

**Maine EMS Trauma Advisory Committee  
Consensus Statement and Clinical Advice for Trauma Management**

**MAJOR TRAUMA IN THE ELDERLY**

**PART I: Key Concepts**

- A. Minor mechanisms of injury can produce serious injury and complications in the elderly, especially if they take anticoagulants.
- B. Reversal of therapeutic anticoagulation is an urgent priority of care.
- C. Chest wall injury with rib fractures and pulmonary contusion are not well tolerated and often require mechanical ventilation.
- D. “Normal” blood pressure and heart rate do not indicate normovolemia in the elderly.
- E. Careful volume resuscitation with close hemodynamic monitoring should guide treatment.

**PLEASE REMEMBER:**

Transfers or consultations related to **brain injuries** – *regardless of age, comorbidities, or intended destination* – should be directed to the attending **trauma surgeon** at your regional **trauma center**. The trauma surgeon will recommend or facilitate subsequent actions or consultations as needed.

## **PART II: Annotations and Rationale**

- A. *Minor mechanisms of injury can produce serious injury and complications in the elderly, especially if they take anticoagulants.*

Although the elderly are less likely to be injured than younger people, the mortality rate is higher. Lower impact mechanisms of injury, such as falls, can produce serious, life-threatening injuries. Pre-existing conditions and medications complicate assessment and treatment, and often contributed to the injury. Major injuries should be suspected, and aggressive monitoring and resuscitation is necessary improve morbidity and mortality.<sup>1</sup>

- B. *Reversal of therapeutic anticoagulation is an urgent priority of care.*

Chronic therapeutic anticoagulation becomes a critical comorbidity for injured patients – especially those with CNS injuries. Identifying and controlling anticoagulation is a vital element of stabilization.<sup>2</sup>

Referring hospitals should work closely with trauma centers to prospectively develop processes for reversal, where possible, of anticoagulation. Reversal of anticoagulation for selected patients must be initiated as soon as possible, and ultimately should be managed by a trauma surgeon.

- C. Chest wall injury with rib fractures and pulmonary contusion are not well tolerated and often require mechanical ventilation.

Although chest wall injuries may be minor injuries in younger adults, they are not well tolerated in the elderly. High flow oxygen should be administered in the initial treatment of trauma to prevent hypoxia, even at the risk of hypercarbia in patients with pre-existing COPD. Rib fractures and pulmonary contusions often cause respiratory failure in the elderly and may require intubation and mechanical ventilation.<sup>1</sup>

- D. “Normal” blood pressure and heart rate do not indicate normovolemia in the elderly.<sup>1</sup>

Medications, such as beta blockers and calcium channel blockers, can impact heart rate and blood pressure, limiting the ability of the body to react to shock.

- E. Careful volume resuscitation with close hemodynamic monitoring should guide treatment.

Severely injured elderly patients with hypotension and metabolic acidosis almost always die, especially if they have sustained brain injury.<sup>1</sup> However, over-resuscitation can result in secondary insults, such as cerebral edema or CHF, which may also be lethal. Therefore, it is important to observe the patient’s physiologic response to fluid boluses to avoid over-resuscitation. In addition, early recognition and correction of coagulation defects is crucial, including reversal of drug-induced anticoagulation.<sup>1</sup>

## **Part III: References**

1. Advanced Trauma Life Support (ATLS), copyright American College of Surgeons, 8<sup>th</sup> edition, 2008.
2. Stein DM et al. Recombinant Factor VIIa: Decreasing time to intervention in coagulopathic patients with severe traumatic brain injury. *J Trauma*. 2008 Mar; 64(3):620-28.