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## THE TRI-SERVICE EMERGENCY MEDICINE CONFERENCE 2009

The Tri-Service Emergency Medicine Conference 2009 was held at HMS DRAKE in Plymouth from 9-11 June. Over 140 delegates from all three services attended this year's multidisciplinary event, with keynote speeches from Colonel Ian Greaves, Defence Consultant Adviser in Emergency Medicine, and Colonel Tim Hodgetts, Defence Professor of Emergency Medicine. The following abstracts were delivered as oral presentations during the conference.

### Combat trauma survival: where is the proof of good outcomes?

KJ Starkey, TJ Hodgetts, R Russell, PF Mahoney

*Academic Department of Military Emergency Medicine, RCDM*

**Aim:** To quantify the number of unexpected survivors from major trauma who are treated within the UK military trauma system in Afghanistan and Iraq. **Population:** Survivors of major trauma [ISS  $\geq$  16] or traumatic cardiac arrest ISS <16 recorded on the UK military's Joint Theatre Trauma Registry (JTTR) from 02 April 2006 to 30 July 2008. **Methods:** "Mathematical unexpected survivors" were identified from those who survived traumatic injury with ISS 60-75 and/or NISS 60-75 and/or TRISS Ps <50% and/or ASCOT Pd  $\geq$ 50% and/or documented cardiac arrest.

"Mathematical unexpected survivors" were subject to peer review. "Clinical unexpected survivors" were identified by independent peer review (expert panel of 3) of all additional survivors ISS  $\geq$  16. These were characterised as either "civilian unexpected, but military expected" or "civilian and military unexpected" survivors to account for the raised expectations within the deployed military trauma system. **Results:** There were 1474 patients on UK JTTR; 530 were ISS  $\geq$ 16 and 296 were survivors. A total of 44 patients were "mathematical unexpected survivors" and 34 of these were validated by peer review. Within this group, there were 6 survivors from traumatic cardiac arrest. An additional 41 cases were identified as "clinical unexpected survivors"; 26 were "civilian unexpected, but military expected" and 15 were "civilian and military unexpected". The sensitivity of mathematical models to predict unexpected survivors of combat trauma is 45% [34/75];

the specificity is 77% [34/44]. Of the clinical unexpected survivor group, 36/41 [88%] had their unexpected outcome attributed to the advanced resuscitation strategies in the military to arrest and treat catastrophic haemorrhage following combat trauma. **Conclusions:** Mathematical modelling underestimates the unexpected survivors of combat trauma within the current UK military trauma system. Clinical peer review is essential if the value of advances in the military trauma system are to be recognised.

## **A comparison of civilian trauma standards [NCEPOD] with current practice in a deployed field hospital in Afghanistan**

**DCW Henning, JE Smith, D Patch, AWL Lambert.**

*Joint Force Medical Group HERRICK IXa, Camp Bastion, Afghanistan; Academic Department of Military Emergency Medicine, RCDM*

**Background:** The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report on trauma management, published in 2007, defined standards for UK hospitals dealing with trauma. This study compared the NCEPOD standards with the performance of a UK military field hospital in Afghanistan. **Setting:** Role 2 (Enhanced) medical facility, Camp Bastion, Helmand Province, Afghanistan. **Materials and methods:** Data were collected prospectively for all patients fulfilling trauma team activation criteria during the 3 months of Operation HERRICK IXa (mid-October 2008 to mid-January 2009), and combined with a retrospective review of pre-hospital documentation, trauma resuscitation notes, operations notes and transfer notes for these patients. **Results:** During the study period there were 226 trauma team activations. Of those patients brought to the medical facility at Camp Bastion by UK assets 93.7% were accompanied by a doctor with advanced airway skills, although only 6.2% of patients required such an intervention. Consultants in emergency medicine and anaesthesia were present in 100% of cases, and were directly involved [in either leading the team or performing airway management] in 63.5% and 77.6% of cases respectively. 98.1% of those patients requiring operative intervention had this performed by a consultant surgeon. Of those patients requiring computed tomography, 93.6% of cases had this performed within 1 hour of arrival. **Conclusions:** Trauma patients presenting to the medical facility at Camp Bastion during Operation HERRICK IXa, irrespective of their nationality or background, received a high standard of medical care when compared to NCEPOD standards.

## **The Incidence of Heat Illness on UK Deployed Operations in Iraq and Afghanistan 2003-2008**

**S De Maria, JE Smith, S Everington, K Harrison, TJ Hodgetts.**

*Emergency Department, Derriford Hospital; Academic Department of Military Emergency Medicine, RCDM*

**Objective:** To establish the numbers and characteristics of heat illness patients on deployed operations since the start of war fighting in Iraq in 2003 and Afghanistan in 2006. **Methods:** A retrospective database analysis was performed on OpEDAR to identify numbers and outcome of patients with heat illness presenting to the deployed field Hospital during Operations TELIC and Operations HERRICK. **Data Sources:** The patient information regarding patient status, admission status, disposal and outcome, was gathered from the Operational Emergency Department Attendance Register (OpEDAR). This database records all patients who have attended the Emergency Department or who were admitted to a UK Operational Hospital via the Emergency Department. The OpEDAR database includes

all patients i.e. UK Service Personnel, all other NATO forces, civilians (UK and other nationalities) and detainees. **Results:** In Iraq and Afghanistan from 2003-2008, there were 1425 patients presenting to the Emergency Department with heat illness. Of these 1425 patients, 1301 [91.29%] were serving personnel, 27 [1.89%] were admitted to ITU/HDU, 218 [15.29%] were returned to the UK and in 88 [6.17%] the outcome was not documented. There were no recorded deaths from heat illness during this period.

The number and rate of heat illness patients are expressed per six month tour. During Op TELIC the total number of attendances for serving personnel ranged from 8-751 with a rate range of 0.8-60.1 per 1000 personnel. During Op HERRICK the number of attendances for serving personnel ranged from 2-49 with a rate range of 0.3-7.1 per 1000 personnel. **Conclusion:** Heat Illness remains a major problem for UK Service Personnel on deployed operations in hot climates and continues to pose a threat to operational effectiveness.

## **OpEDAR – analysis of data from Operation HERRICK**

**J Ollerton**

*Academic Department of Military Emergency Medicine, RCDM*

**Background:** The Operational Emergency Department Attendance Register [OpEDAR] was started in February 2003; before this there was no audited record of activity within a deployed Emergency Department (ED) to guide realistic and contemporary assumptions for manning, equipment, organisational processes and training. OpEDAR was initiated as a hand-kept record in a paper register that has since evolved to the electronic register held at ADMEM today. Support from the Defence Analytical Services Agency (DASA) ensures validation of the data. **Methods:** OpEDAR was established at the Field Hospital in Helmand Province, Afghanistan (Operation HERRICK 4) from its inception. A retrospective database analysis was performed. **Results:** Data analysis to date shows over 11 000 attendances to the Field Hospital, 4.5% with ISS>16. Sixty two percent of attendances were UK military personnel, 12% local civilians. Twenty five percent of attendances were attributed to hostile intent. There has been variation in rate of UK military attendances but averaging about 140 attendances per 1000 troops deployed. Leading classifications were consistently orthopaedic soft tissue injury, gastrointestinal disease, and surgical conditions followed by orthopaedic fracture / dislocations, ophthalmology and musculoskeletal conditions. IEDs increasingly featured as cause of injury. **Discussion:** Information from analysis of OpEDAR is used to focus individual and collective training, guide planning and reinforce knowledge on injury patterns in current warfare. The future involves aiming for real-time projections of evolving cases, ensuring dedicated staff both on operations and at ADMEM for data completion and interpretation, and extrapolation of data analyses for use in operational planning of manpower and equipment.

## **Key events analysis from Operation TELIC.**

**D Hunt, P Page, JE Smith.**

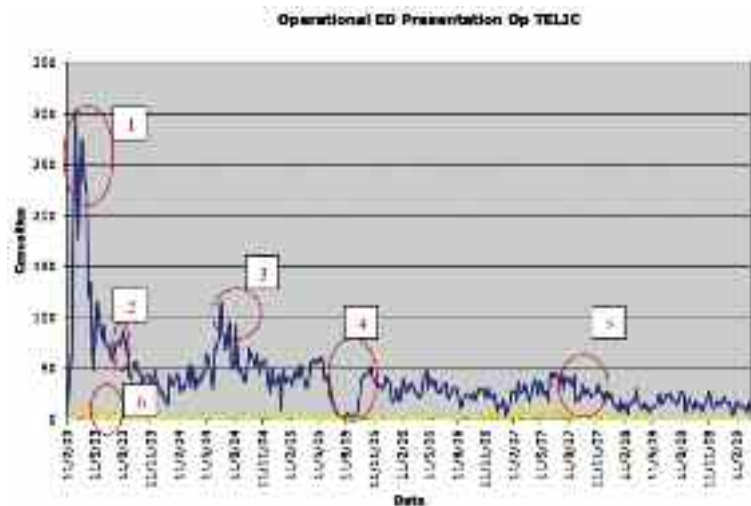
*Emergency Department, Frimley Park Hospital, Surrey; Academic Department of Emergency Medicine, James Cook University Hospital; Academic Department of Military Emergency Medicine, RCDM, Birmingham, UK*

**Background:** Since the end of the war fighting phase of Operation TELIC in early 2003, British forces were engaged in stability operations in Southern Iraq until withdrawal in 2009. **Aim:** The aim of this paper is to examine the relationship between

key events during British military operations in Southern Iraq and battle casualty numbers. **Methods:** A retrospective database analysis was performed of the Operational Emergency Department Attendance Register (OpEDAR) and the major trauma registry (JTTR) at the Academic Department of Military Emergency Medicine. Data were gathered on all battle injuries from British Forces since the start of Op TELIC 1 to February 2009. Overall attendances and major trauma cases were examined independently. Non-battle injuries were excluded.

**Results:** The results are contained in Figure 1.

**Conclusion:** Higher battle injury numbers occurred during the war fighting phase [1] and the highlighted handover period [2]. Points 3-5 illustrate the fluctuating nature of unconventional warfare with peaks and lows corresponding to the highlighted events. Point 6 illustrates the burden of major trauma cases despite an overall downward trend in battle injury attendances. The continuous requirement for accurate data collection and its interpretation is reinforced and should be communicated to all levels of the chain of command. Key event analysis holds historic interest and is an aid towards epidemiological data collection. More detailed key events analysis could have future medical planning implications.



**Figure 1: Operational ED presentation on OP TELIC** Key: Blue – OpEDAR; Yellow – JTTR]. 1. February-May 2003 - war fighting phase. 2. July-August 2003 - 1 UK Armoured Division hand over to 3 [UK] Division in Basra. 3. June-August 2004 - sovereignty transfer from Coalition provincial authority to Iraqi government, the Defence of CIMIC House in Al Amarah, and the trial of Saddam Hussein begins. 4. June-November 2005 - few offensive operations, the Basra Prison incident, further activity in the Hussein trial, build up to Iraqi elections. 5. May-September 2007 - provincial handovers throughout MND(SE), handover of Basra Palace, Jaish Al Mahdi ceasefire. 6. June 2003 - closely spaced attacks in Majar Al Kabir.