

# Medical–Surgical Nursing at the 86th Combat Support Hospital (2007–2009) in Support of Operation Iraqi Freedom: Caring for Host Nation Patients

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**ABSTRACT** A descriptive study of the patients admitted to the host nation intermediate care ward (ICW) of the 86th Combat Support Hospital in Baghdad, Iraq was performed. A retrospective chart review was conducted of the patients admitted to the host nation ward between June 2 and September 5, 2008. One hundred and forty host nation patients were included in the study. Patient demographics, origin of admission, length of stay, and disposition of patient are reported. The types of illnesses and injuries most commonly seen as well as the most common surgical procedures are also reported. This study details the nursing care provided to host nation armed forces and civilians during a 3-month period of the deployment of the 86th CSH in Baghdad, Iraq. Information gained from this study is important for predeployment training and readiness of nurses preparing to deploy to Iraq.

## INTRODUCTION

Army nursing has been providing inpatient medical–surgical nursing care at the main combat support hospital (CSH) in Baghdad, Iraq since 2003. The 86th CSH was deployed at Ibn Sina Hospital for 15 months during 2007–2009 in support of Operation Iraqi Freedom. Capabilities of the CSH include trauma and emergency services as well as general medicine, obstetrics, gynecology, psychiatric, optometry, dentistry, and dermatological services. Services such as radiology, respiratory, physical therapy, dietary, and blood bank are also available at the CSH. Two intermediate care wards (ICW) provide nursing care for medical–surgical patients. The 22-bed unit, ICW-1, admits U.S. and coalition forces, Department of Defense, and Department of Army contractors and civilians. The ICW-1 is staffed by registered nurses (officers), licensed practical nurses (enlisted), and combat medics (enlisted). The 18-bed ICW-2 admits host nation armed forces, civilians, contractors, as well as detainees. The ICW-2 is also staffed by registered nurses, licensed practical nurses, and combat medics. The nursing staff has the opportunity to care for U.S. and coalition armed forces as well as host nation forces, civilians, and detainees over the course of the deployment.

Despite continued military healthcare support throughout Iraq during OIF, there is little information available about the types of patients, illnesses, and injuries cared for on the medical–surgical nursing wards in a combat environment and information on the care of host nation patients is extremely limited. To support nursing practice in the Iraq and Afghanistan wars, descriptive research was necessary to bridge the knowl-

edge gap. A prospective, descriptive study of the U.S. and coalition patients admitted to the ICW-1 of the 86th Combat Support Hospital was also conducted and the results of that study are forthcoming.

## Literature Review

A review of the literature yielded little information about the medical and nursing care given to host nation patients during OIF. Studies have evaluated the types of injuries and illnesses sustained by U.S. military in OIF and Operation Enduring Freedom (OEF) but host nation patients were not included in analysis.<sup>1,2</sup>

Smith<sup>3</sup> described the experience of providing nursing care at an Air Force hospital in Balad, Iraq in 2006. A 1-month retrospective chart review of 142 U.S./coalition and host nation trauma patients admitted in August 2006 was performed to elicit common diagnoses, total length of stay, number of days in intensive care unit (ICU), type of procedures, and complications encountered during admission to the critical care ward of this facility. The results found the most common mechanism of injury to be from explosions followed by gunshot wounds. Injuries were most commonly located in the extremities, and patients often had multiple injuries. The average length of stay for host nation patients was 5.9 days with an average of 2.9 days in the ICU.

## Purpose of Study

The purpose of this study was to evaluate the types of patients, injuries, illnesses, length of stay, and disposition of patients admitted to the host nation ward (ICW-2) of Ibn Sina Hospital in Baghdad, Iraq.

## Methods

The study protocol was approved by the United States Department of the Army Institutional Review Board (IRB) in September 2008. A retrospective, descriptive study was

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conducted to analyze the demographics and types of injuries/illnesses of host nation patients admitted to the ICW-2 between June 2, 2008 and September 5, 2008.

### Procedure

A 3-month retrospective chart review with waiver of informed consent was conducted of all patients admitted to the ICW-2 host nation ward from June 2, 2008 through September 5, 2008. A retrospective chart review was chosen due to the expected challenges of obtaining informed consent in this patient population. All interaction with host nation patients was done through an interpreter due to the language barrier. Additionally, many of the host nation patients were involved in war trauma from blast and bombing attacks, and feared retribution or attacks on themselves and their family upon release from a U.S. hospital. Given these challenges surrounding informed consent, a waiver of consent was granted by the U.S. Army Institutional Review Board and a retrospective chart review was conducted.

All patients ( $n = 140$ ) admitted to the ICW-2 host nation ward between June 2, 2008 and September 5, 2008 were included in the study. Detainees were not included in the study per multinational force-Iraq policy. Charts were pulled by the Patient Administration Department and reviewed by the primary and coinvestigators. Information such as age, gender, type of injury, type of illness, mechanism of injury, length of stay, origin of admission (EMT, clinic, etc.), and disposition were documented on a data collection sheet. A total of 140 host nation patients were admitted to the ICW-2 from June 2, 2008 to September 5, 2008.

### Data Analyses

SPSS 16.0 (Chicago, IL, 2007) was used for data analyses. Descriptive statistics were utilized to describe the study sample, type of illness/injuries, mechanism of injury, length of stay, and disposition of patients.

## RESULTS

### Demographics

Of the 140 host nation patients included in the study, 81.4% were male and 18.6% were female. The average age was 27.4. Most of the patients were civilian adults, followed by Iraqi Army, Iraqi police, children, and contractors. Complete demographic information is shown in Table I.

Most of the patients were admitted to ICW-2 from the Emergency Department and as transfers to the ward from the ICU. The 86th CSH routinely received host nation patient transfers from the Air Force Hospital in Balad, Iraq. These patients were admitted to the ward for medical and nursing care while awaiting transportation to an Iraqi healthcare facility. Additionally, patients were admitted from the outpatient clinic at the hospital. For all patients, the mean length of stay was 4.8 days and the majority of patients were discharged to their home or military unit or transferred to an Iraqi health-

TABLE I. Demographics Table

Demographics	<i>n</i> (%)
Gender ( $n = 140$ )	
Male	114 (81.4)
Female	26 (18.6)
Age (years) ( $n = 131$ )	$M = 27.4$ (SD = 13.7, range 73)
Type of Patient ( $n = 139$ )	
HN Civilian Adult	56 (40.2)
HN Civilian Children	13 (9.4)
HN Civilian Newborn	4 (2.9)
HN Contractor	11 (7.9)
Iraqi Army	36 (26)
Iraqi Police	12 (8.6)
Iraqi Special Forces	1 (0.7)
Other	6 (4.3)
Origin of Admission ( $n = 139$ )	
Outpatient Clinic	6 (4.3)
Emergency Room	66 (47.5)
Transfer from ICU	36 (26)
Orthopedic Clinic	14 (10)
Transfer from Balad	16 (11.5)
Other	1 (0.7)
Length of Stay (days)	$M = 4.8$ (SD = 13.7, range 27)
Disposition ( $n = 140$ )	
Discharged Home or to Military Unit	88 (62.8)
Transfer to Iraqi Hospital	40 (28.6)
Deceased	6 (4.3)
Other	6 (4.3)

*M*, mean; SD, standard deviation; HN, host nation; ICU, intensive care unit.

care facility. Six patients were admitted for end of life care and died, and the remaining were discharged either back to their employer or contracting company for air evacuation out of theater for further care. Details of admission, length of stay, and disposition are recorded in Table I.

### Mechanism of Injury/Illness

For the purpose of this study, nonbattle injuries were defined as an injury sustained while not engaged in hostile action. Nonbattle injuries included civilians who were injured as a result of hostile action (i.e., indirect fire, gunshot wounds), all other types of injuries, to include all patients who were admitted for medical issues. Battle injuries were defined as those Iraqi military and police who were injured while engaged in hostile action.

Nonbattle injuries comprised the majority of admissions to ICW-2 (53%) followed by battle injuries (28%). The remaining admissions were medical, orthopedic, gynecological, and genitourinary. Patients were admitted to ICW-2 for follow-up surgery or care from an old injury (25.7%), and most of the patients admitted had sustained multiple injuries (59.3%).

Blasts were responsible for most of the nonbattle injuries, followed by gunshot wounds, and vehicle accidents. The remaining nonbattle injuries were a result of falls, crush injuries, and other injuries detailed in Table II. Blasts were also responsible for most of the battle injuries followed by gunshot wounds. Details of remaining battle injuries, medical, gynecological, and genitourinary admissions can also be found in Table II.

**TABLE II.** Type of Admitting Illness/Injury

	n (%)
Nonbattle Injury (n = 67)	
Blast Injury	27 (40.3)
Gunshot Wound	15 (22.4)
Vehicle Accident	10 (15)
Fall	3 (4.4)
Vehicle Rollover	2 (3)
Crush Injury	2 (3)
Accidental Weapons Discharge	1 (1.5)
Other	7 (10.4)
Battle Injury (n = 35)	
Blast Injury	25 (71.4)
Gunshot wound	9 (25.7)
Other	1 (2.9)
Medical (n = 10)	
Diabetes	1 (10)
Diabetic Ketoacidosis	1 (10)
Pancreatitis	1 (10)
Cerebrovascular Accident	1 (10)
Seizure	1 (10)
Chest Pain	1 (10)
Hypertension	1 (10)
Scorpion Sting	1 (10)
Other	2 (20)
Gynecological (n = 5)	
Pregnancy	3 (60)
Vaginal Bleeding	1 (20)
Other	1 (20)
Genitourinary (n = 2)	
Posturethral disruption	1 (50)
Bilateral Scrotal Injury	1 (50)
Burns (n = 19)	
Total Body Surface Area (%)	M = 42, SD = 25.4, range = 90
Mechanism of Burn (n = 19)	
Kerosene	9 (47)
Explosion	6 (32)
Trash Burning	3 (15.8)
Gasoline	1 (5.2)
Orthopedic Injuries (n = 102)	
Fracture	53 (52)
Soft Tissue Injury	12 (11.7)
Fragmentation Wound	7 (6.9)
Laceration	6 (5.9)
Joint Dislocation	5 (4.9)
Stump Infection	3 (2.9)
Retained Hardware	3 (2.9)
Osteomyelitis	2 (2.0)
Sprain/Strain	1 (1)
Other	10 (9.8)

M, mean; SD, standard deviation.

### Burns

The ICW-2 admitted 19 patients for burns from early June to early September. The mean total body surface area (TBSA) of burns was 42%. Most of the burns were a result of kerosene accidents and explosions. The mean age of the patients admitted for burns was 21.7 years (SD = 9.17, range 32). Of the 19 patients admitted for burns, 53% were female and 36% were under the age of 18. Of note, all of the most severely burned patients with TBSA ranging from 38% to 95% were

**TABLE III.** Distribution of Injuries

	n (%)
Injury by Location (n = 112)	
Head/Face	18 (16.1)
Torso	22 (19.6)
Upper Extremities	25 (22.3)
Lower Extremities	45 (40.2)
Buttocks	2 (1.8)
Upper Extremity (n = 25)	
Finger	2 (8)
Thumb	2 (8)
Hand	2 (8)
Arm	12 (48)
Shoulder	4 (16)
Other	3 (12)
Lower Extremity (n = 45)	
Leg	36 (80)
Ankle	2 (4.4)
Hip	2 (4.4)
Foot	2 (4.4)
Knee	1 (2.2)
Other	2 (4.4)

female and 3 of these females were admitted to ICW-2 for comfort care and died on ICW-2 due to the severity of their burns. Two of the pediatric burn patients cared for during this period were subsequently sent to a specialty burn care facility in the U.S. for further care and rehabilitation. Mechanism of burn injuries can be found in Table II.

### Distribution of Injuries

Lower extremity injuries were most common followed by injuries of the upper extremities and torso. Most of the lower extremity injuries were found in the leg and in the upper extremities, most injuries were found in the arm. Complete distribution of injuries is located in Table III.

Fractures comprised most of the orthopedic injuries (52%) and the most common site of fracture was the femur (17%), tibia–fibula (15%), and hand (11.3). Remaining fractures were seen in the pelvis, arm, hip, foot, ankle, and digits. Soft tissue injuries were also common as well as fragmentation wounds. Other orthopedic injuries included lacerations, joint dislocations, and amputation stump infections. Patients were also admitted for removal of retained orthopedic devices such as antibiotic beads. Please see Table III for further information.

### Surgical Procedures

The most common surgical procedures were orthopedic in nature. Wound washouts were the most commonly performed procedure followed by fracture stabilizations. Other orthopedic procedures included bone grafts, amputations, application of external fixator devices, and other procedures such as nerve repair. General surgery procedures were the next most common, and the most common general surgery procedure was skin grafting followed by exploratory laparotomy. Other general surgery procedures included thoracotomy, colostomy, skin graft donor surgery, and median sternotomy with vascular repair.

## **DISCUSSION**

This study evaluated the demographics, type of illness and injury, length of stay, and disposition of patients admitted to the host nation medical–surgical nursing ward of the 86th Combat Support Hospital in Baghdad, Iraq. In summary, most of the patients were adult male civilians with nonbattle injuries most commonly caused by blast injuries and gunshot wounds. There was a large proportion of males (81%) in this sample, which could be due to the fact that 43% of the sample was military, police, or contractors. Blast injuries were also the main cause of battle injuries. Burns were more gender specific in that all of the burns greater than 35% TBSA were in females. Our data are similar to what Smith (2008) found in the 1-month retrospective review of trauma patients admitted to an Air Force hospital in Balad, Iraq in August of 2006. Most of the injuries in that review were also caused by blast injuries and the most common location for injury was also the lower extremity. Length of stay in our study sample was shorter (4.8 vs. 5.9 days) and this may reflect a shift toward transferring more patients to the Iraqi healthcare system for care once patients are stabilized.

Although a great deal of information has been gained from this study, there are limitations. While this study is retrospective in nature, it was the best option given the challenges of obtaining informed consent. Additionally, the study only captures a 3-month period, so future studies may wish to cover a longer period of time to look for seasonal variations in injuries, particularly in burns. The sample size of the study was also small and future studies should include a larger sample size if feasible.

### **Predeployment Training Implications**

Nurses deployed to the current theater of operations in Iraq will likely be caring for host nation armed forces and civilians as well as U.S. and coalition forces and civilians. This study is the first to examine in detail the demographics and type of illnesses and injuries of host nation patients admitted to the medical–surgical nursing ward of a combat support hospital in Iraq. It highlights the types of patients a nurse can expect to care for while deployed. Host nation patients are likely to have multiple traumatic injuries requiring frequent surgical intervention and multiple medical devices. Nurses are required to care for patients across the age spectrum from newborn to elderly. Common pediatric care includes care of newborns, pediatric trauma, and burns. Severely burned patients require complex nursing care including frequent dressing changes and wound care, tube feedings, and advanced pain management.

Predeployment training should strongly focus on taking care of patients with severe trauma and burns. Deployed

nurses may come from various specialty backgrounds and may require additional training on medical devices frequently used in trauma and burns. Training on these devices prior to deployment will decrease the learning curve upon arrival in theater and thus result in more efficient, competent, and safe patient care. Additionally, nurses should be familiar with pediatric assessment, pediatric medication administration, as well as pediatric life support. Despite the fact that only a small sample of our patients were infants and children, advanced knowledge and training of nursing issues surrounding pediatric care, especially in trauma and burns, can improve nursing care and outcomes. The nursing staff received multiple in-services by the head nurse on pediatrics prior to moving to the host nation ward and had the opportunity to become pediatric advanced life support (PALS) certified while in theater.

### **Nursing Challenges**

Nurses face many other challenges in the course of caring for host nation patients including language, culture, and nutrition issues. Interaction with host nation patients requires constant communication through interpreters. Nurses need to be culturally aware and sensitive to issues surrounding modesty and try to accommodate gender-specific nurse requests. Other cultural issues include observance of holidays and other religious observances such as Ramadan. If available, prayer rugs can be offered to family members or patients who wish to pray.

Nutrition issues are challenging for many reasons. Patients may be nutritionally compromised due to burns or need additional caloric intake to assist wound healing. Most of our patients are supplemented with protein drinks and in patients with severe burns, tube feedings.

Despite these challenges, the rewards of caring for host nation patients are immeasurable. Nurses have the unique opportunity to learn about the Iraqi culture firsthand, gain a broader perspective on how the war affects the people of Iraq, and ultimately contribute to their health and recovery.

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