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***Statement for the House Committee on Veteran's Affairs, Subcommittee on Health***

Good afternoon,

My name is Lieutenant Colonel (Dr.) Lee Cancio. I am the Director of the U.S. Army Burn Center, which is part of the Institute of Surgical Research located within Brooke Army Medical Center, Fort Sam Houston, Texas. Since 1949, we have been the only Burn Center serving the Department of Defense. We also serve the acute burn care needs of Veterans Administration patients from across the nation. Finally, we are the only burn center for civilians in this South Texas region.

Our center has cared for all of the seriously burned casualties from Operations Iraqi Freedom and Enduring Freedom, and the Global War on Terrorism. The majority of these casualties have come to us from Operation Iraqi Freedom. I will give you an overview of our preparations for war in Iraq, our experience during the war, and our care for these servicemen as they return to duty or civilian life.

Historically, burns have constituted 5 to 10 percent of conventional warfare casualties. Burn care is time-, manpower- and resource-intensive, requires a multidisciplinary team effort in specialized centers, and can result in lifelong disability.

From the onset, we prepared to care for burned servicemen from the Global War on Terrorism. This Burn Center's mission was to receive all burn casualties up to our maximum capacity, to receive any mustard agent casualties, and not to close to civilian burns here in South Texas unless absolutely necessary. We developed plans for the expansion of this Burn Center up to 60 beds. In addition, we created a National Response for Burn Care in the event of a mass casualty situation. We also developed a plan for mustard agent casualties; we conducted burn training for military medical personnel; and we put into place an aeromedical evacuation plan.

**The National Response for Burn Care**

Our worst-case-scenario prediction was that conflict in the Global War on Terrorism could generate approximately 1,000 burn patients, of whom 200 had life-threatening burns of greater than 20 percent of the body surface area. Clearly, no one burn center could provide intensive care for 200 critically ill burn patients.

Therefore we, in collaboration with the American Burn Association, the U.S. Air Force, and the National Disaster Medical System, put into place a method of directing burn casualties to those civilian burn centers within the Continental United States with open beds—in the event of an overwhelming number of casualties.

A daily request for open bed status was e-mailed from the Army Burn Center to 60 participating burn centers across the country. This information was collated here, and then was sent to the Army Burn Center Liaison Officer at Landstuhl Regional Medical Center in Germany. It was also sent to the Federal Coordinating Centers (FCCs) and to military coordinators across the U.S. In the event of a mass casualty situation, this would have allowed the Liaison Officer in Germany to advise the Air Force and to regulate burn patients coming out of Iraq to available open beds in the U.S.

This unprecedented nationwide system was in continuous operation between 17 March and 9 May 2003, and has been periodically tested since then. The availability of burn beds across the nation among the 60 participating burn centers was 407, for an average of 9.5 beds per burn center. Clearly, there is no large surplus of burn beds in the United States at any one time.

We also engaged in discussion with the National Disaster Medical System concerning possibility of activating the Burn Disaster Medical Assistance Teams (DMATs) to support the Army Burn Center, but this was not required.

### Combat Burn Training

Because burn care is specialized and centralized in burn centers, most military medical providers, to include surgeons and nurses, have little hands-on burn experience. Also, civilian courses in emergency burn care, which emphasize rapid transfer to a burn center, do not fully prepare personnel for battlefield scenarios such as prolonged care.

Accordingly, we created burn training modules specific for military situations, to include the management of mustard agent and white phosphorus injuries, care after the first 24 hours postburn, wound care and infection, and aeromedical evacuation. We trained approximately 1,100 personnel on-site at the Army Burn Center, on the ground in Kuwait before the conflict, and aboard the hospital ship USNS Comfort in the Persian Gulf. In addition, we provided burn care information on the Army Knowledge Web site. This was one of the top-10 Army Web sites during the war.

### Mustard Agent Plan

Recognizing the similarities between burns and mustard injuries, we developed a protocol for the care of mustard casualties in conjunction with the U.S. Army Medical Research Institute of Chemical Defense. This plan included sending all mustard casualties to the Army Burn Center.

### Aeromedical Evacuation of Burned Servicemen

This Center's Army Burn Flight Teams have been in operation since 1951, and pioneered the aeromedical transport of seriously ill burn patients. In addition, these are the only Army teams whose members are trained and certified by the U.S. Air Force as Critical Care Aeromedical Transport Teams, or CCATTs.

During Desert Storm, three Army Burn Flight Teams were pre-positioned in Saudi Arabia. Our experience was that they were underutilized. Therefore, in preparation for the Global War on Terrorism, we placed one Liaison Officer in Kuwait and one in Landstuhl, and deployed Burn Flight Teams to Landstuhl as needed, in order to bring back critically ill patients to the Army Burn Center.

In support of Operations Iraqi Freedom and the Global War on Terrorism, the Army Burn Flight Teams have performed 18 flights to Germany in order to transport burn patients. There were no flight-related complications.

### Care for Burned Servicemen at the Burn Center

Between March 2003 and April 2004, the Army Burn Center admitted a total of 91 patients with burns sustained during Operations Iraqi Freedom and the Global War on Terrorism. Four of these patients were from Operation Enduring Freedom in Afghanistan and two were from Djibouti. Eight-five patients sustained their injuries while involved in Operation Iraqi Freedom. This figure included one Department of Defense civilian employee and four patients from the Republic of Georgia.

Nineteen percent had life-threatening burns of greater than 20 percent of the body surface area, and five also had smoke inhalation injury. There have been two deaths.

Accidents have been the single most common cause of injury. These accidents have included the burning of human waste, the handling of ordnance or gunpowder, the handling of fuel, chemical injuries, motor vehicle accidents, and scalds. Non-preventable burns have included rocket propelled grenade attacks, land mines, and other explosives.

We communicated our findings on accident related burns as the leading cause of injury to the troop leadership in the theater of operations in the Fall of 2003, following which we have seen a decrease in this type of injury. In addition, we are intensifying our educational efforts to the commanders and key line medical staff.

These burned servicemen have been supported by a variety of services that are unique to this Burn Center. The Fisher Houses have frequently provided families with a place to stay near the hospital. Soldiers have been supported by events such as Purple Heart ceremonies and visits by General Officers, Members of Congress, and the Secretary of

Defense. Some of them have undergone Medical Evaluation Boards and others have been returned to their units.

Having these soldiers at one burn center versus scattered across the nation has facilitated this type of support, and has allowed us to collect data on long-term functional outcome after injury.

All of the burn patients at Brooke Army Medical Center have received assistance from two Veterans Administration employees – one a clinical social work and the other a benefits expert.

Psychological problems are a frequent component of the response to burn injury. Recognizing this, the Psychiatric Clinical Nurse Specialist for the Burn Center screens every burn casualty upon admission, and provides treatment and followup as needed. 55 percent of burn casualties from Operation Iraqi Freedom have had acute symptoms of anxiety or depression during their hospital stay. Anxiety is more common, occurring in about 45 percent, than is depression, which occurs in 26 percent. Other common findings are body image disturbance, delirium, and anger. Thirty-two percent of hospitalized OIF patients have received medications to treat symptoms of anxiety and/or depression. Long-term followup has revealed that approximately 25 percent have ongoing psychological problems.

Our process for handling patients with psychological symptoms after discharge includes referral to mental health services at the patient's home base, including the Veterans Administration facilities.

In addition, we follow our burn patients in our outpatient clinic, for up to one year after discharge. These outpatients are also screened for psychological problems at this time. The true incidence of post-traumatic stress disorder following combat injury, and how best to prevent or treat it, remains an important, and as yet unresolved, clinical question.

Many burn patients, particularly with burns of the hands and burns of the face, also have significant long-term rehabilitation and reconstructive surgery needs. Burns of the hand often require a burn-center-experienced Occupational Therapist, or at least a Certified Hand Therapist.

Second, patients with burn of the hands and face develop scars which frequently require reconstruction by plastic or hand surgeons experienced with the long-term treatment of burn patients. Furthermore, patients with deep burns of the face require special face masks during the first year postburn in order to reduce scar formation. These are best constructed using laser scanning technology; only a few centers across the nation have this state-of-the-art technology.

All in all, approximately 20-25 percent of our Operation Iraqi Freedom burn patients have significant burns of the hand or of the face, which require these specialized types of therapy and reconstructive surgeries.

Some of our Operation Iraqi Freedom soldiers have not been capable of returning to duty. A total of seven burned servicemen have undergone medical evaluation boards (MEBs), or are in the process of undergoing one at this Center. Two other servicemen have undergone MEBs at other facilities. Six more of our Operation Iraqi Freedom burn patients are likely to require MEBs, and there are 14 patients who have long-term problems that could result in an MEB and a separation from the service at some point in the future. This assessment does not include the possibility of more servicemen in the future requiring separation because of post-traumatic stress disorder or other psychological complications of their injury.

### Conclusion

In conclusion, it has been a real honor to care for American service men and women who have suffered significant burns during this conflict.

Burn care is a complex, multidisciplinary team process requiring the coordinated services of nurses, surgeons, occupational, physical, and respiratory therapists, social workers, dieticians, and specialists in psychiatry.

The needs of the burn patient do not end with the hospital discharge, but are in many cases lifelong in nature. Adequate care of these Global War on Terrorism patients will require long-term follow-up.

We have initiated this process here at the Army Burn Center as part of our core mission of taking care of soldiers during the acute phase of illness. Many of the soldiers, however, will require lifetime follow-up by specialized personnel with burn experience. We look forward to working with the Veterans Administration system to facilitate and assist in this process even after we have medically discharged them from active service.

Thank you for the opportunity to testify. I would be happy to answer any questions.