

## OP TELIC

### Attendances at a Field Hospital emergency department during operations in Iraq November 2003 to March 2004 (Operation Telic III)

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#### ABSTRACT

**Objective:** This study investigated the types of presentations; time lines and disposal of patients from the international, local and military community in Southern Iraq.

**Methods:** All presentations to the Emergency Department (ED) were clinically and demographically coded and entered onto an electronic database.

**Results:** During the period studied the emergency department dealt with 1455 new presentations of which 75% were UK Armed Forces personnel

**Conclusions:** This represented a busy period in the field hospitals time in Iraq and offered valuable training to emergency medicine trainees in an unusual environment.

#### INTRODUCTION

Between November 2003 and May 2004 Role 3 (secondary care) medical cover to the Southern area of Iraq was provided by 22 Field Hospital. This was a tented hospital facility, which provided an emergency department, general and orthopaedic surgical facility and general medical cover.

During its deployment 22 Field Hospital provided care to British forces, other coalition forces in the area, the international community, employed Iraqi civilians and Iraqi civilians who presented requiring emergency treatment. This study aimed to quantify the workload performed by the ED staff and to demonstrate the range of presentations, the pre-hospital course and the immediate and subsequent disposal of emergency department patients. Of particular interest was who was getting injured, how it was happening and whether it might have been preventable.

At the time of study the ED was staffed by A&E trainees supervised by one emergency medicine consultant and approximately 24 nursing and medical technical staff. The ED provided 24-hour emergency cover but was also the route of entry for all hospital admissions emergent or otherwise.

#### METHODS

The data was collected by coding all ED presentations onto an electronic database. Initially, previous presentations were retrospectively coded using clinical records. Once this was complete, presentations were prospectively coded. (See Appendix A).

The coding system was adapted from the current system used at the John Radcliffe

Hospital, Oxford and adapted for military use. Twenty-seven fields were recorded for each presentation plus a free text description.

Once the data set was complete we were able to analyse any patient group (for example blast injury or sporting injury) looking at referral and transfer times as well as management pathways and eventual outcomes.

#### RESULTS

##### Status

During Operation Telic 3 the emergency department at BMH Shaibah dealt with 1455 new presentations (Figure 1). UK service personnel (UKS) made up 75% (1034) of all presentations; of these 29% were from combat units, 15% from combat support units, 49% from combat service support and 2% from the RAF. No status was recorded for the remaining 5% or their status was unclear from the records. In total there were 109 trauma calls.

Number of Presentations

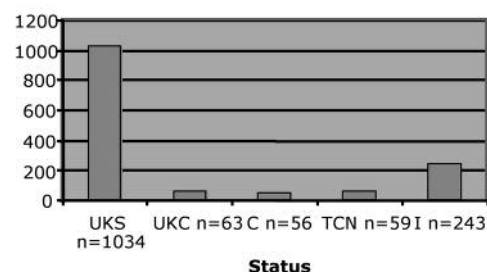


Figure 1 Status of patients presenting to the emergency department

Local civilians formed the next biggest group with 16.7% of the presentations. Other coalition forces(C), other civilian nationals (TCN) and UK civilians (UKC) all had similar representation at around 4%.

##### Age of Presenting Patients

Of the 1455 presentations in the study the age of the patient was unclear from the notes in 324 (22.3%) of cases. Of the ages recorded (n=1131) the commonest age group was 18 to 25 years. Only 21 patients were under the age of 18 (three under 2's, ten under 10's and eight 10-18 year olds). The youngest patient seen was a neonate of 6 days with spina bifida and the eldest a 70 year old Iraqi with a fractured neck of femur and subdural haemorrhage secondary to a road traffic collision. Two children with congenital heart disease (Fallot's) also presented.

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**Time to Presentation**

Of the trauma victims the average time from injury to arrival was 1.6 hours. The longest being 5 hours and the shortest being 0.3 hours. This average excluded some delayed presentations of gunshot wounds and delayed presentations in burns.

**Diagnosis**

Of all presentations 55.5% (n=808) were injury-related conditions (Table 1).

Diagnosis	Number (% of total)
Non-fracture Musculoskeletal	311 (38.5)
Open/Penetrating wound	260 (32.1)
Fractures	87 (10.8)
Minor Soft Tissue Injury	69 (8.6)
Burn	28 (3.4)
Organ system injury	18 (2.2)
Other	17 (2.1)
Minor Head Injury	10 (1.2)
Unknown	9 (1.1)
Total	808 (100)

Table 1 The distribution of injury presentations

The remaining 44.5% (647) were non-injury related conditions: of these, 347 were admitted including 33 psychiatric admissions. There were 168 presentations for gastrointestinal symptoms and only one for heat injury.

**Disposal and Evacuation**

Seven hundred and seventy (of 1455) were immediately returned to their unit. Of the other 684 patients (47%) who were not RTU'ed, 171 (25%) were medically evacuated from Iraq (Figure 2). This represented 11.8% of all presentations to the emergency department. Air evacuation to the UK (C-CAST) was required for 5 patients including 1 Iraqi burns patient, and the rest being UK service personnel.

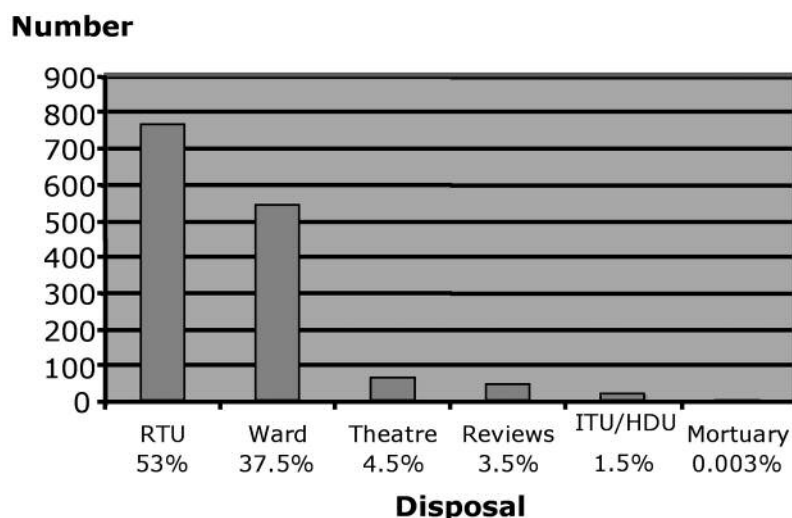


Figure 2 Immediate Disposal

**Nature of Presentation**

The mechanism of injury was divided into three groups: Sports activities (S), Disease or non battle injuries (D), and injuries sustained in military operations involving combat or civil unrest (C). Patients whose aetiology was not clear from the notes were grouped as unknown (UN). (Figure 3)

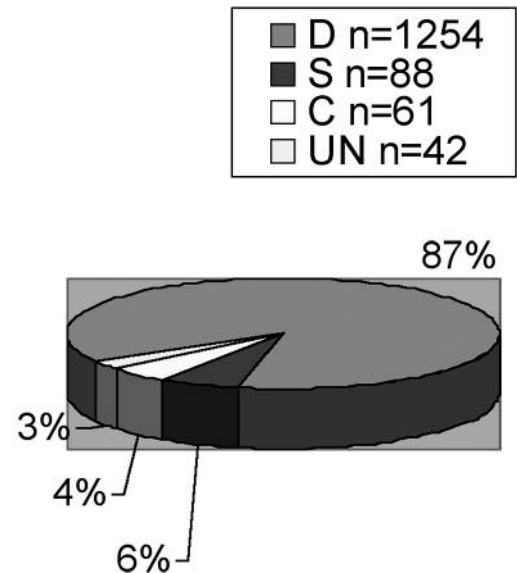


Figure 3 Broad mode of presentation

**Specific Mechanism of Injury**

A key area of interest in this trauma data was how patients were injured in conflict i.e. by blast, blunt trauma or penetrating trauma. Blast trauma from explosive devices accounted for 45 presentations of which 37 were UK service personnel (Table 2).

DIAGNOSIS	NUMBER
Soft Tissue Injury	30
Limb Fracture	7
ENT Barotrauma	5
Other*	3

Table 2 Distribution of blast injuries

Of these presentations 23 went to theatre immediately, 12 to the ward, 8 were returned to their unit and 2 were discharged with a planned review.

Penetrating trauma from gun shot wounds accounted for 21 patients: 5 UK service personnel, 2 other civilian nationals and 14 Iraqis. There were 3 deaths. The anatomical distribution of these injuries was as follows: head 3, limbs 12, abdomen and pelvis 3, chest 3. There were 101 presentations due to Road Traffic Collision (RTC) during the period studied. Of these 67 were UK service personnel. The average number of casualties per incident was two. The road traffic accidents generated 30 trauma calls (out of a total of 119), 3 deaths (two on arrival and one subsequently in theatre) and a range of injuries (Table 3).

INJURY CATEGORY	NUMBER
Fractures	17
Musculo-skeletal (non-fracture)	40
Open wound	13
Minor STI	17
Internal Organ Injury	5
Other*	6

\*Concussion, burns, eye injury and unknown.

Table 3 Road traffic collision injuries

## DISCUSSION

The period of activity looked at during this study represented a busy time in the deployment of a UK field hospital in Iraq.

At the beginning of the study period paediatric cases had significantly dropped since the initial deployment in 2003 (TELIC 1). During the war fighting phase 78 paediatric patients were seen in 36 days(1). This change probably reflected the drop in hostile action, increase in peace enforcement, law and order and the restoration of local medical care in the area following war-fighting phases. A variable policy regarding the acceptance of civilian patients also affected numbers of children seen. In this study it was the hospital policy for senior ED Clinicians (medical or nursing) to assess self-presenting patients at the entrance to Shaibah Log Base before making a decision to allow access for further care on the basis of clinical need and the capacity of the hospital. Patients who could be managed more appropriately in the Iraqi health system were redirected. Although sometimes controversial, this system appeared to work well.

Road traffic accidents continue to be a significant cause of mortality and morbidity on operations and exercise. Previous papers have looked specifically at this(2) and policy change has been implemented to improve accident and injury prevention. At the time, the issue of 'top cover' for vehicle convoys raised particular concern. Whilst it was appreciated that it was an important operational need, several unrestrained soldiers sustained severe injury following ejection and one UK service personnel death was during top cover duty.

There was one notable mass casualty situation arising from an IED explosion in Basra in March 2004. Eighteen injured soldiers with blast and shrapnel injuries were evacuated from Basra City. The emergency department was immediately reconfigured to allow resuscitation at both major and minor bays. Off duty nursing staff were mobilised and the primary care staff (including three GP's) also attended. All but three patients were dealt with immediately. Those three were secondarily

transferred to an Italian facility to allow timely debridement of soft tissue fragment injuries. To illustrate the level of activity, 110 radiographs were performed in 4 hours. It was a good demonstration of what could be achieved with the resources available.

Although much reduced from earlier phases of the operation where they accounted for 62.8% of total admissions(3), medical cases continued to be a significant part of the hospital workload. In this study non injury conditions accounted for only 44.5% of presentations. This included surgical and psychiatric presentations.

There was a significant drop in the total number of gastrointestinal illnesses but they still represented a higher percentage of medical workload in comparison with earlier periods( 3 ). This is likely to be due to the improved accommodation and food handling hygiene in later stages of deployment. In addition to this, heat illness was negligible during this study period.

The range of disease and injury continued to be varied and reflected previous work looking at field hospital activity(4). This supports the continued use of emergency physicians and general practitioners on operational and exercise deployments. It also supports the deployment of trained general physicians and general surgeons to deal with the wide range of presenting illness and injury.

Clinicians on deployment need good access to telephone advice from experienced consultants, including coalition partners in theatre, such as ophthalmology(5), psychiatry, infectious diseases and otolaryngology. Advice was also readily obtained from RCDM and other NHS acute hospital consultants.

Use of ultrasound in the ED is currently very topical in civilian practice (6,7). Access to portable ultrasound scanning in the ED was extremely valuable in the Field Hospital setting, as has been confirmed during other phases of Op Telic. During Op Telic 3 no computerised tomography was available within the field hospital. On many occasions ultrasound was used in trauma patients to image intra-abdominal free fluid, cardiac tamponade and large pleural effusions. It has a documented role in fracture identification(8). It also has a role in vascular access, peripheral nerve blockade and non-trauma applications such as renal ultrasound and testicular ultrasound. All of which were applied during Op Telic 3. Basic ultrasound training should be considered a core skill for military emergency medicine trainees and consultants.

Emergency medicine has a pivotal role in the field hospital, not just in trauma and resuscitation but in providing emergency and routine care in many areas.

In terms of training, whilst patient numbers are low (equivalent to a large

department seeing only 40,000 instead of 100,000 patients per year), the proportion, and spectrum, of major trauma is high. Exposure to penetrating and blast injury during this operational phase was significant. Exposure of the trainee to direct consultant supervision was higher than in many civilian emergency departments. Quality of experience is as important as volume. It is rare that an ED doctor has the opportunity to follow his patient in real time through theatre, ITU and transfer phases of care. Learning opportunities should be fully realised in this type of operational environment.

The emergency card used to record attendances was developed specifically to allow more detailed and accurate clinical and demographic data collection. We found it to be far more useful than current audit returns. It would be relatively easy to develop a dedicated database that could be compiled prospectively with current IT equipment available in theatre. This would facilitate easy future clinical activity monitoring, audit and resourcing. The card has now been incorporated into military documentation on operations, replacing the Fmed 7 in emergency departments.

### CONCLUSION

November 2003 to March 2004 was a busy period for the field hospital at Shaibah. It offered considerable training opportunities to emergency department personnel particularly in patterns of injury not commonly seen in civilian practice.

Field hospital activity continues to be very varied with patterns of injury and illness remaining consistent in military operations. This supports the role of emergency medicine doctors in the operational environment.

### ACKNOWLEDGEMENT

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# APPENDIX A

ATTACH COPIES OF BLOOD RESULTS, ECG ETC. HERE

**TREATMENTS**

Date	Time	Drug	Dose	Route	Doctor	Nurse

DIAGNOSIS      main      2nd      3rd

BODY PART

Write up to 3 different diagnoses, giving diagnosis code and body part codes. See lists of codes, below

**TREATMENT** tick all applicable

- Analgesia
- Antibiotics
- Bandage
- Central line
- Chest drain
- Crutches
- Defibrillation / pacing
- Dressing
- Emergency contraception
- Eye ointment / drops
- Guidance
- I & D (Incision & Drainage)
- Intubation
- Irrigation
- IV therapy
- Local anaesthesia
- Minor surgery
- Nebuliser
- Observation
- Occupational therapy
- Parenteral drugs
- Physiotherapy
- Plaster of Paris
- Prescription
- Reduction
- Removal of foreign body
- Resuscitation
- Sling
- Splint
- Sutures
- Tetanus & diphtheria toxoid
- Tetanus immunoglobulin
- Thrombolysis
- Urinary catheter
- Wound closure (not sutures)
- Other
- None

**INVESTIGATIONS** tick all applicable

- Bacteriology
- Biochemistry
- CT
- Cross match
- ECG
- ED Observation
- Haematology
- Histology
- MRI
- Ultrasound
- Urine
- X-ray
- Other
- None

**INJURY CONDITIONS**

- Fracture
- Musculo-skeletal (muscle, tendon, ligament injuries)
- Wound (including bite, cut, abrasion, laceration)
- Bruise or superficial injury
- Burn
- Concussion
- Organ system injury
- Other injury
- Unknown

**NON-INJURY CONDITIONS**

- Allergy (including anaphylaxis)
- Cardiac
- Central Nervous System (excluding strokes)
- Cerebro-vascular
- Dermatological
- Diabetes and other endocrinological
- ENT
- Facio-maxillary
- Gastrointestinal
- Gastroenteritis
- General Surgical
- GUM
- Gynaecological
- Haematological
- Heat illness
- Infectious disease
- Local infection
- Obstetric
- Ophthalmological
- Psychiatric
- Respiratory
- Rheumatological
- Septicaemia
- Urological (including cystitis)
- Vector-borne illness
- Other vascular
- Other condition
- Nothing abnormal detected

**HEAD & NECK**

- Brain
- Head
- Face
- Eye
- Ear
- Nose
- Mouth, jaw, teeth
- Throat
- Neck

**UPPER LIMB**

- Shoulder
- Arm
- Upper Arm
- Elbow
- Forearm
- Wrist
- Hand
- Finger

**LOWER LIMB**

- Hip
- Groin
- Thigh
- Knee
- Lower leg
- Ankle
- Foot
- Toe
- Multiple Site
- Unknown or not relevant

**TRUNK**

- Cervical spine
- Thoracic
- Lumbosacral spine
- Pelvis
- Chest
- Shoulder
- Abdomen
- Back/buttocks
- Ano/rectal
- Genitalia

version 4: based on a coding scheme devised by Oxford Radcliffe Hospitals (UK) Trust, April 2004

Field Hospital:       **EMERGENCY DEPARTMENT CLINICAL RECORD**      Hospital number:

**PERSONAL DETAILS**

Surname: \_\_\_\_\_ Service no.: \_\_\_\_\_

First name(s): \_\_\_\_\_ Rank: \_\_\_\_\_

Sex:  Male  Female      Unit type: Army

Date of birth: \_\_\_\_\_       Combat unit

Status:  UK service personnel       Combat support

UK civilian       Combat service support

Coalition forces / other       Royal Airforce

Coalition civilian       Navy

Iraqi national (inc. LEC)       Unknown

Third country national      Unit in theatre: \_\_\_\_\_

Unit in UK/BFG: \_\_\_\_\_

**PRESENTATION**

Allergies: \_\_\_\_\_

Date of arrival: \_\_\_\_\_ Time of arrival: \_\_\_\_\_ Presentation no.: \_\_\_\_\_

Mode of arrival:  Ambulance  Helicopter  Self  Other  IRT

Escort Unit & No: \_\_\_\_\_

Presenting complaint: \_\_\_\_\_

Date & time of incident / onset of symptoms: \_\_\_\_\_ No. casualties in incident: \_\_\_\_\_

**ACTIVITY** tick one box

- Unintentional injury
- Suspected intentional self-harm
- Alleged / suspected assault
- Operators of war or civil conflict
- Disease / illness
- Sport
- Unknown

**MECHANISM** tick one box

- Fall
- Blunt force (struck, crushed)
- Penetrating force (stab, cut, bite, shot)
- Explosive blast (improvised device)
- Explosive blast (other)
- Traffic injury
- Poisoning
- Burn (flame / cold / chemical)
- Environment (heat stress / hypothermia)
- Other
- Unknown
- Not applicable

**RTA CIRCUMSTANCES** tick all appropriate

- Single vehicle involved
- Multiple vehicles involved
- Vehicle rolled over
- Patient was ejected
- Top cover

**RTA VEHICLE** tick one box, if appropriate (Patient's vehicle or mode of transport)

- Pedestrian
- Bicycle
- Two-wheeled motor vehicle
- Car or van
- Lorry or bus
- Green fleet
- White fleet
- Armoured vehicle
- Other
- Unknown

**APPROPRIATE PPE** tick one box

- Worn
- Not worn
- Unavailable
- Unknown
- Not applicable

**ALCOHOL INVOLVEMENT** tick one box

Y  Suspected or confirmed

N  No / information unavailable

**BASELINE OBSERVATIONS**

GCS	Blood pressure	Pulse	Resp. Rate	Saturation O <sub>2</sub>	Temperature	BM

**URINALYSIS** Initial each performed

NAD:	Protein:	Ketones:	Leukocytes:
RBCs:	Nitrites:	Urobilinogen:	

**NURSING NOTES** Name: \_\_\_\_\_

Time: \_\_\_\_\_ Signature: \_\_\_\_\_

**CLINICAL NOTES**

Time seen: \_\_\_\_\_ Clinician: \_\_\_\_\_ Grade: \_\_\_\_\_

**CLINICAL NOTES CONTINUED**

**SPECIALTY** tick one box

- ED
- Orthopaedics
- Surgery
- Medicine
- Other: \_\_\_\_\_

Time of referral:

Time of departure:

**IMMEDIATE DISPOSAL** tick one box

- RTU
- Primary Healthcare
- Planned review
- Ward
- Theatre
- HDU or ITU
- Mortuary