reserve Officer Training Corps] ROTC Level 1 [Active Duty Training] ADT program, or what is known as the "3rd Lieutenant" program, where [medical students would be] paired with Lieutenants [assigned to field units] and allowed to work, study and learn from them during their ADT (mentorship)...Redesign the length of the current Advanced Course specifically to account for the ability physicians have...It is unnecessary to have them attend this course for the entire six months [as now structured]." <sup>71</sup>

These physicians were describing a method to impart knowledge, skills and attitudes to students. Their proposal recognized the resistance physicians feel toward lecture based curricula and emphasized the educational validity of learning by doing.

They have combined into a single proposal several levels of training best left separate, but their idea has considerable merit. First, they recognized experience as a teacher but stressed the importance of teaching in a controlled environment. Second, they recognized the need to teach basic survival or soldier skills but in a way distinctly different than that which has been used in the past. After all, exposing medical students or new physicians to either the Officer Basic Course or Basic Training has been attempted but the results have not been universally satisfactory. What has not been attempted outside the USUHS is a course designed to challenge medical students with a visceral experience in the natural environment in a manner which stimulates their desire to learn.

Knowledge of Military Operations and Medicine in Combat. The Physician panelists agreed upon a single theme concerning physician readiness. Their thinking, focused on the here and now, concentrated upon the Professional Filler System (PROFIS) used by the Army to augment field units upon deployment. Their main objection was that PROFIS personnel were not trained to assume their wartime roles, and therefore lacked credibility in the field environment. Their recommendations universally demand training time away from hospital duties simply to gain familiarity with unit procedures, equipment and personnel. For example,

"...TO&E units [can] provide realistic training by integrating PROFIS fillers in setting up field hospitals on site at local Medical Treatment Facilities (MTF)...clinical training deficiencies could be readily identified for improvement to enhance readiness...Maintain a DEPMED facility at a training site for Reserve and AD units to train at regular cycles, similar to the National Training Center (NTC), Ft. Irwin, California for combat units."<sup>72</sup>

Some suggestions, while seeming to concentrate on the diagnosis of unit weaknesses, really utilize training time to familiarize PROFIS physicians with the realities of field medicine, as in these words from a panel of Psychiatrists:

"Realistic training exercises with the unit of assignment would enable PROFIS individuals to understand the unit, its mission, how it functions, and its people better. Such knowledge would help in deciding the best use of personnel and equipment. Field training for units with PROFIS personnel must continue on a regular basis to enable these individuals to gain an appreciation for the skills, abilities and deficiencies of unit members."<sup>73</sup>

Likewise, from the Surgeons' panel:

Have Table of Organization and Equipment (TO&E) hospitals assigned at, or near, the source of the majority of the support personnel. This will facilitate assignments and training of physicians, nurses, and para-professional personnel. Certain individual PROFIS positions within the Army Medical Department should be assigned by name (e.g., 82nd Airborne Division, 101st Airmobile Division). Others would be assigned by their Table of Distribution and Allowances (TDA) [hospital] position, (e.g., Chief of Surgery at [Medical Center "X"] would be Deputy Commander for Clinical Services of a particular TO&E hospital). If possible all TO&E positions would be filled from one TDA unit to provide unit integrity and cohesion."<sup>74</sup>

All agreed that the PROFIS experience must be made meaningful. Physicians must train at least annually with their assigned PROFIS units. They must be willing to work with that unit during peacetime, dedicating significant time and energy to its ability to accomplish the wartime mission. Hospital Commanders must be given appropriate budgetary relief for releasing their physicians for training. Decisions to release must not be optional, but mandatory.

Conversely, no one could agree upon the timing for this training. For example, the thoracic surgeons believed that Thoracic Surgery residents should receive training in common soldier skills, field medicine, DEPMEDS and the [Combat Casualty Care Course, Administration] C<sup>4</sup>-A course during their general surgery residency before beginning thoracic surgery. They should then receive training in a DEPMEDS facility at the NTC, Fort Irwin after graduating from their thoracic residency.<sup>75</sup>

Leadership Skills. Professional panels really struggled with this issue. Recommendations concerning leadership skills of physicians reflect concerns with their personal preparation and the need to coalesce the operational style of fixed and mobile medical facilities. Thus, one panel recommended that the Medical Department apply the peacetime structure of command and control of medical assets to the wartime environment. They supported training and development of qualified Medical Corps officers for command positions and the designation of Medical Corps officers as Commanders during both peacetime and wartime. This relegates the Medical Service Corps officer to a position of Deputy Commander for Administration, responsible for the day to day operations and logistics. It also addresses operations of field units in terms of the familiar system in daily use in fixed hospitals.<sup>76</sup>

Several panels believed that commanders should be chosen with greater attention to their preparation, but were not specific in defining the amount of time necessary to develop a commander. Suggestions included the use of command selection boards to identify Medical Corps officers for command of specific TO&E units during mobilization. Obviously, selection prior to deployment alert is a prerequisite if selected officers are to work regularly with the unit to become familiar with the personnel, equipment, mission, capabilities, and - almost as an afterthought - to learn responsibilities specific to the commander.<sup>77</sup>

One panel did recommend a two year assignment to a TO&E hospital in a combination fixed TDA/TO&E unit in which the commander of the field unit would simultaneously hold a position of senior leadership at the fixed Medical Treatment Facility (MTF). They defined the selection criteria for the command list as completion of Command and General Staff College and Senior Service College, experience as a Division/Corps surgeon, and other leadership experience. Several panels recommended attendance at a two to four week commanders course specifically designed for medical unit commanders. The caveat was that commanders must train with their hospital at least twice a year, and be involved with the strengths, weaknesses, and problems of the hospital on an ongoing basis.<sup>78</sup>

The proposed curriculum of one such pre-command course is reflective of the discomfort these staff physicians felt during Operation Desert Shield:

"Emphasis [should be] on "need to know" issues to include deployment issues [and a review in detail] of Divisional, Corps and [Echelons Above Corps] medical units, relationship of [the Executive Officer] to [the] Commander, composition of staff and staff functions, Uniform Code of Military Justice, basic leadership training, overview of echelons of patient care, evacuation, medical regulation, role of [Medical Supply Operations] MEDSOM."<sup>79</sup>

The well prepared commander was described thusly:

"These individuals must have credibility and be clinically competent. Other desirable characteristics would include knowledge of hospital administration, previous TOE or TDA command and accessibility to subordinates. The commander should be clinically involved or have clinical credibility."<sup>79</sup>

Although the goals were relatively clearly stated, and the selection criteria for commanders briefly mapped out, there was some inconsistency between curricular content and course length - five days.<sup>80</sup>

Several panels did recognize the need for corporate and personal investment in time, training and experience if the Medical Department is to develop outstanding commanders. Recommendations for a specific career path with schooling and time in the field with the unit were common themes.<sup>81</sup>

Perhaps the opinion of the Divisional medical officers was most cogent:

"If doctors are to be commanders, they must be trained to succeed (both as soldiers and as commanders) and they must be given command earlier (at platoon and company level) to prepare them for [senior] command opportunities."

"If doctors are to be commanders, they must do so in peacetime as well as war. Switching command at the outbreak of hostilities, or at the time of deployment, makes no logical sense."

"If physicians are to command, the [Army Medical Department] AMEDD must be willing to give up the number of providers (and suffer the decrease in workload and increase in CHAMPUS costs that this will entail). A part-time system of command is impractical and won't work unless the program is rigidly enforced from above and TDA MTF commanders are compensated for the time these providers are lost."

"The time necessary for professional training and development of physicians presently does not allow command time at a platoon/company level and still allow physicians to remain competitive professionally with doctors who do not choose to pursue a command track. Failing [the opportunity to] command at the platoon or company level, a physician's first chance to command will be at the battalion level where he/she is set-up to fail."<sup>82</sup>

## Elements of Educational Strategy

Analysis of these factors in light of the previously illustrated historical issues leads to several conclusions.

First, the professional development of military physicians is a continuing process of education and acculturation. It is essentially student regulated, and requires time and exposure to the environment. The objectives are graduated and interrelated.

Second, technical expertise is an essential component of the process. This applies to soldier skills, professional/clinical skills and leadership skills. Lacking any one of the three results in a loss of credibility and an inability to function at some level. A physician who lacks clinical skills is incompetent in the hospital setting. Lacking soldier skills leads to incompetence in the field. Both are needed to lead a medical unit in combat.

Third, development of physician leaders is costly and requires commitment from the senior leadership of the Department of Defense; willingness of medical teachers, who are responsible for the mentoring of junior physicians, to lead by example; and courage to experiment on the part of junior physicians and medical students, who must, after all, entrust the progress of their careers to their mentors and leaders.

## A PROGRAM OF MEDICAL OFFICER PROFESSIONAL DEVELOPMENT

If we compile the pertinent lessons learned from each of our previous conflicts and compare them to the issues and recommendations raised from Operation Desert Storm, we are presented with an opportunity to coalesce past, present and future in an integrated professional development program for military physicians.

### Medical Student Undergraduate Preparation, Phase I - III

Phase I. HPSP students will attend a newly designed basic officers course at the end of their first year of medical school. The course will use, to the maximum extent possible, an experiential method of instruction to teach fundamental knowledge, skills and attitudes about life in the Army in general and soldier skills for medical officers in particular. There will be no lectures. The students will be grouped into platoon sized learning teams. The teams will face fundamental challenges of integration into the Army and survival in a field environment and will work out the solutions under the supervision of their instructors. Challenges in basic aspects of field medicine will be a part of the curriculum. This collegial style is similar to that used in the clinical years of medical school. It may be beneficial to conduct some or all of the course in conjunction with the Advanced Non-Commissioned Officers Course. This will take advantage of senior non-commissioned officers' traditional mentoring relationship to junior commissioned officers which has always been a part of Army officer development.

Phase II. At the end of their second year of medical school, these students will be attached to Division level field medical units as assistants to Company Grade officers. Again, the instructional method will be experiential. The goal will be to put into practice knowledge and skills learned during the previous summer and to begin to integrate the fundamentals of medicine with the basics of medicine in the field. In this environment students will gain experience in and become familiar with military and medical doctrine and equipment, logistics, preventive medicine, unit discipline and leadership. This knowledge will stimulate them to find military applications in patient care problems during the clinical years of medical school.

We must not forget that the driving interest of medical students is the practice of medicine. Therefore, after the completion of each of the preceding phases of medical officer training, some or all students will be offered two to six additional weeks clinical experience in a military teaching hospital. This may be couched in terms of a scholarship for outstanding performance during phases one and two.

Phase III. At the end of the third year, students need the opportunity to work in a hospital setting to put into practice newly learned medical knowledge and to polish their skills. Although some medical schools do not permit time away from their program, a six week tour in the clinical setting of a military teaching hospital has proven to be invaluable. In addition to continuing the acculturation process of young officers it also

exposes the student to the next echelon of military medicine. At the end of the tour outstanding students may be offered the opportunity to attend various short courses dealing with operational medicine, eg. The Treatment of Chemical, Nuclear and Biological Casualties.

#### Graduate Preparation, Phase IV & V

Phase IV. After graduation, new physicians currently attend the week long Combat Casualty Care Course (C<sup>4</sup>), an intensive experience dealing directly with the medical treatment of combat casualties. The course is taught in a field environment and is an excellent opportunity to focus new physicians on their role at a time when they are most attuned to learning. It is an integral part of the phased development of military medical leaders.

Phase V. The next few years are rightfully devoted to the completion of medical specialty training. Young physicians are actively using all of their previously acquired military and medical knowledge, skills and attitudes to practice medicine in the military environment. This is an excellent time to incorporate the Military Unique Curriculum into the residency curriculum.

#### Postgraduate Preparation, Phase VI & VII

Before assuming positions of authority, newly graduated residents would attend short, intense courses apropos their next assignment, eg. Brigade Surgeon's, Clinic Commander's or Service Chief's courses. These should be newly designed subcomponents

of a Medical Officer Advanced Course. Only knowledge, skills and attitudes needed for the next assignment will be included in the course subcomponent. This style of instruction will continue with a combination of short leadership courses and programmed experience as physicians rise in rank and responsibility.

Phase VI. Professional Filler System Programmed

Experience. Institution of the phased physician professional development program as outlined above would eliminate the extraneous agenda for PROFIS and return it to its intended purpose. Deployment exercises are not the best time for one's first instruction in soldier skills. Instead, well prepared PROFIS physicians should be able to concentrate on learning their unit's mission, ability to accomplish that mission, logistical capability and needs, and personnel. Professional fillers should be able to use preparation time and exercises to become comfortable with the unit's medical equipment and the capabilities of the personnel.

It is important to reserve sufficient time to integrate into a unit and to develop a sense of teamwork. Proper employment of PROFIS should encourage development of credibility within a unit whose personnel have had the time and clinical opportunity to learn individual professional competencies. The idea of co-location of field medical units with fixed hospital facilities and augmentation of field units with professional personnel from the hospital gets at this absolute requirement that professionals must work together in the clinical

environment to develop their teamwork. Likewise, technical assistants from field units need the opportunity to work in a clinical setting with the professional fillers who will be team leaders in their unit. The practice of medicine is built on the trust that each individual feels for the other members of the team. There is no way other than working together over time to develop that trust.

PROFIS MC's who are prepared to assume their command and technical roles when their units deploy for field exercises will facilitate their own integration and expedite critical tactical training and team-building. They should be able to ascertain the medical readiness of unit personnel and spend their time devising training classes and drills to improve the clinical aspects of unit readiness. They will not have this opportunity if they come to the unit personally unprepared, if they never train with the unit, or if the unit's technicians never work with them in the clinical setting.

In any case, PROFIS personnel must be involved in unit training on a regular basis before deployment, not to learn soldier skills which could be mastered in another setting, but to help the unit prepare itself for deployment. That demands a serious commitment in manpower and resources on the part of the Medical Department, from both the clinical and the operational side of the house. It also requires considerable restructuring and unit relocation if PROFIS personnel are to mobilize from hospitals in close proximity to field units.

Phase VII-A. Commander Selection Criteria. That we need appropriate selection criteria for commanders is apparent. Demonstrated leadership potential, experience, and a desire to command are important factors. Other criteria include clinical competence, completion of prerequisite Officer Professional Development courses, demonstrated performance as a Service or Department Chief and prior command experience. Finally, when selecting commanders for deployed hospitals we should look to Medical Activity (MEDDAC) Commanders and Deputy Commanders with proven expertise in hospital leadership.

Phase VII-B. Programmed Leadership Experience. Not every officer is a potential commander. Not every medical officer is a potential hospital commander. But every medical officer should be clinically competent. As such, in the role of leader and teacher, each physician has a responsibility to teach the essential elements of patient care to the other members of the health care team. That requires clinical competence and credibility.

The clinical competence may be obtained through the traditional methods of study and practice but the credibility is earned from the team members who observe the physician in the role of teacher. It is the physician's responsibility to build and nurture the team. Although completion of the Professional Development Courses as outlined will provide the fundamentals and get every officer off on the right foot, willingness to take a leadership role in familiar settings will also be necessary.

The mention of the words executive medicine or command is anathema to most young physicians. Having spent so many years of study to become clinicians, and then specialists, only exceptional individuals can envision the need to divorce themselves from clinical medicine to take up the mantle of administration. The investment, intellectual, economic and emotional, is too great to abandon. Furthermore, by the time young physicians have completed formal studies and residency training and are just beginning to practice their specialty, they are already approaching their early thirties. They are senior captains or majors, older and senior to most platoon leaders and company commanders. The maturational path of physicians has been likened to a societally sanctioned prolonged adolescence.

All that is a fact of life. The military can not shorten the time needed to produce board certified specialists. And we do need them to practice their specialties if we are to meet the health care needs of our population. It is important that new graduates invest a few years concentrating much of their intellectual energy polishing the skills of their specialty. Then, after they are firmly rooted in the practice, is the time to help the leaders to grow. The first steps in that direction can not come in unfamiliar surroundings. The good teacher takes his students from familiar concepts to the new and strange.

Many of the graduates of one specialty - Family Practice - are ideally prepared to grasp the Medical Department's first

opportunity to command. We must find similar opportunities for other physicians and surgeons if we are to have enough good leaders for the future.

Traditionally, small clinics have offered medical officers their first opportunity to command. We have begun to develop a cadre of officers who have successfully completed such command tours. In the past, most have been General Medical Officers awaiting positions in residency programs. Recently, most have been Family Physicians who sought and were selected for command immediately after completing their residency training. Many of those who were successful have remained in the Army and have become members of the faculty at our teaching programs. A few have written about their experience and compiled a manual for clinic commanders which is now used to prepare their residents for clinic command.

Other than experience in these clinics, the Medical Department has no formal experiential training program to prepare physicians for command. In ordinary times, there is one deployed medical element and a limited quantity of small clinic commands. The next step is command of the large fixed hospitals, ordinarily commanded by senior officers. At present there is no mechanism available to Medical Corps officers which offers progressively increased command responsibility with the opportunity to remain clinically active. Remaining clinically active is an essential element of the technical proficiency of physicians. It is the essence of their credibility.

We must develop alternative opportunities through which promising physician leaders can gain experience. The capability and the capacity are there in the everyday workplace. The positions are plentiful, and available to physicians of every specialty. They are the clinical services and departments of military hospitals.

By rethinking the role and responsibility of our hospital service and department chiefs we can begin to prepare medical officers of recognized leadership potential for command of deployed medical units as well as the traditional fixed facilities. We can do it in a natural setting which does not divorce physicians from clinical medicine and which allows proven leaders to teach by their own example. After all, some medical services (including technical assistants) are the size of a platoon; and departments in some hospitals are the equivalent of small companies. Organizing for tactical purposes along the same lines as operational units, then giving junior leaders the authority and mission to run their own "unit" within the confines of the larger "unit" - the hospital - may provide a very effective and efficient way to train future physician commanders.

In this scenario, the senior leaders would become staff officers for the commander and technical resources for the more junior "commanders" running the services and departments of the hospital. The hospital commander could then function like the equivalent battalion or brigade commander, with the deputy commander as understudy. Short courses on the order of

pre-company command courses for service and department chiefs can outline the fundamentals and prepare officers for their duties. Management and leadership techniques used every day in the hospital are the same tools used to perform in the field, on deployment. The experience of command will be invaluable as junior physicians mature into credible leaders as well as credible clinicians. Having already led platoons and commanded companies, more physicians will be prepared for senior command.

#### CONCLUSION

Tracing the evolution of physicians as military officers from the American Revolution to the present illuminates a central theme related to physicians' readiness to survive, practice and lead the health care team in combat. We know that their education does not prepare most physicians for combat. Nor does their experience prepare them to practice or lead medical units in combat.

We know that there are some physicians who are prepared to lead, and another group who will never do so. In between are the majority of medical officers we call upon to practice and to lead in combat. The first group, because of their psychological bent or intellectual interest, garner the education and the experience they need. We need no curriculum for them. On the other end there is the group which no curriculum will prepare. It is the majority for which we must design the school.

To help them, our predecessors have written standards and policies, instituted schools and courses, devised teams to

expose novices to the experience and wisdom of veterans. Yet, each time the nation has gone to war we have found gaps in our preparation. Given the department's resources, our predecessors have designed some "long term fixes" that have proven to be quite durable and very effective. We must not abandon them.

Note the words of a military officer and surgeon, who has been a clinical department chief, deputy commander, commander and a veteran of Operation Desert Storm.

"It was the privilege of a lifetime to command a medical unit supporting combat forces. I found myself relying on knowledge and skills I had spent a career accumulating." <sup>83</sup>

That statement is the distilled essence of all the historical examples, lessons learned and corrective actions illustrated in this study. Education and experience are the essential ingredients of military medical officer professional development in all areas, be they clinical, technical, administrative or operational. The proposal for a professional development program for physicians, beginning in medical school, enmeshed in residency and interjected into everyday hospital practice, acknowledges and accepts that precept. Many of the elements are already in place; some have been tried already on a small scale and have succeeded. It is potentially less disruptive and more rewarding than other recommendations. It fits the medical education model and it fits the military professional education model. It is feasible and affordable. It offers the opportunity to face future conflicts prepared to survive, practice and lead.

## NOTES

<sup>1</sup> Carl, E. Vuono, On the Fiscal Years 1992/1993 Department Of The Army Budget. (Washington, D.C.: Headquarters, Department Of The Army, 1991), pp. 22-25. Excerpts from statement by the Chief of Staff, United States Army before the subcommittee on Defense, Committee on Appropriations, United States Senate, First Session, 102nd Congress March 21, 1991 which outlined his strategic vision for the Army of the twenty-first century. "The nature of the United States' interests around the world, and its coalition-based strategy, will require that US forces be globally deployable, often with little or no warning, from the United States or from forward bases...The lethality of the Army of the future will be determined, above all else, by the actual combat readiness of the force - training to the highest standards so that soldiers, units, and leaders have the best possible chance of quickly accomplishing their missions and surviving should they be committed to combat."

<sup>2</sup> Vuono, p. 25.

<sup>3</sup> Operation Desert Storm - Professional After Action Review. (Washington DC: Office Of The Surgeon General, US Army, 1991). Following redeployment from Desert Storm several Army Medical Department Conferences were organized to capture lessons learned from the mobilization, deployment and conflict. The accumulated lessons were forwarded to the Academy of Health Sciences of the US Army, Health Services Command for further study and validation. Each of the conferences consisted of a group of expert panelists from the Active Army and Reserve Components meeting to discuss experiences of mobilization, deployment, operations, redeployment and demobilization. Physicians deployed to South West Asia met in individual panels by specialty in June of 1991. Individuals were selected to provide a representative sampling of experience from division, corps and echelons above corps medical units. The Clinical Consultants, Office of the Surgeon General, reviewed the data, and collated issues by major topical areas.

<sup>4</sup> Mary C. Gillett, The Army Medical Department 1775 - 1818. (Washington D.C.: U.S. Government Printing Office, 1981), p.1.

<sup>5</sup> Gillett, p.19. Of the 1200 physicians serving in the Continental Army, historians estimate that only one hundred held Medical degrees. Most were self-taught or had served apprenticeships.

<sup>6</sup> Gillett, p.20.

<sup>7</sup> Gillett, p.26. Dr. Benjamin Church, the first Director General and Chief Physician of the Hospital Department, commenting upon the quality of care rendered in the Army's small regimental hospitals, stated that regimental surgeons were "a motley crew" named by their respective colonels and "their competence was not necessarily tested before appointment." Exasperated by the behavior of a particularly irritating surgeon, he described him as "nothing more than a disorderly excrescence...that had better be lopped off."

<sup>8</sup> Gillett, p.130.

<sup>9</sup> Gillett, p.152.

<sup>10</sup> George Worthington Adams, Doctors in Blue, The Medical History of the Union Army In The Civil War. (New York: Henry Schuman, 1952), p.5. In January, 1861, the United States Army numbered 16,000 soldiers. Its medical staff was made up of the Surgeon General, 30 surgeons, and 83 assistant surgeons. Three surgeons and 21 assistant surgeons of Southern origin resigned to go with their states while five surgeons and eight assistant surgeons whose homes were in seceded states stayed on. Three assistant surgeons were dismissed for disloyalty. Consequently, the corps began its war service with only 98 officers. Obviously that number was inadequate to the task because in 1860, with a budget of \$90,000, the bureau paid \$27,000 for the services of civilian physicians serving in military hospitals under contract.

<sup>11</sup> Adams, p.47. By 1865, the Medical Corps of the Union Army had been organized into seven bodies, as follows:

a. "Surgeons and Assistant Surgeons of the U.S. Army. This was the regular Medical Corps, composed of men in service when the war began and such additions as Congress had authorized. Once the war was under way they were used for staff duty.

b. Surgeons and Assistant Surgeons of Volunteers, the former "brigade surgeons," created by Congress to supplement the work of the Regulars in staff duty. There were 547 such commissions issued.

c. Regimental Surgeons and Assistant Surgeons, commissioned by State Governors rather than by the President. This, the largest Army category, numbered 2,109 Surgeons and 3,882 Assistant Surgeons.

d. Acting Assistant Surgeons, U.S. Army. These were the great majority of the "contract" surgeons, who held no commission but received the pay of first lieutenants. They numbered 5,532 and were employed chiefly in northern general hospitals, where many engaged in civil practice as well.

e. Medical officers of the Veterans Corps.

f. Acting Staff Surgeons.

g. Surgeons and Assistant Surgeons of the Colored Troops. These received Presidential commissions, but were assigned to Negro regiments and were ineligible for staff positions."

<sup>12</sup> Adams, p.7.

<sup>13</sup> Adams, p.52. The high administrative posts in the Medical Department were monopolized by the regulars, which embittered the volunteers who were, after all, unprepared for the discipline of the military. To the regulars' credit, most had started as young men above the average in talent. But in peace time, their "vegetable existence" on the plains, and lack of examination for promotion offered none of the stimulation of civilian practice. However, Sanitary Commission inspectors did not substantiate regulars' complaints that the volunteers were poorly trained and guilty of many misdiagnoses. Inspectors found two percent "incompetent" and thirteen percent of "doubtful competence." Sixty-four percent "discharged their duties with creditable energy and earnestness." (From Sanitary Commission ratings of 200 regimental medical officers at the close of 1861.)

14 Adams, p.61.

15 Adams, p.64.

16 Adams, p.67.

17 Rose C. Engelman & Robert J.T. Joy, Two Hundred Years of Military Medicine. (Ft. Detrick, Maryland: US Army Medical Department, 1975), p.10. On 1 March 1887, Congress established the Hospital Corps, consisting of hospital stewards and privates. These men were transferred to the Army Medical Department from the Army line and they were to be trained and used only by the Medical Department. This was the beginning of a career for enlisted personnel in the Medical Department and the inception of a trained and ready force of medical assistants.

18 Engelman & Joy, p.14. As a direct result of the care rendered by volunteer nurses during the Civil War and because of the difficulties implicit in the volunteer status of such an essential element of the medical system, the Nurse Corps (female) was established as a permanent corps of the Medical Department in 1901.

19 Engelman & Joy, p.11. In 1893 the Army Medical School was established to instruct candidates for admission to the Medical Corps in army procedures and medical practice. In 1894 the faculty began a formal program for the postgraduate education of military surgeons. This program was one of the earliest formal training programs in surgery in this country.

20 Marvin A. Kreidberg & Merton G. Henry, History of Military Mobilization In The United States Army, 1775-1945. (Washington D.C.: Department of the Army, 1955), p.203. In 1910 the Army instituted a Field Service and Correspondence School for Medical Officers. It was designed to train medical officers for administrative, staff and field work.

21 Kreidberg & Henry, p.288-289.

22 Eugene, G. Venable, The Army Medical Department's First Peacetime Mobilization, 1939-1941. (Fort Sam Houston, Texas: Headquarters, U.S. Army Health Services Command, 1982), p.2.

23 Venable, p.17.

24 John B. Coates, Ed., Surgery in World War II. (Washington, D.C.: US Government Printing Office, 1962), p.259.

25 Coates, p.294.

26 Coates, p.411. "The whole system of medico-military care was based on the premises that medical care is accomplished in echelons; that the mission of each echelon is both specified and limited, and that all medical officers must not only perform the duties specified for them but must also limit themselves to the duties specified for that particular echelon."

27 Coates, p.468.

28 Coates, p.467. At least one surgical consultant "...found it difficult to understand how surgeons who had been in the military service for one or two years or longer and who presumably were trained for duty with combat troops could appear to have so little factual information concerning the task before them."

29 Coates, p.500-501.

30 Engelman & Joy, p.30.

31 Albert E. Cowdrey, The Medics War - The United States Army in the Korean War. (Washington, D.C.: Center of Military History United States Army, 1987), p.140. Immediately prior to the outbreak of war in Korea the Far East Command lost most of its experienced physicians who had completed their active service obligations for government supported training. Most replacements had no prior contact with military service. In May of 1950 civilian physicians were hired in anticipation of personnel shortages and fifty-four Army residents in training arrived from the United States on three months' temporary duty. Inevitably, a personnel crisis followed the outbreak of war. By mid-July more replacements were on the way. To help meet the demand, the Navy assigned ninety-eight doctors to the Army in Korea.

32 Cowdrey, p.141. The situation during the early days of the Korean Conflict was chaotic. "Lucky newcomers diffused as junior officers into units whose senior members were more familiar with the ways of war than many of the regular officers of 1941. Young men wearing their first uniforms were teamed with veterans and many of the veterans, graduates often of training programs similar to those that had drawn the civilians into the service, were exceptionally well qualified to treat the injured as well as to administer. The army residency program proved its worth in the Korean war. Though casualties exceeded all predictions, hospital death rates were the lowest in the history of warfare...All, however were not so fortunate. Young physicians with little rank too often found themselves in forward positions, faced with the task of organizing the most difficult of medical maneuvers, a retreat burdened with casualties."

33 Cowdrey, p.188. "Among surgeons, clinical retraining as well was essential to unlearn the very excellent and beautiful principles necessary in civil practice in favor of the rapid and adequate sort of care of massive wounds, massive trauma. The surgeons who succeeded in mastering their new jobs - most did - learned to perform the brisk, decisive interventions required by a flood of massive traumas in a septic environment."

34 Cowdrey, p.90. To quote the words of one medical officer who served in Korea: "I don't want ever to be caught again as ignorant as I was about the conduct of the Medical Department activities in a theater of war and not know what to do. I was strictly a professional man and I just wasn't capable."

35 Cowdrey, p.191. In a survey conducted in Korea during March 1951, Eighth Army doctors reported that they needed more training in a variety of basics, including "...map reading, in setting up and packing medical and dental chests under field conditions, on the chain of command, and on their specific duties as Battalion or Regimental Surgeons. Additional training, they felt, was needed in field tactics and the organization of a medical company. A division surgeon opined that medical officers should learn more about tactical defense of a medical field installation, how to set up a perimeter defense, and how to use the hand grenade and bayonet."

36 Cowdrey, p.191.

37 Cowdrey, p.191.

38 Cowdrey, p.208. Inspections of medical installations in the X Corps during September 1952 showed that "poor appearance and absence of spirit were the rule." Kitchens were disorderly." Equipment and supplies were poorly...maintained...police was poor...There was no unit pride."

39 Spurgeon Neal, Medical Support of the U.S. Army in Vietnam 1965-1970. (Washington, D.C.: U.S. Government Printing Office, 1973), p.49. A combination of factors contributed to advances in care of the wounded in Vietnam. To summarize, rapid evacuation of casualties, the availability of whole blood, well-established and equipped forward hospitals, advanced surgical techniques, and breakthroughs in medical management techniques which were not possible during earlier conflicts all played an important role.

40 Neal, p.50. The quoted comment of the USARV neurosurgical consultant, Lieutenant Colonel Robert C. Leaver, MC, said it all: "The traditional equipment seen in neurosurgical centers throughout the United States is available...Other than the physical deficiencies of a hospital in a combat area, there is little that would distinguish our neurosurgical wards from those in hospitals in America."

41 Neal, p.50.

41 Neal, p.68.

43 Neal, p.63.

44 Neal, p.68.

45 Neal, p.67. Difficulties in relocating MUST Surgical Hospitals caused "...the USARV surgeon to institute a policy that two MUST surgical hospitals would retain all equipment necessary to be completely mobile and that drills would be held frequently to keep hospital personnel trained to displace, move, and emplace their hospitals rapidly." The amount of work and the time involved in bringing a MUST hospital to operational readiness can be illustrated by the story of the 45th Surgical Hospital which arrived in Vietnam on 20 October 1966. By 4 November only the utility packs, operating room and central materiel expandables had been moved to their engineer

prepared site. That day, a mortar attack hit the hospital and killed the commander. The hospital was told to expect patients on 6 November but the unit was not really operational until 8 November when limited emergency surgical capability and a twenty bed patient holding capacity was ready.

<sup>46</sup> Neal, p.66.

<sup>47</sup> Neal, p.176. The leadership attempted to resolve this problem in two ways. First, they designed a modular combat support hospital, with outpatient capability, to replace the surgical and evacuation hospitals. Second, they restructured the medical service support within the division, and began to include certain specialists in the medical battalion. Thus, outpatient consultant capability in such specialties as internal medicine, dermatology, ophthalmology, and orthopedic surgery would be available in the division base, preventing unnecessary evacuation of many patients and keeping the troops under division control. These specialists were to consult freely with other division medical officers, teach and visit dispensaries.

<sup>48</sup> Ogden R. DeWitt, The Army Wants More Family Physicians, (Carlisle Barracks, Pa.: U.S. Army War College, 1988), p.3.

<sup>49</sup> DeWitt, p.6.

<sup>50</sup> DeWitt, p.13.

<sup>51</sup> DeWitt, p.8.

<sup>52</sup> In addition to courses on tropical diseases, the treatment of chemical, nuclear and biological casualties, environmental injuries and preventive medicine, the services instituted others such as the Medical Red Flag Exercise and Workshop of Emergency Medical Care of the U.S. Air Force Medical Service. This Intensive week long course is intended for physicians and nurses who are eligible for assignment to deployable medical units. It covers the treatment of emergency conditions in a field/combat environment. Another course designed to enhance military physicians' capabilities is the Deployment Medicine Conference of the Uniformed Services University of the Health Sciences. This consists of two five day sessions emphasizing problem recognition, analysis and solution with prevention of recurrence as an essential part of the solution. The scenario is that of a military unit moving to a distant location with an environment that is unique to their experience. The instruction focuses on the brigade and battalion surgeon as the epitome of medical service, the only individual who performs total military medical service, patient care, preventive services and staff duties.

<sup>53</sup> Douglas R. Khab, Military Unique Curricula, Instructional Objectives for Military Physicians and Graduate Medical Education Programs, (Washington D.C.: Uniformed Services University of the Health Sciences, 1989), p viii.

<sup>54</sup> Richard Davis, Operation Desert Storm, Full Army Medical Capability Not Achieved. (Washington D.C.: United States Government Accounting Office, 1992), p.7. Testimony before the Subcommittee on Military Personnel and Compensation, Committee on Armed Services, House of Representatives, February 5, 1992, by Richard Davis, Director, Army Issues, National Security and International Affairs Division.

<sup>55</sup> Davis, p.1-2. For Operation Desert Shield/Desert Storm, the U.S. Army deployed 198 medical units, including hospitals, air and ground ambulance companies, Medical Supply units, and special surgical teams. Hospitals ranking in size from 60-bed Mobile Army Surgical Hospitals (MASH) to a 1,000 bed General Hospital supported battalion aid stations and medical companies organic to the individual combat divisions. "...The Army had to overcome numerous and significant problems to make medical units operational in the Persian Gulf before the start of the ground war...Many doctors and nurses in active, Reserve, and National Guard units had not trained during peacetime to perform their wartime mission. Field training was lacking and as a result doctors and nurses were not familiar with their units's mission or equipment..."

<sup>56</sup> Davis, p.10. "Some doctors reported to their mobilization station after they had been in teaching positions and were no longer qualified in their field of specialty. They had to be replaced before the units could deploy...Officers had not taken the required basic training. This unanticipated training deficiency forced the Army to condense a legislatively required twelve week course for officers on basic soldiering skills to a two week course. Since the officers could not deploy without having taken the course, the Army conducted this condensed course to enable critically needed medical personnel to deploy...Many doctors and nurses in active, Reserve and National Guard units had not been trained during peacetime to perform their assigned wartime jobs. In addition to lacking basic soldiering skills...many doctors and nurses had not participated in field training and were not familiar with their unit's mission or field equipment."

<sup>57</sup> Karen Wagner & Thomas Williams, "Reservists say they were unprepared for gulf war duty." Hartford Courant, February 4, 1992, p.1. The conflicting description of members of the 142nd Medical Company, Connecticut National Guard, is illustrative. The unit's casualties - two deaths and five injuries - came after soldiers picked up unexploded U.S. cluster bomblets. Survivors claimed that they had received no training to prepare them to deal with such munitions. Like most medical reserve units, the 142nd was trained to deal with mass casualties, triage, chemical, biological and nuclear attacks. As they rehearsed their procedures for these combat injuries on weekend and summer exercises, they treated the ill and injured soldiers from the other participating units. The troops also trained in battlefield scenarios - small arms fire, how to throw grenades and deal with gas and chemical weapons and how to recognize enemy planes, helicopters and tanks. Preparing to leave for the gulf, they received intensified training that concentrated on the unit's medical skills. "[At Fort Devens], they did as much as they could to prepare us for a medical mission. They just didn't emphasize regular soldier skills enough," said Sgt, Andrea Gruszecki...who was in the 142nd for six years...Senior reservists...said their previous experience helped them take the war and their position seriously; many young reservists sometimes treated the war like a big party. They could have been a lot more professional about it. Just about everybody that went over there turned 21 there." Many soldiers said that common sense would make any soldier avoid picking up unfamiliar objects in a war zone.

58 Operation Desert Storm - Professional After Action Review, (Washington DC: Office Of The Surgeon General, US Army, 1991), Primary Care in Hospitals specialty panel, p.1-5 & 1-6.

59 Operation Desert Storm, Preventive Medicine specialty panel, p.6-16. Speaking solely about preparation for command, this panel reported that the selection of Medical Corps Officers for command during Operation Desert Shield/Storm resulted in too many MC commanders who were not enthusiastic about serving as commander, not trained for the command role, not previously experienced with command, unfamiliar with prerogatives and responsibilities of command, unfamiliar with the organization, functions, capabilities, and mission of the unit they were assigned to command, unsuccessful in carrying out their duties, and poor replacements for successful peacetime MSC commanders.

60 Operation Desert Storm, Commanders panel, p.13-23.

61 Operation Desert Storm, Primary Care in Hospitals specialty panel, p.1-5 & 1-6

62 Operation Desert Storm, General Surgery specialty panel, p.8-36.

63 Operation Desert Storm, Psychiatry specialty panel, p.7-4.

64 Susan Backs, Untitled Research Report, (Washington D.C.: Industrial College of the Armed Forces, 1992), p.10-12.

65 Davis, p.10. The Army Central Command Surgeon stated that "...this misunderstanding had the greatest impact on Mobile Army Surgical Hospital and Combat Support Hospital units, where, if it were left to the physicians, all beds would have remained occupied, diminishing the units' ability to treat incoming patients."

66 Hugh J. Donohue, "A Combat Support Hospital in the Gulf War," Physician Executive, Journal of Management, 18, 1, 1992, 30.

67 Donohue, p.30.

68 Donohue, p.31.

69 Leonard, M. Randolph, "Bringing Calm to the Storm," Physician Executive, Journal of Management, 18, 1, 1992, 24.

70 Operation Desert Storm, Division Leaders panel, p.14-14.

71 Operation Desert Storm, Obstetrics/Gynecology specialty panel, p.4-18

72 Operation Desert Storm, Psychiatry specialty panel, p.7-4.

73 Operation Desert Storm, General Surgery specialty panel, p.8-1.

74 Operation Desert Storm, Thoracic Surgery specialty panel, p.9-11.

- 75 Operation Desert Storm, Obstetrics/Gynecology specialty panel,  
p.4-3,4-4.
- 76 Operation Desert Storm, Preventive Medicine specialty panel, p.6-16.
- 77 Operation Desert Storm, Primary Care in Hospitals specialty panel,  
p.1-5, 1-6. General Surgery specialty panel, p.8-2
- 78 Operation Desert Storm, General Surgery specialty panel, p.8-3.
- 79 Operation Desert Storm, General Surgery specialty panel, p.8-2.
- 80 Operation Desert Storm, Commanders panel, p.13-23.
- 81 Operation Desert Storm, Primary Care in Hospitals specialty panel,  
p.1-5, 1-6.
- 82 Donohue, p,34.

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