

Broadening Gero-trauma Criteria Improves Outcomes: A Comparative Study

Lynn L. Wiles, PhD, MSN RN CEN; Mark D. Day, BSN RN CEN TCRN
Sentara Virginia Beach General Hospital, Virginia Beach, VA

Geriatric Trauma

- Geriatric trauma patients (GTPs) with seemingly minor injuries have sub-optimal outcomes compared to younger patients
 - Typically have pre-existing diseases
 - Prescribed more medications
 - Have covert response to trauma



Delta Alert

- A **Delta Alert** is called for GTPs whose injuries fall **outside** of this institution's traditional trauma alert guidelines
 - GTP ≥ 65 sustaining ground level falls with altered level of consciousness; neck pain, hip/pelvic/thigh pain or deformity; low impact bike or MVC; blunt head or torso trauma; taking anticoagulants other than aspirin

Delta Alert Study

- **Aim:** To examine the difference in patient outcomes between two GTP cohorts pre-and-post institution of expanded geriatric trauma alert designation
- **Setting:** Level 3 trauma center located in a 250 bed urban hospital
- **Sample:** GTPs were divided in 2 cohorts: those who met criteria during the first year of the protocol and those who would have met the criteria during the prior year
- **Method:** Retrospective review of 2 years of data
 - Trauma registry; Hospital QI audits; Patient charts
 - De-identified data collected
 - Age, Injury Severity Score (ISS), Anticoagulant
 - Residence upon admission
 - Length of stay (LOS) in the ED and hospital
 - Time to OR
 - Disposition
 - Morbidity and mortality rates

Mechanism of Injury	Delta Alerts	Pre-Delta Alerts
Assault	1 (<1%)	2 (3%)
Fall off structure / ladder / roof	3 (2.4%)	4 (6%)
Fall down stairs	11 (8.8%)	5 (8%)
Ground Level fall	68 (54%)	26 (42%)
Fall OOB	10 (8%)	6 (9.6%)
Fall Bathroom	4 (3%)	4 (6%)
Fall Chair / WC	4 (3%)	4 (6%)
MVC	17 (13.6%)	8 (12.9%)
Auto Ped	4 (3%)	1 (1.6%)
Auto Bike	3 (2.4%)	1 (1.6%)
Watercraft accident	0	1 (1.6%)
	n= 125	n= 62

Residence Status	Delta Alerts	Pre-Delta Alerts
Home	102 (81.6%)	52 (83.8%)
Assisted Living	15 (12%)	6 (9.7%)
Skilled Nursing Facility	8 (6.4%)	4 (6.5%)
	N= 125	N= 62

Study Results

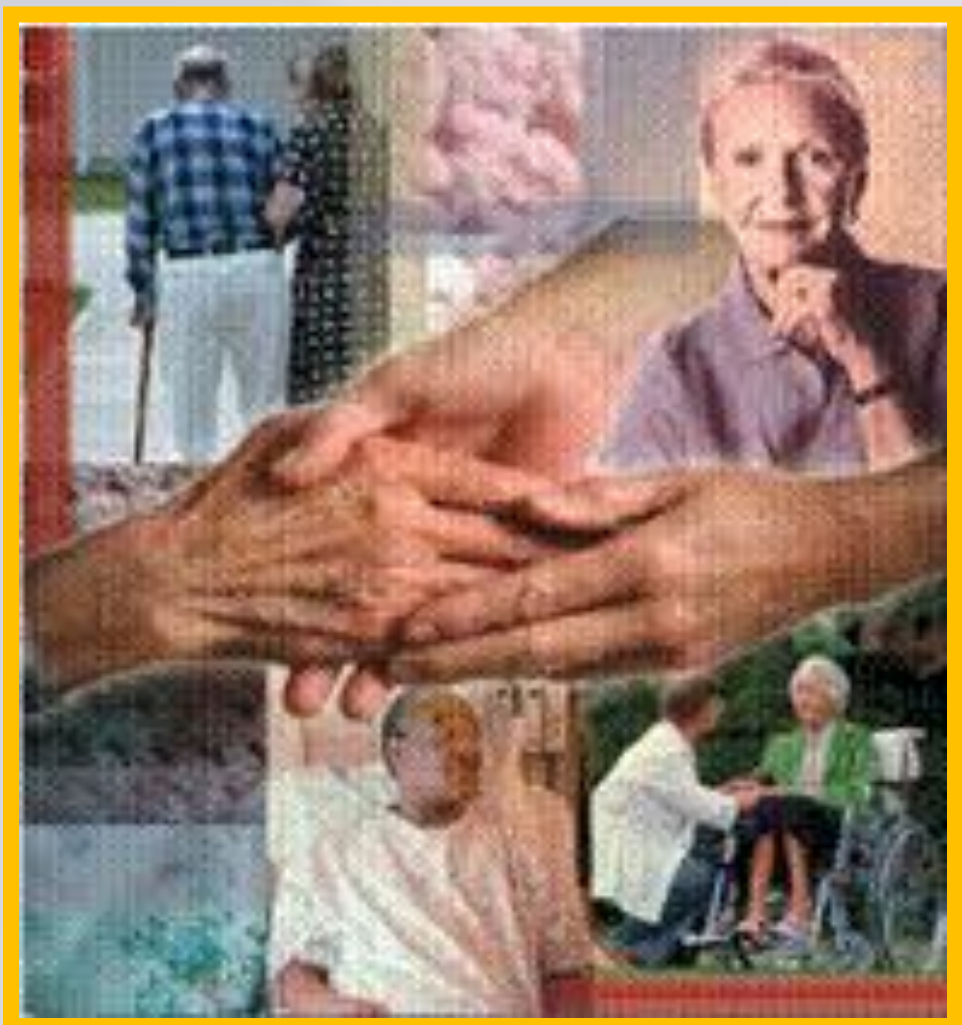
- **Sample Homogeneity Established-** Age and ISS compared
 - Delta Alert cohort age range 65-98; mean 82.58
 - Pre-Delta cohort age range 65-97; mean 82.63
 - t(185)= -0.034, p=.973
 - Delta Alert cohort ISS range 1-29; mean of 6.8
 - Pre-Delta Alert cohort ISS range 1-17; mean of 7.67
 - t(185)= -0.-1.457, p=.709
- **ED LOS-** Mean ED LOS dropped from 5.8 to 4.5 hours
 - t(185) -3.327, p=.007
- **Hospital LOS-** Mean LOS increased from 4.4 days to 4.8 days
 - t(119) .615, p= .02
- **Time to OR-** Pre-deltas- 31.4 hours; All Deltas- 47.4 hours
 - Deltas without medical dx / OR delay- 25.1hours
 - No statistical difference in OR times t(42) -.986, p= .330

Morbidity

Complications	Delta Alerts	Pre-Delta Alerts
DVT	1	2
CAUTI	0	6
Respiratory Failure	0	1
HAI (c-diff)	0	1
	1 of 67 admitted patients 1.6%	10 of 61 admitted patients 16.4%

Mortality

- Pre-Delta cohort mortality rate 1.6%
- Delta Alert cohort mortality rate 4.8%
 - Attributed to ISS > 25 for 3 DA patients
 - When adjusted ISS 1-17 mortality 2.4%
 - No statistical significance
- **Discharge Disposition**
 - Discharge from the ED
 - Pre-delta cohort: 1 patient (1.6%)
 - Delta cohort: 48 (38.1%) patients
 - Discharge Location
 - Pre-delta cohort: 31% returned to location of origin
 - Delta cohort: 77% returned to location of origin



Discussion

- Delta alerts front load evaluation and resuscitation of GTPs per typical hospital trauma protocols
- Expedited and focused care improved GTP outcomes and increased return to residence
- The Delta Alert protocol aligns with the goals of the American College of Surgeons Committee on Geriatric Trauma, Emergency Nursing Association and Society of Trauma Nurses