

**Suspected Moderate/Severe Traumatic Brain Injury (TBI)**

Approval: Troy M. Falck, MD – Medical Director

Effective: 10/01/2025

Approval: John Poland – Executive Director

Next Review: 07/2028

Prehospital Identification of Moderate/Severe TBI

- Any pt with a mechanism of injury consistent with a potential for a brain injury, and one or more of the following:
 - <65 years of age with a GCS ≤ 13 , or ≥ 65 years of age with a GCS < 15 (or decrease from baseline)
 - Post-traumatic seizures
 - Multi-system trauma requiring advanced airway placement

For any patient with a suspected moderate/severe TBI, avoid/treat the three TBI “H-Bombs”:

1) Hyperventilation, 2) Hypoxia, 3) Hypotension

BLS

- Assess V/S, including continuous SpO₂ monitoring and pupil exam: Reassess V/S every 3-5 min if possible
- High-flow O₂ (regardless of SpO₂ reading)
- If continued hypoxia (SpO₂ $< 94\%$) or inadequate ventilatory effort, proceed through the following steps:
 - Reposition airway
 - Initiate positive pressure ventilation with appropriate airway adjunct if necessary (use of a pressure-controlled BVM &/or ventilation rate timer is recommended, if available)
- Avoid hyperventilation (ventilate at a rate of 10 breaths/min)
- Maintain normothermia
- Consider the concurrent need for appropriate immobilization/spinal motion restriction

ALS

- Continuous cardiac & EtCO₂ monitoring
- IV/IO NS TKO: For SBP < 110 – bolus 1000 mL N/S, then titrate additional fluids to maintain SBP ≥ 110
- Check blood glucose

Blood glucose
 ≤ 60 mg/dl?

YES

Refer to General Medical
Treatment Protocol (M-6)

NO

Seizures
present?

YES

Refer to Seizure
Protocol (N-2)

NO

- For persistent hypoxia &/or inadequate ventilatory effort:
- Supraglottic airway or endotracheal intubation
 - Target EtCO₂: 35-39 mmHg

- Transport to appropriate destination & notify receiving facility of a “Trauma Alert” as soon as possible (if applicable)
- Monitor & reassess