Geriatric Trauma Activation Criteria: The PI Process
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Disclosure Statement

- No conflict of interest relative to this educational activity.
Learning Objectives

- Describe the importance of utilizing a systematic approach in the development of a geriatric activation guideline
- Demonstrate the use of data in the development, implementation, and revision of a geriatric activation guideline
- Describe a collaborative process to develop geriatric guidelines through utilization of the trauma PI committee and involvement from key stakeholders
Background

- ACS Verified Trauma 1 Center
- ~2,300 trauma patients in 2018
- No specific geriatric activation criteria protocol
- NSA greater than 10% (goal <10%)
Methods

- Team of Key stakeholders
  - Trauma Surgeons
  - Trauma/ED CNS
  - Trauma PI nurse
In addition:
  - EMS (multiple agencies, MCA)
  - ED Physician leadership
  - Nursing
Methods Continued

- Literature review
- Activation criteria from other hospitals
- Data Review

“Data Drives Change”
Literature

- SBP ≤ 110 correlated with increased mortality by two-fold
- Higher level of trauma activation decreased ED LOS and mortality for the injured geriatric patient
- Hypo-perfusion was found among the geriatric trauma patient despite having a normal blood pressure

Calland, Ingraham, Martin, et al., 2012; Hammer et al., 2016;
Questions...

- How many more activations will there be?
- How to avoid geriatric activation fatigue?
- Will there be too many over-activations?
- What measures should be followed?
  - NSA
  - ED LOS
Data Findings

Reviewed Data from Trauma Registry (6 months)

Age 65 and greater: 12 scene BPs < 110
  3 cases were trauma consults
  9 cases (no TS involvement)

Age 70 and greater: 10 scene BPs < 110
  2 cases were trauma consults
  8 cases (no TS involvement)

12 more cases from 65 and greater age group would have been activated if criteria included \( SBP < 110 \)
Data Review: Head & Chest

Date Range: Calendar year 2017

Criteria:
- No TS involvement or Trauma Consult
- Geriatric patient (age 65-100+) with head or chest trauma diagnosis

Findings:
- Total 212 patients
- Divided by Season:
  - Oct-March: 47%
  - April-Sept: 53%

Average \( \uparrow \) about 4 activations per wk
Under/Over Activation Matrix

Figure 2  The Matrix Method for the Calculation of Triage Rates

<table>
<thead>
<tr>
<th></th>
<th>Not Major Trauma</th>
<th>Major Trauma</th>
<th>Total</th>
<th>Overtriage</th>
<th>Undertriage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highest Level TTA</strong></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>$\frac{A}{C} \times 100$</td>
<td></td>
</tr>
<tr>
<td><strong>Midlevel TTA</strong></td>
<td>D</td>
<td>E</td>
<td>F</td>
<td></td>
<td>$\frac{(E+H)}{(F+I)} \times 100$</td>
</tr>
<tr>
<td><strong>No TTA</strong></td>
<td>G</td>
<td>H</td>
<td>I</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ACS, 2014)
Activation Criteria

Spectrum Health Butterworth
Geriatric Adult Trauma age ≥ 65 years
Activation Criteria (Trauma 1 & 2)

Trauma 1 Criteria:
- Glasgow Coma Scale ≤12
- Presence of paralysis or loss of sensation
- Systolic Blood Pressure ≤90 mmHg
- Pulse ≤130 or >60 bpm
- Respiratory distress ≤10 or >29, intubated or assisted ventilation
- Regional transfer requiring blood or with persistent hypotension/tachycardia
- Penetrating injury to head, neck, torso, or proximal limb
- Burn associated with multi-system trauma
- Partial or complete amputation proximal to wrist or ankle
- Deterioration of previously stable patient

*** Discretion of ED Physician or Nurse ***

Page Trauma 1:
Example: Geriatric Trauma
Location: BW
Level 1
ETA: 0700
Other: age, high speed crash, ETT, hypotensive

Page Trauma 2:
Example: Geriatric Trauma
Location: BW
Level 2
ETA: 0700
Other: age, MVC, ejected with multi long bone fx

Trauma 2 Criteria:
- Altered GCS 13-14
- SBP ≤110 (if ≤90 see Trauma 1 criteria)
- Isolated penetrating injury to distal limb
- Two or more proximal long bone fractures
- Ground Level Fall & Struck Head or Chest
- Co-morbidities – DM, Cardiac Disease, Obesity, Respiratory disease
- And/or Use of anti-coagulation (excludes Aspirin)
- Fall: >10 feet (or twice patient’s height)
- High-Risk auto crash
  Ejection (partial or complete) from vehicle
  Death in same passenger compartment
- Auto vs pedestrian/bicyclist or auto vs. bike / motorcycle
- Transfer patient that meets above mechanism of injury criteria, is without hemodynamic or neurologic compromise, and the trauma surgeon has discussed the patient with regional referring physician; the trauma surgeon will determine if the patient should be transferred as a trauma consult or be paged as Trauma 2 Activation.

*** Discretion of ED Physician or Nurse ***

Other Criteria that may be used to consider Trauma Service Evaluation:
- Presence of altering substances
- Transfer Patients that do not meet Level I or II activation criteria but requires admission
- Discretion of ED physician or nurse

Revised 2/20/2018
**Trauma 2 Criteria:**

- Altered GCS 13-14
- SBP ≤ 110 (if <90 see Trauma 1 criteria)
- Isolated penetrating injury to distal limb
- Two or more proximal long bone fractures
- Ground Level Fall & Struck Head or Chest with: Co-morbidities = DM, Cardiac Disease, Obesity, Respiratory disease
  - And/or
  - Use of anti-coagulation (excludes Aspirin)
    - Fall: > 10 feet (or twice patient’s height)
    - High-Risk auto crash:
      - Ejection (partial or complete) from vehicle
      - Death in same passenger compartment
    - Auto vs pedestrian/bicyclist or auto vs. bike / motorcycle

**Transfer patient** that meets above mechanism of injury criteria, is without hemodynamic or neurologic compromise,
Implementation Plan

• Educate all involved staff  
  • Bed Traffic Control RN, ED nurses & physicians  
  • EMS  
  • Trauma Provider Team

• Identify Go-LIVE date  
  • Pilot for 6 months (n?) prior to busy season  
  • Audit activations

• Pagers changed to ‘Geriatric Activation’
Implementation Continued

Presented at:

• Trauma Peer Review Committee
• Trauma Operations Meeting
• ED Meetings & Huddles
• Charge RN and BTC Meeting
• ED RN Trauma Retreat
• EMS Education & Newsletter & Email
• EMS Education Board
• Transfer Center
• Trauma Resident Orientation
Evaluation

- Key cases presented at committee meetings
- Feedback from ED nursing
- Feedback from Physicians
- Feedback from EMS
- Chart Audit
## Geriatric Activation Audit Tool

Name: ___________________________  MRN: ___________________________  Age: ______

**Activation Level:**

Comments (e.g. Bedside activation?):

**Mechanism:**

________________________________________________________

**Co-morbidities:** HTN, DM, A fib, COPD, CHF, CRF

**Other:**

**GCS (choose one):** 3-8  9-12  13-15

**Injuries:**

________________________________________________________

**SBP:** __________

**Anticoagulation:** Yes or No  If yes (Anticoagulant): __________________

**Trauma Activation Appropriate:** Yes or No

If No, please comment on the issues identified & provide suggestions for appropriate triage:

________________________________________________________

**Additional Comments:**

________________________________________________________
Case Scenario

Mech: Elder F > 80 GLF while watering her plants
History: DM, HTN
Injuries:
• left posterior 9th rib fracture
• right anterolateral 3rd, 4th, & 6th rib fractures
• left superior/inferior pubic rami fracture with displacement
• left iliac crest fracture
• small pelvic hematoma
• L2 TP process fx
Trauma 2 activation: due to new geriatric activation criteria
HLOS: 4 days
Evaluation Continued

Geriatric Activations Each Month

- May: 35
- June: 45
- July: 34
- August: 18
- September: 9
- October: 11

SOCIETY OF TRAUMA NURSES
Modifications

- Three months of initiation (May 2018- July 2018)
- Re-implementation August 2018
GERIATRIC TRAUMA ACTIVATIONS REVISED

The geriatric activation criteria was revised based on feedback and data reviews. The goal is to activate the population that needs the specialty services (Trauma, Neurosurgery, ortho) for timely interventions.

- **Ground Level Fall within 24 hours WITH Suspected Brain Injury AND Altered GCS from baseline**
  (Have high index of suspicion for patients on anticoagulant – excluding Aspirin)

- **Ground Level Fall within 24 hours WITH Evidence of Chest Trauma (rib pain, concern for rib fxs)**

"Thank you for your feedback"
Activation Criteria

**Spectrum Health Butterworth**

**Geriatric Adult Trauma age ≥ 65 years**

**Activation Criteria (Trauma 1 & 2)**

**Trauma 1 Criteria:**
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**Trauma 2 Criteria:**
- Altered GCS ≤ 10
- SBP ≤ 110 (if ≤ 30 mmHg, use Trauma 1 criteria)
- Isolated penetrating injury to distal limb
- Two or more proximal long bone fractures
- Fall > 10 feet or twice patient's height
- High-impact auto wash failure (partial or complete) from vehicle
- Death in same passenger compartment
- Auto vs. pedestrian/bicyclist or auto vs. bike/motorcycle

**Page Trauma 1**

**YES**

- **Page Trauma 2:**

**YES**

- **NO**

**EXCLUDE HIP FRACTURE PATIENTS for GLF Activations**

- Transfer patient with above MOI without hemodynamic or neurological compromise will have consultation or trauma 2 status determined by the trauma surgeon.

**Page Trauma 1**

**YES**

**NO**

**Other Criteria that may be used to consider Trauma Service Evaluation:**
- Presence of etiologic substances
- Transfer Patients that do not meet Trauma 1 or II activation criteria but requires consultation or trauma 2 status
- Discretion of ED physician or nurse

**Society of Trauma Nurses**
Re-implementation

- Attend ED meetings
- Trauma Meetings
- ED RN shift report meetings
- Education to EMS
Next Steps

- Continue presenting monthly dashboards with metrics at Committee Meetings
- Under activations reviewed
- Compare before and after measures
Key to Success

- Support from Leadership in ED and Trauma
- Persistent auditing and evaluation process
- Awareness about significance of GLF in geriatric patients
- Process Improvement Nurse Lead
Learning Outcomes

• Utilize the information to assess current state in one’s own trauma center

• Investigate opportunities for a collaborative approach to clinical problems

• Identify an action plan that accepts feedback, evaluates and modifies based on patient outcomes

• Recognizes the importance of engaging ALL key stakeholders for success of implementation and utilization
Questions?
Special Thanks

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• Amy Koestner, TPM
• ED leadership and Nurses
• EMS Leadership
References

American College of Surgeons, Committee on Trauma. Geriatric trauma management guidelines. Chicago, IL: American College of Surgeons; 2012.013.

