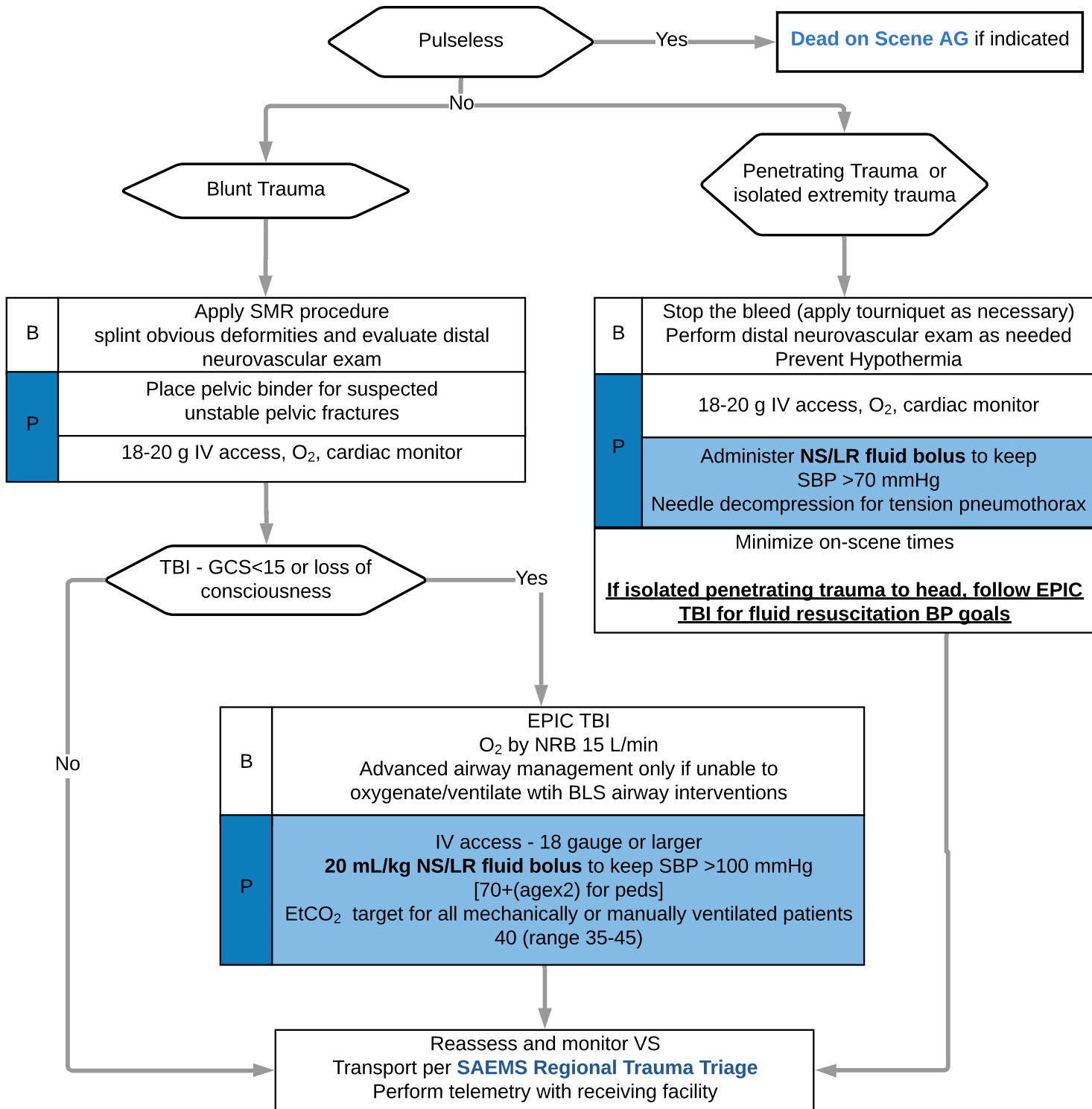


# Trauma Administrative Guideline

<b>History</b> <ul style="list-style-type: none"> <li>• Time/mechanism/speed</li> <li>• Damage/intrusion</li> <li>• Restraints or protective equipment</li> </ul>	<b>Signs and Symptoms</b> <ul style="list-style-type: none"> <li>• Pain</li> <li>• Deformity</li> <li>• Bleeding</li> <li>• ALOC</li> <li>• Shock</li> </ul>	<b>Differential</b> <ul style="list-style-type: none"> <li>• Chest injuries</li> <li>• Intraabdominal injuries</li> <li>• Pelvic fractures/bleeding</li> <li>• Head injury</li> <li>• Extremity trauma</li> </ul>
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## Education/Pearls

The treatment of traumatic injury focuses on ABCs and prevention of further or secondary injury. Interventions are aimed at preventing overt hypoxemia, hypotension, and hyperventilation.

- Transport patients based on **SAEMS Regional Trauma Triage Guidelines**.
- Airway/Breathing: Prepare for a difficult airway, as traumatic airways are made difficult by trauma conditions, including spinal motion restriction, patient mentation, and bloodied airways.
  - For advanced airway, anticipate the need for suction and video laryngoscopy, if available.
  - Use care during intubation to maintain in-line stabilization, as cervical spine fractures may be present.
- Circulation: The most common cause of shock following trauma is hemorrhage. Scalp wounds, abdominal organ injury, and long-bone fractures can cause rapid blood loss.
  - Bleeding - apply anticoagulant gauze wound packing until resistance is met and/or apply tourniquet until bleeding is stopped.
  - Pulseless - may consider bilateral needle thoracostomy; may terminate as per **Dead on Scene AG** if penetrating trauma, and blunt trauma if transport will take > 15 min to Level 1 Trauma Center.
- Immobilization:
  - Long spine board use in trauma patients should be restricted to extrication procedures only and should be avoided in patients with penetrating trauma.
  - Spinal motion restriction procedure should be followed for all trauma patients with neck or back pain, neurologic deficit, or other risk factor for spine trauma. The elderly are at high risk for spinal injury with lower mechanism injury.
  - Patients with isolated blunt injuries may not warrant SMR or pelvic binder placement.
- Temperature: Prevent hypothermia, as this contributes to a harmful acid/base status and bleeding abnormalities.
  - Expose the patient for rapid trauma assessment/treatment only.
  - Cover patient and rewarm as soon as possible.

Moderate or severe TBI: defined as anyone with physical trauma and a mechanism consistent with the potential to have induced a brain injury, and:

- i. Any injured patient with loss of consciousness, especially those with GCS <15 or confusion OR
- ii. Multisystem trauma requiring intubation whether the primary need for intubation was from TBI or from other potential injuries OR
- iii. Post-traumatic seizures, whether ongoing or not
- iv. (*Pediatric*) Infants (where GCS may be difficult to obtain or interpret): any evidence of decreased level of consciousness, decreased responsiveness, or deterioration of mental status

See next page (**EPIC TBI**) for TBI management guidelines.

- Emergency Surgical Airway
  - In the event oxygenation and ventilation of the patient cannot be achieved either by BLS maneuvers, placement of a SGA or Endotracheal Intubation, perform surgical cricothyrotomy.
    - Surgical Cricothyrotomy: 12 years of age and above
    - Needle Cricothyrotomy: Under 12 years of age

**Automatically: 15 L/min O<sub>2</sub> NRB, IV Access  
q3-5 min: Monitor O<sub>2</sub>, BP, HR**

## Airway/Breathing

## Circulation

## Disability

**O<sub>2</sub> sat <90 &/or hypoventilation  
(despite NRB)**

**Hypotension\*\* or other signs of shock**

Evaluate  
Mental  
Status/GCS

Yes

No

-BLS airway  
maneuvers  
-BVM \*

No

Yes

Continue careful  
monitoring of O<sub>2</sub>  
sat and airway

No

O<sub>2</sub> sat <90  
despite BLS?

-Continue careful  
Monitoring BP/HR  
-Pay attention for  
early signs of shock:  
-Tachycardia  
-Dropping SBP

-20ml/kg bolus NS  
-Repeat until hypotension  
resolves

Yes

Consider ALS airway if experienced provider available:

-Place advanced airway:

- Pre-oxygenate: BVM with 100% O<sub>2</sub> @ age-appropriate rate \*
- Check placement using ETCO<sub>2</sub> monitor/detector

-AVOID even MILD hyperventilation with Ventilation Rate Timer and Pressure-controlled Bag:

- Carefully keep rate @ age-appropriate rate \*
- **ETCO<sub>2</sub> available: Target ETCO<sub>2</sub> 40 mmHg (range: 35-45)**
- Control Ventilatory volume:
  - Ventilator available: utilize *as soon as possible*
    - Tidal volume = 7 cc/kg
  - Ventilator *not* available: Continue Pressure-controlled BVM

-Monitor: O<sub>2</sub> sat and airway every 3-5 minutes:

- If O<sub>2</sub> sat <90% despite above interventions, consider:
  - Tension pneumothorax & needle thoracostomy

### \* **Ventilation Rates:**

- Infants:** (0-24 mo.):  
-25 breaths/min (bpm)
- Children:** (2-14 yrs):  
-20 bpm
- Adolescents:** (15-17 yrs):  
-10 bpm (same as adults)

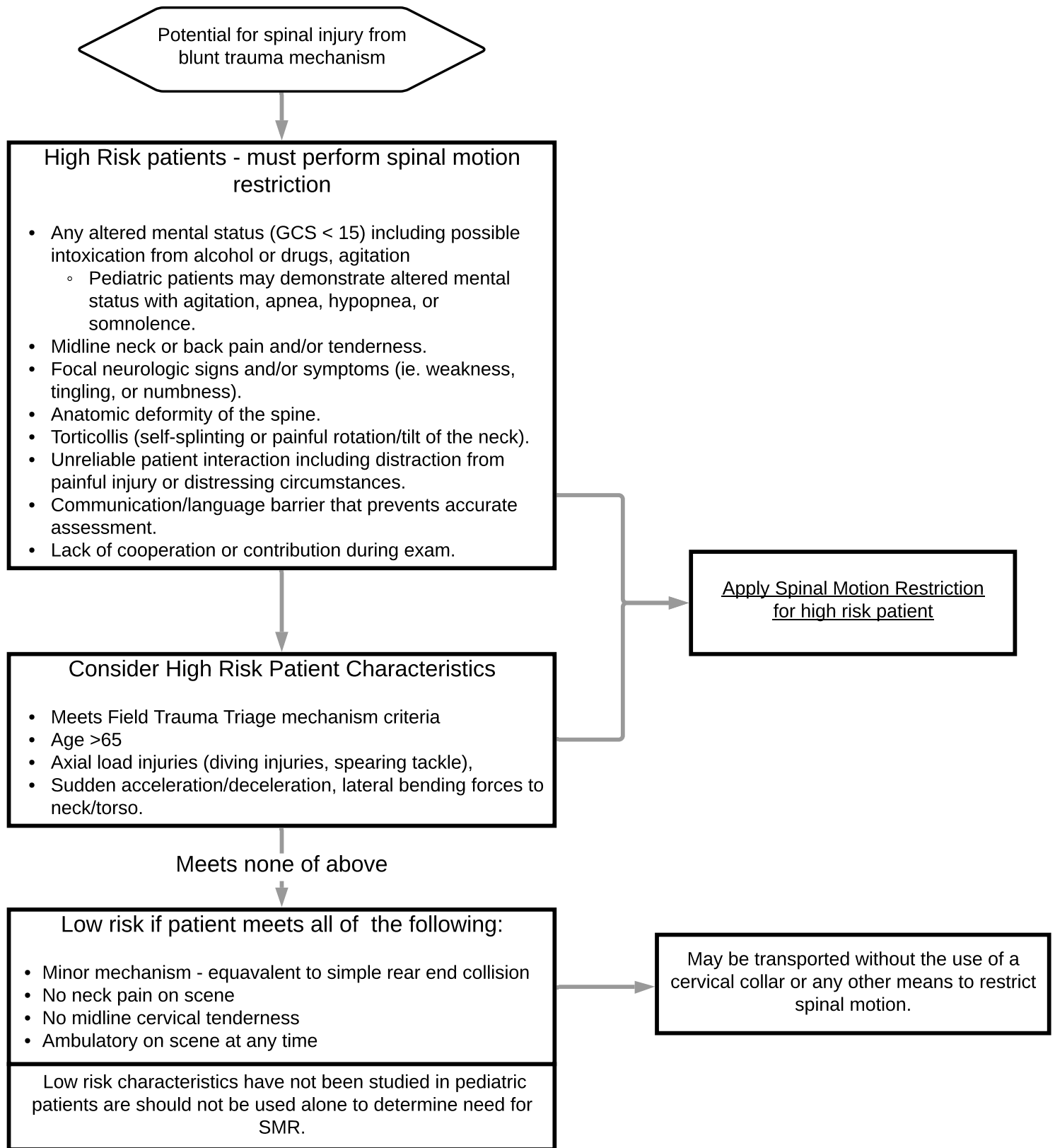
### \*\* **Identifying Hypotension in children**

- 0-9 yrs: 70 + (age x 2)
- ≥10 yrs: <90mmHg
- Rules of thumb:**  
Newborn: <70mmHg  
5 year old: <80mmHg  
10 and older: <90mmHg →  
(Same as adults)

**NOTE:** NO ONE (not even Respiratory Therapists) can manually ventilate at the proper rate without ventilatory adjuncts (EVERYONE inadvertently hyperventilates unless meticulously preventing it):

- Ventilation Rate timers
- Pressure-controlled bags
- ETCO<sub>2</sub> monitoring with someone watching the level continuously
- Mechanical ventilator with careful ETCO<sub>2</sub> monitoring

# Spinal Motion Restriction Procedure



## Education/Pearls

Spinal Motion Restriction (SMR) aims to reduce movement in a patient's spine, thereby preventing injury to a potentially unstable spine or injury to the spinal cord. SMR is defined as placement of a cervical collar and its accompanying stabilizing maneuvers. These include securing the patient FLAT to stretcher unless anatomy prevents, minimizing movement and transfers, and maintainin in-line spine stabilization during any necessary movement and transfers.

- SMR cannot be safely performed with a patient in a sitting position.
- Patients who meet any high-risk criteria require SMR but do NOT require the use of a long spine board.
  - SMR may be achieved by use of a scoop stretcher, vacuum splint, or ambulance stretcher with the patient safely secured.
  - LSB should be reserved for extrication. Effort should be mae to remove the patient form this form of rigid device as soon as possible.
  - These patients should not be transported in the sitting position.
- If elevation of the head is required, maintain alignment of the neck and torso while elevating the head. Consider Reverse Trendelenburg, if stretcher allows.

### Pediatrics:

- Low risk characteristics have not been studied in pediatric patients and should not be used alone to determine need for SMR.
- Children may require additional padding under the shoulders to avoid excessive cervical spine flexion with SMR.