Level II Medical Facility Evacuation Trends During Operation Iraqi Freedom in 2008

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Background:

Traditional Army pre-hospital doctrine dictates that injured and sick patients be evacuated linearly through consecutive levels of care. During the current Global War on Terrorism once evacuation routes are secured and air superiority is ensured patients are being transported directly from the Level I Battalion Aid Station (point of injury care) to the Level III Hospital (advanced medical-surgical specialty capabilities; e.g. Combat Support Hospital), bypassing the Level II facility completely.

Objective:

Primary: To determine the incidence of patients still being linearly evacuated through consecutive echelons of care.
Secondary: To determine of the patients that are evacuated linearly how many are done so urgently (<2 hours) and to describe the evacuated patient's characteristics looking for trends (age, sex, evacuation category, medical vs. trauma, etc).

Methods:

This was a prospective cross-sectional observation study of consecutive patients evacuated to a Forward Operating Base (FOB) Level II facility and subsequently evacuated to a Level III Facility from 1 Jan 08 through 31 Dec 08 in support of Operation Iraqi Freedom. Data were collected by Combat Medic Soldiers (EMT-B trained) unaware of the study's objective using a standardized data collection form. Data were collected on where the patient was received from (on the FOB vs. off the FOB), where the patient was evacuated to, evacuation priority (Urgent < 2 hours, Priority < 4 hours and Routine <24 hours), patient characteristics and adverse outcomes to the crew or patient as a result of transport. Patients were considered to be evacuated linearly if they were received from a Level I not located on the FOB and subsequently evacuated to a Level III facility.

4th ID, 3rd BCT, 64th BSB's Level II

25th ID, 2nd BCT, 225th BSB's Level II

4th ID, 3rd BCT, I-68AR's Level I

Soldiers from the evacuation platoon transporting a patient.

Figure 1. Secondary Outcome Measures for the Level II to Level III Evacuations (Total N=347).

Nationality	N (% of total)	95% CI
Military	256 (73.8%)	(0.69, 0.78)
US Civilian	37 (10.7%)	(0.07, 0.14)
Third Country National	34 (9.8%)	(0.07, 0.13)
Iraq National	20 (5.76%)	(0.03, 0.08)
Reason for Evacuation	N (% of total)	95% CI
Medical	247 (71.2%)	(0.66, 0.76)
Trauma Non Battle Injury	91 (26.2%)	(0.22, 0.31)
Battle Injury	9 (2.6%)	(0.01, 0.04)
Evacuation Triage Category	N (% of total)	95% CI
Urgent (< 2 hours)	60 (17.3%)	(0.13, 0.21)
Priority (< 4 hours)	109 (31.41%)	(0.27, 0.36)
Routine (< 24 hours)	178 (51.3%)	(0.46, 0.57)
Mode of Evacuation	N (% of total)	95% CI
Air	342 (98.6%)	(0.97, 1.00)
Ground	5 (1.4%)	(0.00, 0.03)
Level II Evacuation Destination	N (% of total)	95% CI
Army Baghdad CSH	238 (68.6%)	(0.64, 0.73)
Air Force Balad	100 (28.8%)	(0.24, 0.34)
Army Cropper	5 (1.4%)	(0.00, 0.03)
Navy Qatar	4 (1.2%)	(0.00, 0.02)

Results:

347 patients were evacuated from our Level II facility to a Level III Facility. Of these four out of 347 (1.14%) patients were received from a Level I not on our FOB and thus considered to have been evacuated linearly. All four patients were initially evacuated from the Level I to our Level II for observation of a medical disease and later evacuated non-urgently for further diagnostic testing leaving zero patients being evacuated urgently. 256 (73.8%) of the evacuated patients were US Military, 338 (97.4%) were for Disease and Non-Battle Injuries (NDBI), 342 (98.6%) were evacuated by air, 238 (68.6%) were evacuated to the Baghdad Army CSH and there were zero adverse outcomes to the patient or crew during the evacuations (see Figure 1)

Limitations:

- Single Site
- Cross sectional study design
- Reliance on multiple individuals to collect the data accurately

Conclusion:

In our setting of a mature theater with secure air evacuation routes the Level II facility is almost always bypassed in favor of air evacuation directly from the Level I to Level III care. The impact of this on patient morbidity and mortality and the optimal placement of pre-hospital medical assets deserve further study.

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