From The Surgeon General of the Army

Medical Support for Operation Desert Storm

Lt Gen Frank F. Ledford, Jr, MC*

A concise account of the build-up of the medical support for Operation Desert Shield/Storm as seen from the perspective of the Office of the Surgeon General.

The massive and rapid deployment of US forces beginning in August 1990 in response to the Iraqi invasion of Kuwait could not have been accomplished without an efficient and prepared medical support system.

This was the fastest military build-up the AMEDD had ever undertaken. Along with the other services, we accomplished in the first three weeks what it took three months to do in Korea, and literally years to do in World War II and Vietnam. A massive response such as this tests the entire medical system to the limit, especially in the areas of medical readiness training, logistics, modernization initiatives, and joint service cooperation. Despite some initial problems, we were creative, resourceful and determined in overcoming these challenges.

The AMEDD deployed adequate medical assets to meet the command's needs based on the number of troops in theater and the casualties estimated for various types of operations. When the decision was made to prepare for an offensive capability, medical requirements were increased accordingly. By the beginning of the ground war, the AMEDD had more than 13,000 beds in 44 hospitals in theater. However, not all hospitals were set up simultaneously since combat flexibility requires some assets to be up-loaded on vehicles to await further redeployment. Simultaneously with the deployment of our PROFIS personnel, we began the complicated process of cross-leveling nondeploying personnel around the country to evenly distribute shortages created by deploying personnel. Although the system is designed to ensure that no single medical facility is left for long with acute shortages, because of troop deployments, in a massive build-up such as this, some disruption is unavoidable. This was also the first time that the AMEDD was asked to ensure continuity of care for family members and retirees in our medical treatment facilities during a large partial mobilization. We tried to pay special attention to medical treatment facilities at installations from which large numbers of troops were deployed, to make sure that Army families would not have the double burden of both temporarily being separated from their family member(s) and losing their health care at the same time. Admittedly, there was some disruption at some MTFs until our Reserve units could be activated to help back-fill vacancies.

In addition to being directed to ensure continuity of care in MTFs, we were also directed not to increase CHAMPUS costs. Those were some very delicate crystal balls we were juggling for a while!

In addition to the automatic functioning of the PROFIS system, the Army started a successful volunteer program in mid-August for retired and Reserve medical personnel who were interested in returning to active duty on a temporary basis in CONUS facilities during the crisis. The response was overwhelming. We had calls from more than 4,000 people. As many as 1,740 health-care workers volunteered to return to active duty to fill in for deployed personnel. By the end of October, more than 800 volunteers had begun working in CONUS medical facilities. I am proud of these folks who reflect a long Army tradition of always responding when the country needs them.

By January our capabilities in theater expanded to a total of 44 hospitals including 17 Reserve hospitals, 11 National Guard hospitals, and 16 Active Component hospitals. Nine hospitals were in host nation fixed facilities. These provided 13,580 beds augmented by an additional 1,800 beds in Europe and 1,700 beds in CONUS. Veterans hospitals began preparing and civilian hospitals were alerted under the National Disaster Medicine System to plan to provide an additional 25,000 beds if needed.

The medical forces on active duty reached 87,487 in February 1991, the largest force since World War II. More than 23,000 AMEDD person-

*Office of The Surgeon General, 5109 Leesburg Pike, Falls Church, VA 22041-3258.

nel, about 55% of whom were Reserve Component, were deployed to SWA, including:

1,460	Medical Corps
141	Dental Corps
32	Veterinary Corps
51	Medical Specialist Corps
2,265	Nurse Corps
1,351	Medical Service Corps
182	Physician Assistants
18,011	Enlisted
23,493	Total

About three-quarters of the Army's medical assets are in the Reserve Components. Our heavy dependence on them was emphasized in Operation Desert Shield/Storm, and they did not let us down. No one appreciates more than I do the enormous financial and personal sacrifices that many of our Reserve soldiers made. Of the 24,000 Reserve medical personnel called to active duty, only 199 requested waivers for release. That represents less than one percent of those activated, and reflects very favorably on the dedication and commitment of our Reserve Component personnel. The AMEDD leadership is very well aware of some of the problems encountered by our Reservists, and we have worked hard to alleviate them whenever possible. Those efforts continue to be a high priority for us.

Preventive medicine and veterinary personnel and Forward Surgical Teams were on the ground in Saudi Arabia within a few weeks of the start of the operation. Field hospitals, combat support hospitals and MASHs were in place before the outbreak of fighting. We had ground and air ambulance capability with 50% more medevac aircraft than we had at the peak of Vietnam. The 45th Medical Company from Nellingen, Germany, self-deployed more than 3,000 nautical miles. With the help of our sister services, soldiers in the Persian Gulf had the full continuum of medical support available, from the battalion aid station to the Navy's floating medical centers. Virtually every medical specialty was represented.

In addition to personnel, we also had state-of-the-art equipment and supplies, including portable CT scanners with teleradiology capability and liquid oxygen generating capability. We fielded FDA-approved drugs for chemical defense and antibiotics to treat forces against potential biological warfare agents. Portable surgical sinks and dental X-ray systems developed by USAMRDC were available.

By November, ARCENT was designated as the single integrated medical logistics manager for the theater. The US Army Medical Materiel Center, Saudi Arabia (USAMMCSA) was established and served as the primary source of medical resupply for all units in SWA, including the two Navy hospital ships. Some distribution problems did occur during the early phases of the operation, but these were overcome with a number of innovative work-arounds. Five MEDSOMs were deployed to the theater. The US Army Medical Materiel Center, Europe served as the primary resupply source for Saudi Arabia, while the Defense Logistics Agency provided resupply to both Europe and the Gulf. The USAMMCSA filled more than 200,000 customer requests for medical supplies during the operation. More than 11,000 tons of medical supplies were received and redistributed throughout SWA.

Although we were in the midst of converting combat hospitals to DEPMEDS before the operation began in August, the AMEDD was able to speed up the conversion so that all hospitals in SWA were DEPMEDS-equipped by the end of December. The first hospitals deployed were MUST configured units that experienced many difficulties. As the estimates of casualties rose, it became apparent that more hospitals would be needed and The Surgeon General, in coordination with the Commander in Chief, CENTCOM, decided to standardize and ensure the most up-to-date medical equipment available by subsequently deploying only DEPMEDS-equipped hospitals to the Gulf. This resulted in the reorganization of the combat fielding and training team into the ARCENT MEDCOM Modernization Team, which remained in Saudi Arabia to distribute another 24 hospital sets.

This was a monumental task in itself, but the team also received and distributed shortage packages in support of all 35 DEPMEDS hospitals deployed to SWA. These packages contained items such as new high-capacity X-ray units, laboratory augmentation and pharmaceutical packages, water distribution systems, five-ton trucks, and emergency procurement of medical equipment needed to enhance healthcare delivery. The team set up its own consolidated staging facility in Ad Damman to receipt, inventory, inspect, and redistribute packages. This proved to be the key to the overall success of the enlarged mission.

The AMEDD was also on the verge of implementing the new doctrine and organization modernization effort Medical Force 2000 (MF2K). MF2K focuses on enhancing far forward surgical care, increasing intensive care capability in the combat zone and returning soldiers to duty as quickly as possible. We implemented parts of the new doctrine, specifically the Forward Surgical Teams (FST) and the combat stress teams. The FST is a small sub-unit of a MASH that can break away and move, with minimal organic equipment, as far forward as needed.

In Desert Shield we provided more psychiatric support than ever before. Psychiatrists, social workers, psychologists and psychiatric nurses, in co-

ordination with chaplains and JAG officers, were available to counsel those who requested assistance. Three OM teams were deployed to provide Corps-level support. One of these teams alone briefed more than 800 company-sized units. Of the approximately 3,000 soldiers who were seen as outpatients in SWA, more than 95% were returned to duty within three days. The Army continues to provide counselling for active duty troops and their families who request help, whether or not it is related to Desert Storm.

One of the AMEDD's proudest achievements in Desert Shield/Storm was the remarkably low number of admissions to medical treatment facilities in SWA, especially in view of the terribly harsh environmental hazards of the region. The extraordinary heat in the early months of the campaign was a major obstacle to overcome.

Students of military history know that disease and illness have historically caused more casualties and lost man-days than battlefield injuries. We in the AMEDD have learned many lessons about the advantages of preventive medicine from previous wartime experiences and from ongoing medical research on issues that we anticipated American soldiers might face.

Many of these research projects were conducted under the auspices of the US Army Medical Research and Development Command, headquartered at Fort Detrick, Maryland. Our work on the prevention of heat-related injuries and illnesses at the US Army Research Institute of Environmental Medicine proved to be invaluable in SWA. Considering that we moved the equivalent of a large American city into extraordinarily harsh desert terrain, we had very few heat-related medical problems. This was due not only to our acquired knowledge of the requirements in the desert for food and water, appropriate work schedules and proper clothing, but also to our helping to educate the entire command hierarchy on the importance of medical issues. Command support was tremendous for maintaining strict discipline for water and food consumption. It's not easy to get soldiers to drink four gallons of water a day for long periods of time—especially when it was often tepid—but we did it! Our success was reflected in the numbers of casualties: not one death from heat or dehydration and very few admissions for minor illness.

Our disease control officers did a superb job during the year in ensuring that our soldiers were protected from diseases they may have been exposed to during their deployment. They protected our troops against a variety of diseases endemic to the area, such as typhoid fever, polio, meningiococcal disease and hepatitis A before they were sent overseas. The Army had some of the world's foremost experts in such esoteric diseases as leishmaniasis and schistosomiasis, which are not endemic to the US, but were serious health threats to our troops in SWA. We provided protection against malaria for soldiers in areas where it was known to exist. Although we had a few cases of these "exotic" diseases, they were diagnosed and treated early without permanent disability to any of our troops.

AMEDD personnel at both the US Army Medical Research Institute of Infectious Diseases and at the US Army Medical Research Institute of Chemical Defense were responsible for much of our defensive capability against the potential threat of Iraqi use of chemical and biological warfare agents. A wide variety of protective measures, including vaccines, pretreatments, self- and buddy-aid antidotes, rapid identification kits, skin decontamination kits, information on casualty management and medical equipment for use in a chemical environment were a direct result of USAMRDC research efforts. Such medical readiness contributed to deterring the use of chemical and biological weapons against our forces and would have blunted their impact if they had been used. When I think of the additional protection we were able to provide our troops, I am very pleased that we were able to continue with this very important research with the support of Congress, the President and senior Army leadership.

Dental Corps personnel did a yeoman's job in support of Desert Shield/Storm. HSC dental personnel processed over 243,000 patients before deployment. Over 30,000 Reserve Component soldiers needed and received dental treatment to bring them up to combat ready status (Class II). Of the 150,000 RC soldiers mobilized, only eight had to postpone deployment for dental reasons. In addition to treating over 16,000 patients in theater, Army dentists augmented casualty care in several ways such as helping to give anthrax vaccinations.

The Army Nurse Corps responded to the crisis with their characteristic "Proud to Care" attitude. More than 700 retired and Reserve ANC officers answered the early call for volunteers and were placed in CONUS MTFs to replace deployed active duty nurses. They were soon joined by more than 3,700 Reserve ANC nurses of which 2,300 were deployed to SWA to work in DEPMEDS units, host nation facilities, and under the tentage of Forward Surgical Teams. Many innovative programs and nursing interventions were designed to meet the health needs of the soldiers in SWA. For example, nurses at the 47th Field Hospital set up a combat stress control center which provided an opportunity to rest and relax for soldiers who had difficulty dealing

with the stressful situation. During the three days the soldiers remained at the center, they attended classes and training on anger control and stress management as well as work therapy.

Nurses who did not deploy performed equally critical roles of support to mobilizing soldiers and the sustainment of the AMEDD training base. The healthcare needs of families continued to be met along with the critical expansion of bed capacity in Europe and HSC.

Army veterinarians were faced with the monumental challenge of providing safe sources of local food, as well as inspecting MREs, T-rations, MORE rations, B rations and hospital B rations for more than half million people. Their efforts helped enormously in keeping rates of food-borne illness low. There were no documented cases of food-borne illness due to consumption of any type of operational ration during the entire operation. Veterinary personnel were instrumental in inspecting food for Enemy Prisoners of War at all EPW camps and were first on the scene after the ground war in Kuwait to insure that safe food and water were available for Kuwaiti citizens.

Veterinary personnel also cared for about 120 military working dogs in theater, as well as provided support for starving dairy cattle and horses in Kuwait City. They also rescued and treated starving, dehydrated and mistreated animals remaining in the Kuwait zoo. Of the original 400 animals in the zoo, only about 24 survived. Veterinary personnel from the 483rd Med Det were responsible for much of the carcass disposal and general clean-up of the zoo.

Army Medical Specialists Corps officers were among the first medical personnel deployed to SWA. Dietitians, physical therapists, and occupational therapists and their enlisted specialists deployed with TOE hospitals and psychiatric OM teams. OTs played pivotal roles with the OM teams by training commanders in stress prevention and working with soldiers who had been referred to the OM teams to help them return to duty. PTs performed primary care of neuromusculoskeletal conditions and evaluated and prevented impairments resulting from injury, disease or pre-existing conditions. PTs also advised commanders on physical fitness, physical training and injury prevention. Both specialties' efforts significantly reduced the number of soldiers who would have been evacuated from forward areas due to stress and injury.

The nutritional adequacy of rations, nutrient requirements in the desert environment and the need for hydrating fluids were subjects about which questions were often asked, and dietitians were there ready to educate and advise. Dietitians first identified a shortage of patient rations in theater and took corrective actions. They moved forward into Iraq to provide appropriate patient nutritional care to support EPWs and displaced civilians. The performance of AMSC officers and their enlisted specialists in maintaining the fighting strength confirms the role of the AMSC on the battlefield, now and under MF2K doctrine.

Of all the issues and statistics that must be remembered about Operation Desert Shield/Storm, the most important one is the AMEDD comrades who did not return. Seventeen members of the AMEDD died in SWA: four were killed in action, and 13 died of non-battle injuries. They are listed separately at the end of this article. In addition, 11 AMEDD members were wounded in action, including Maj Rhonda Cornum, MC, who was a POW temporarily. Twenty-eight others suffered non-battle injuries.

I have never been prouder than now to be The Surgeon General of the Army. I have the privilege to lead a quality force of outstanding professionals. This past year was a time of great turbulence and multiple challenges, but the entire AMEDD performed superbly. I am proud of each one of our members, and they should all be proud of themselves.

AMEDD Losses—Operation Desert Storm

Killed in Action

SPC Cindy M. Beaudoin 91/02/28
MAJ Mark A. Connelly, MC . 91/02/28
1LT Daniel E. Graybeal, MS . 91/02/27
SSG Michael R. Robson 91/02/27

Non-Battle Deaths

SSG Garland V. Hailey 91/01/19
MAJ John H. Gillespie, MC . 91/02/18
1LT Thomas J. Haggerty, MS . 91/02/18
1LT Joseph Maks, MS 91/03/12
SGT Michael Smith 91/03/12
LTC Carlos A. Viques, MC . . 91/03/23
SPC Luis A. Henry-Caray . . . 91/03/23
CW3 Richard R. Lee 91/02/07
SGT Jeffrey A. Rollins 91/02/14
WO1 Kerry P. Hein 91/02/27
CW2 Patrick Donaldson 91/03/12
SPC Kelly Phillips 91/03/12
SPC Donald R. Myers 91/03/12