Factors relating to receiving high intensity care in older adults with blunt traumatic injury

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Background

- Injury is a leading cause of death and disability among adults over 65
- Trauma care system protocols may not address needs of older adults
- Increased understanding of unique care requirements may allow hospitals to better plan for this growing population

Objectives

- Use CMS claims data to develop intensity of care score
- Classify the intensity of care given to older adults with blunt traumatic injury
- Use this score to evaluate beneficiary characteristics associated with intensity of care

Methods

- **Population**
  - 2013 New York State Medicare Provider Analysis and Review Claims (CMS)
  - Beneficiaries ≥65 years old, treated in New York state, had blunt mechanism of injury with ISS ≥9, and survived to hospital admission
- **Statistical Analyses**
  - Delphi method used to identify factors of high intensity care
  - Patients assigned to three intensity groups based on probability of receiving procedures and length of stay
  - Logistic regression model included intensity as the outcome and patient-level covariates
  - Post-analysis linear predictions generate intensity of care scores for patient characteristics

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Results

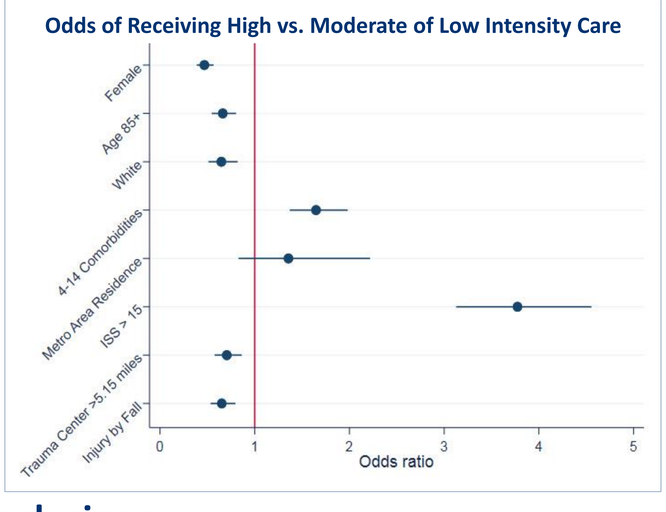
Delphi Results: Factors Contributing to High Intensity of Care	
Intubation/Mechanical Ventilation	Vasopressor Administration
Tracheostomy	Antibiotic Administration
Gastrostomy Tube Placement	Blood Product Transfusion
Hemodialysis	ECMO
Enteral/Parenteral Nutrition	Intracranial Pressure Monitoring
CPR	Craniotomy
Central or Arterial Line Placement	

Beneficiary Characteristics (N=18,486*)	High Intensity	Moderate/Low Intensity
Female, n (%)	218 (44.2)	12,674 (69.6)
Age, median (IQR)	82 (74 – 87)	85 (78 – 90)
White, n (%)	383 (77.7)	16,129 (88.5)
Elixhauser comorbidities, median (IQR)	3 (2 – 5)	3 (2 – 4)
Lives in metro area, n (%)	475 (96.4)	16,975 (93.2)
Injury Severity Score, median (IQR)	13 (9 – 16)	9 (9 – 10)
Miles to Level 1/2 trauma center, median (sd)	4.3 (2.0 – 8.3)	5.2 (2.5 – 12.6)
Injured by fall, n (%)	353 (71.6)	14,784 (81.1)

*Some beneficiaries do not have complete data for all variables

Regression Results:

- Higher intensity of care was predicted for the following beneficiary characteristics:
  - Male
  - Non-white race
  - Less than age 85
  - More than 3 comorbidities
- Injury factors associated with increased predicted intensity of care:
  - ISS >15
  - Living close to a trauma center
  - Non-fall injury mechanisms
- The combination of male, non-white, 65-84, and urban had the highest probability intensity of care



Conclusions

- Many non-modifiable factors contribute to intensity of care after blunt traumatic injury
- Differences may be a starting point to evaluate hospital-level practices in patient care

Implications

- Defining intensity of care may help hospitals compare themselves with peer institutions
- Future efforts will investigate the impact of intensity of care on outcomes
- Examining outcomes may inform discussions on optimal levels of intensity of care