

# COMBAT “CATEGORY A” CALLS: EVALUATING THE PRE-HOSPITAL TIMELINES IN A MILITARY TRAUMA SYSTEM

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## Abstract

**Aim:** To establish the pre-hospital timelines for seriously injured UK military casualties on OP HERRICK.

**Population:** All consecutive MERT and MERT-E mobilizations from Camp Bastion, Helmand Province, between 04 May 06 and 18 Jun 07.

**Methods:** Interrogation of MS Access database compiled from paper patient report forms for each casualty transported.

**Results:** 528 patients were transported. 84.6% (456) were battle casualties. There were 192 GSW and 233 casualties with blast/fragmentation injuries. 189 of 528 (35.7%) were UK Service personnel. Median time from injury to handover at the emergency department for UK military T1 casualty subset was 99 minutes.

**Conclusion:** The public perception of excessive timelines for pre-hospital care in Afghanistan has been distorted. The ground truth is a pre-hospital time less than one quarter of the cited 7 hours for the seriously injured subset of UK Service personnel.

## Introduction

Recent media criticism has been drawn towards timelines on Operation HERRICK (Helmand Province, Afghanistan)[1]. The inference is that average timelines exceed 7 hours [2] and that Service personnel are dying as a result of extended timelines.

Operational analysis of Operation TELIC (Iraq) and Operation HERRICK deaths 01 Apr 06 to 31 Mar 07 has identified the fact that clinical timelines are not an important factor in the preventability of current operational deaths [3]. Conversely, the Operation HERRICK Major Trauma Clinical Effectiveness report [4] has demonstrated a series of unexpected survivors.

This article evaluates the timelines based on 13 months of continuous data from Operation HERRICK. In this theatre of operations a helicopter-borne team provides the transport from at or near the incident to the field hospital. This article refers to this primary retrieval capability as the Medical Emergency Response Team (a paramedic and an emergency nurse) or the MERT-Enhanced Team (where a doctor is added). Priorities for treatment and evacuation are identified by the use of the NATO ‘T’ system, where T1 is the immediate priority, T2 is urgent and T3 is delayed or minor: these categories are assigned using the Triage Sieve methodology, which assigns priorities based on changes in physiological parameters following injury. The Triage Sieve is taught to all British soldiers pre-deployment as part of the Battlefield Casualty Drills program [5].

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## Methods

All mobilizations of the Medical Emergency Response Team (MERT) and MERT-Enhanced based at Camp Bastion, Helmand Province, between 01 May 06 and 18 Jun 07 inclusive were evaluated.

Contemporaneous paper report forms completed by MERT during Operation HERRICK phases 4 to 6 were entered into an MS Access® database (Table 1). The times of key process milestones were verified immediately after each incident by the paramedic telephoning the Joint Operations Centre (time of incident, time of call to MERT, time of deployment, arrival at scene, departed scene, handover at emergency department) and recorded on the UK DMS Pre-hospital Report Form (Figure 1).

Operational phase	Dates
Op HERRICK 4	15 April 2006 – 14 October 2006
Op HERRICK 5	15 October 2006 – 14 April 2007
Op HERRICK 6	15 April 2006 – 14 October 2007

Table 1: Phases of Operation HERRICK (Afghanistan)

## Results

528 casualties were treated and transported by MERT and MERT-Enhanced. 189 (35.7%) of cases were UK military and 33 (6.3%) US military; 261 (49.4%) involved Afghan nationals (Afghan National Army, Afghan National Police, Afghan local civilians); 32 (6.1%) were other coalition forces/civilians and 13 (2.5%) were detainees. The relative distribution by calendar month is shown in Figure 2, with peak activity being seen in Spring 2007.

Battle injuries accounted for 84.6%, and illness or non-battle injury (DNBI) 15.4%. 192 (36.4%) of cases were due to GSW; 233 (44.1%) were a result of blast/fragmentation injuries. Of the remainder, 47 (8.9%) were ‘medical’ cases, 10 (1.9%) were burns, 6 (1.1%) due to heat illness, 30 (5.7%) were trauma from vehicle accidents, and 10 (1.9%) were not recorded.

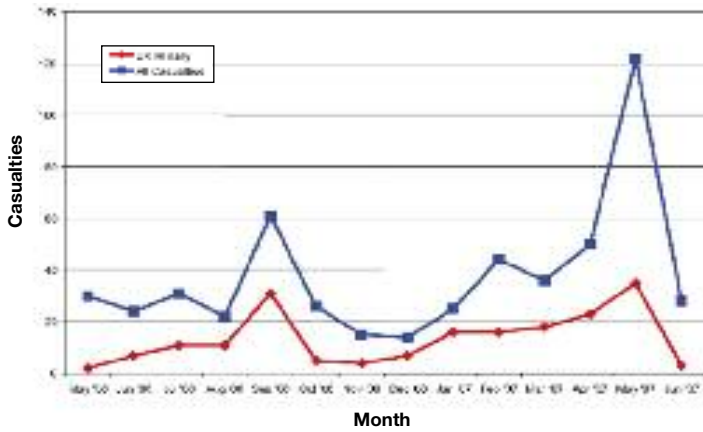


Figure 1: MERT/MERT-E total casualties transported by month

Triage categories were 'T1', 21.8% (107); 'T2', 49.9% (243); 'T3', 26.1%(166); and 'Dead', 2.2% (12).

For all casualties and all levels of injury severity the median time from injury to arrival of MERT/MERT-E at the scene was 80 minutes; the median time on scene was 5 minutes; and the median scene-to-hospital time was 23 minutes. The median time from wounding to handover at the emergency department was 120 minutes. The distribution of timelines for casualties of all triage categories (all casualty groups compared to UK military casualties) is given in Figure 3. The distribution of timelines for T1 casualties (all casualty groups compared to UK military casualties) is given in Figure 4.

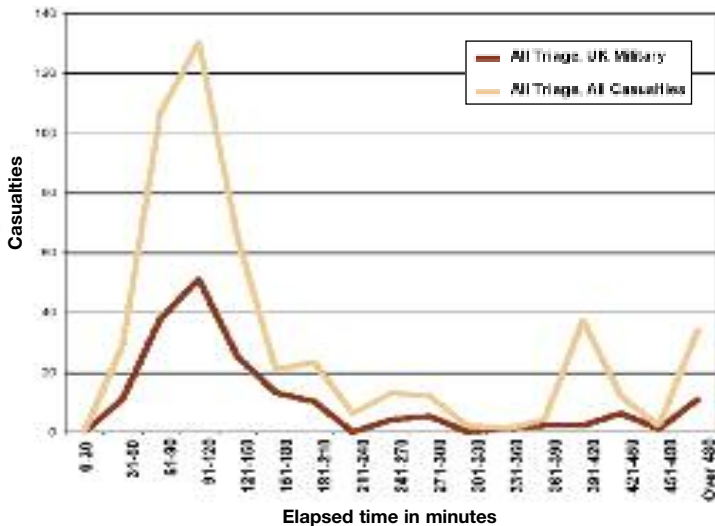


Figure 2: Incident to ED Handover (All Triage Categories: UK Military vs All Casualty Groups)

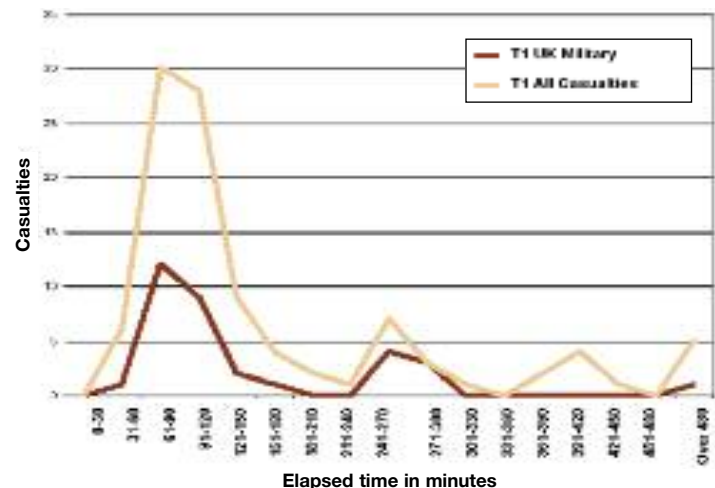


Figure 3: Incident to ED Handover, T1 Casualties (UK Military vs All Casualty Groups)

For the subset of T1 UK military casualties the median time from injury to handover at the emergency department was 99 minutes.

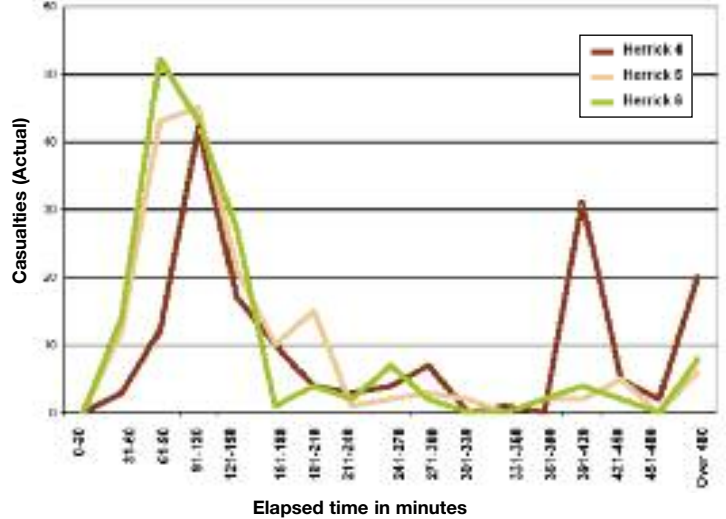


Figure 4: Inter-operational variance in pre-hospital timelines (incident to ED handover)

Figure 5 identifies an inter-operational variance between different phases of Operation HERRICK, specifically with a 2nd peak of patients at 391-420 minutes on Operation HERRICK 4. Analysis of the 2nd peak identifies that it is accounted for primarily as a result of a single "major incident". The extended pre-hospital times relate to tactical considerations of the safety of the airframe and its occupants weighed against the clinical need of the casualties.

In May 2006 MERT-E deployed to a forward operating base to 24 casualties following a Taliban ambush (T1 x 1, T2 x 5, T3 x 18). The on-going hostile situation in the area meant that the MERT-E was not activated at the time of the incident: indeed, the incident occurred at 0600hrs, but the MERT-E was deliberately not deployed until 1100hrs. Once MERT-E was deployed the casualties were rapidly evacuated.

Seven other casualties are characterized as delayed transport to hospital. Five of these, who fall into the 2nd peak 391- 420 minute time band, were part of a single incident, with the incident occurring at 1629hrs, '9-Liner' requesting MERT-E at 1815hrs (the '9-Liner' is a specified format of radio message to mobilize a helicopter to collect casualties), and MERT-E take off time of 2200hrs. The patient report forms state that the delay in MERT-E deployment was deliberate for tactical reasons. One of the seven was deliberately held at a forward operating base until first light, which accounts for a 5 hour delay in transfer time. The remaining casualty died in a minefield as the MERT-E could not gain timely access for safety reasons.[6]

## Discussion

For patients categorized as T1 (the most urgent category and the equivalent of UK civilian ambulance service "Category A" patients [7]) the median event-to-hospital time is 99 minutes. Comparative civilian data shows that the mean time to hospital from emergency call for civilian helicopter systems (where data is available) is 70-80 minutes [8]. Given the tactical constraints of the military environment (including the loiter time in the air while a safe emergency helicopter landing site is prepared through ground and air action) and the required radius of operation for the helicopter platform this is a laudable achievement.

The effect of a pre-hospital time extended over urban civilian models is ameliorated by the seniority of the attending clinical team and the range of advanced interventions that can be performed in transit.

## Conclusion

Pre-hospital timelines for seriously injured UK Service personnel in Afghanistan are substantially shorter than the current public and media perception.

## References

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